Appendix A Work Plans, NYSDEC Work Plan Approval Letters, and Field Change Orders

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **FAX:** (518) 402-9679
Website: www.dec.state.ny.us

Pete Grannis
Commissioner

June 23, 2008

Ms. Tracey L. Bell
Project Manager
National Grid
Environmental Asset Management
One MetroTech Center
Brooklyn, NY 11201

Dear Ms. Bell:

Re: Williamsburgh Works Former MGP Site
Suffolk County, Site ID:224055
Remedial Investigation Work Plan (RIWP)

The New York State Department of Environmental Conservation (Department) and New York State Department of Health have completed the review of the preliminary draft RIWP (GEI, April 2008). The work plan is approved with the following modifications:

- The "step-out borings" placed along North 12th street are insufficient to characterize the known MGP tar impacts beneath the Bayside Fuel Depot parcel. Site Investigation reports prepared by Metcalf and Eddy/AECOM (M&E) on behalf of the New York City Department of Design and Construction (NYCDCC) already indicate the presence of MGP impacts beneath the Bayside Fuel Depot property and in East River sediments. Provisions for step out borings within the Bayside Fuel property should be made as part of this initial scope of work.

  The Department has reviewed the following reports and determined that the data is usable and should be considered during the remedial investigation and the remedial decision making process:

  - *Bayside Fuel Company 1- 65 North 12th Street Block 2277, Lot 1, Brooklyn, New York (*M &E, November 2006);
  - *Property West of Kent Avenue Between and Including North 10th and North 12th Streets Block 2287, Lot 1,16&30, Block 2294, Lot 1&5, Brooklyn, New York (*M&E, November 2006);
  - *9th Street Equities LLC, 86 Kent Avenue Between &Including North 9th and North 10th Streets Block 2301, Lots 1,50, 60 &70, Brooklyn, New York (*M&E, August 2006); and

- *Motiva Enterprises LLC/Bushwick Creek Inlet, Kent Avenue Between South Shoreline of Bushwick Creek and Quay Street Block 2590, Lot 25&100, Brooklyn, New York* (M&E, November 2006).

- A fact sheet should be issued to notify local residents within 0.25 radius of the site of any planned field work.

- Please provide a two week pre-notification to the Department for any planned field work.

Please provide acceptance of these comments prior to the start of any field work. Feel free to contact me directly at (518) 402-9662 should you have any comments or questions.

Sincerely,

Lisa A. Gorton

Lisa A. Gorton
Environmental Engineer
Remedial Action Bureau C
Division of Environmental Remediation

ec**:** G. Cross, NYSDEC
L. Gorton, NYSDEC
B. Callaghan, NYSDOH -BEEI
A. Prophete, National Grid
C. Willard, National Grid
D.Terry, GEI

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Pete Grannis
Commissioner

December 3, 2008

Mr. Donald Campbell
Project Manager
National Grid
Environmental Asset Management
One MetroTech Center
Brooklyn, NY 11201

Dear Mr. Campbell:

Re: Williamsburgh Works Former MGP Site
Suffolk County, Site ID:224055
Remedial Investigation Work Plan Addendum (GEI, November 19, 2008)

The New York State Department of Environmental Conservation (Department) and New York State Department of Health (NYSDOH) have completed the review of the referenced document . Based on our review, we have no comments at this time and find the work plan acceptable. Please provide an electronic copy to the Department and NYSDOH at your earliest convenience.

Feel free to contact me directly at (518) 402-9662 should you have any comments or questions.

Sincerely,

Lisa A. Gorton

Lisa A. Gorton
Environmental Engineer
Remedial Action Bureau C
Division of Environmental Remediation

ec: G. Cross, NYSDEC
L. Gorton, NYSDEC
B. Callaghan, NYSDOH -BEEI
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Pete Grannis
Commissioner

March 3, 2009

Mr. Donald Campbell
Project Manager
National Grid
Environmental Asset Management
One MetroTech Center
Brooklyn, NY 11201

Dear Mr. Campbell:

Re: Williamsburgh Works Former MGP Site
Suffolk County, Site ID:224055
Remedial Investigation Work Plan Addendum (GEI, February 12, 2009)

The New York State Department of Environmental Conservation (Department) and New York State Department of Health have completed the review of the referenced document . Based on our review, we have no comments at this time and find the work plan acceptable.

Feel free to contact me directly at (518) 402-9662 should you have any comments or questions.

Sincerely,

Lisa A. Gorton
Environmental Engineer
Remedial Action Bureau C
Division of Environmental Remediation

ec: G. Cross, NYSDEC
L. Gorton, NYSDEC
B. Callaghan, NYSDOH -BEEI
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Alexander B. Grannis
Commissioner

December 10, 2009

Mr. Donald Campbell
National Grid
Site Investigation and Remediation
287 Maspeth Ave.
Brooklyn, NY 11201

Re: Remedial Investigation Work Plan Addendum
Williamsburg Works Former MGP
Site# 224055

Dear Mr. Campbell:

The Remedial Investigation Work Plan Addendum for the Williamsburg Works Former MGP is approved with the following modifications:

1. The Work Plan makes no mention of the deep tar observation on the 35 Kent Ave property, where tar was observed at approximately 57 feet bgs. The proposed protocol for terminating borings could result in premature cessation of drilling which would miss this contamination and thus understate the full nature and extent of contamination. Consequently, all borings must be advanced to a depth of at least 100 feet bgs.

2. Two additional soil borings must be completed along cross section line A' A. Each of these borings should be positioned to align with the approximate center of one of the Gasometer footprints located southeast of line A'A. Appropriate procedures should be followed to prevent the creation of a vertical migration pathway for NAPL. In the event that large volumes of extremely mobile NAPL are encountered in these borings, the New York State Department of Environmental Conservation will discuss appropriate modifications to the boring locations with National Grid.

Sincerely,

Kathleen Sukacka for

Henry T. Willems
Engineering Geologist 1

ec: T. Bell, National Grid
C. Willard, National Grid
G. Cross, NYSDEC
R. Schick, NYSDEC

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Alexander B. Grannis
Commissioner

September 1, 2010

Mr. Donald Campbell
National Grid
Site Investigation and Remediation
287 Maspeth Ave.
Brooklyn, NY 11201

Re: Supplemental Remedial Investigation
Work Plan
Williamsburg Works Former MGP
Site No. 224055

Dear Mr. Campbell:

The New York State Department of Environmental Conservation (the Department) has reviewed the Supplemental Remedial Investigation Work Plan, dated August 25, 2010. The Work Plan is hereby approved with the following modification: One additional sediment core must be progressed approximately 50 feet to the northwest of existing sediment core WW-SED-07.

Please note that there is a strong likelihood that sediment coring in the Bushwick Inlet may be required to fully determine the nature and extent of contamination at the site. The Department recommends that National Grid consider extending the sediment coring aspect of the Supplemental Remedial Investigation into that area.

Sincerely,

Henry T. Willems
Engineering Geologist 1

ec: D. Campbell, National Grid
T. Bell, National Grid
C. Willard, National Grid
G. Cross, NYSDEC
R. Schick, NYSDEC

GEI Consultants

Geotechnical
Environmental and
Water Resources
Engineering

Remedial Investigation Work Plan

Williamsburg Works
Former Manufactured Gas Plant Site

Brooklyn, New York
AOC Index No. A2-0552-0606
Site #: 224055

Submitted to:
National Grid USA
1 MetroTech Center
Brooklyn, NY 11201

Submitted by:
GEI Consultants, Inc.
455 Winding Brook Drive
Glastonbury, CT 06033
860-368-5300

May 2008
080090-*-1002

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Abbreviations and Acronyms

ACGIH	American Conference of Government Industrial Hygienists
ACO	Administrative Order on Consent
ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
BUG	Brooklyn Union Gas Company
CAMP	Community Air-Monitoring Plan
CHSS	Corporate Health and Safety Specialist
cm	Centimeter
DER	Division of Environmental Remediation
DNAPL	Dense Non-Aqueous Phase Liquid
EDR	Environmental Data Resources
ELAP	New York State Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
FOIA	Freedom of Information Act
FSP	Field Sampling Plan
FWRIA	Fish and Wildlife Resources Impacts Analysis
GEI	GEI Consultants, Inc.
GPS	Global Positioning System
HASP	Health and Safety Plan
ID	Inner Diameter
IDW	Investigation derived waste
KeySpan	KeySpan Corporation
mcg/m3	Micrograms per cubic meter
MGP	Manufactured Gas Plant
MS/MSD	Matrix Spike/ Matrix Spike Duplicate
MTBE	Methyl tert-butyl ether
NAPL	Non-Aqueous Phase Liquid
NAVD	North American Vertical Datum
NGRID	National Grid USA
NGVD	National Geodetic Vertical Datum
NTU	Nephelometric Turbidity Units
NYSASP	New York State Analytical Services Protocols
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Health & Safety Administration
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
PID	Photoionization detector
PM-10	Respiable Particulates
ppm	Parts Per Million

PPE	Personal protective equipment
PRP	Potential responsible party
PVC	Polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QHHEA	Qualitative Human Health Exposure Assessment
Sanborn	Sanborn Fire Insurance Map
RI	Remedial Investigation
SSO	Site Safety Officer
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
USDOT	United States Department of Transportaion
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound

1. Introduction

On behalf of National Grid USA (NGRID), formerly KeySpan Corporation, GEI Consultants, Inc. (GEI) has prepared this Remedial Investigation (RI) Work Plan for the Williamsburg Works (Williamsburg) former Manufactured Gas Plant (MGP) site. The site consists of four parcels located along North 12th and North 11th Streets, Kent Avenue and the East River in the Williamsburg Neighborhood of Brooklyn, New York. Figure 1 shows the location of the Williamsburg former MGP site.

NGRID is conducting this RI because a predecessor company, the Brooklyn Union Gas Company (BUG), operated the former MGP to produce manufactured gas for use in the surrounding community from 1850 to the 1930s. The Williamsburg MGP was dismantled prior to 1941, and the site was subsequently subdivided, sold to third parties and redeveloped for industrial uses. Currently the site is developed with warehouses, a service garage/gas station, and an industrial-factory building.

In February 2007, KeySpan and the New York State Department of Environmental Conservation (NYSDEC) entered into an administrative order on consent (ACO) and administrative settlement #A2-0552-0606 to evaluate environmental conditions at a number of sites in New York City and on Long Island. The Williamsburg former MGP site was identified in Table 3 of the ACO; however, the site was not covered under the order. In August of 2007, KeySpan and the NYSDEC completed a modification to the ACO in administrative settlement #A2-0552-0606 which added the Williamsburg Works former MGP site to the order.

The scope of work described in this RI Work Plan is intended to collect sufficient data to evaluate the nature and extent of compounds within soils, soil vapor and groundwater that may be associated with the Williamsburg former MGP site.

The scope of work described in this work plan also benefited from a site visit conducted by NGRID and NYSDEC staff on April 29, 2008. The site visit revealed that access to the two parcels closest to the East River (Block 2287, Lots 16 and 30; currently occupied by Citistorage) was not possible and the building located at 50 North Kent Avenue (Block 2287, Lot 1) was scheduled for imminent demolition (Plate 1). Based on these findings, the NYSDEC and NGRID agreed that investigation within these structures would not be conducted at this time. At such time that access to the Citistorage-occupied building can be obtained, evaluation of potential soil vapor intrusion and/or evaluation of soil and groundwater conditions may be warranted. Following demolition of the building at 50 North Kent Avenue, evaluation of subsurface conditions at that parcel would also be warranted.

The objectives of the RI scope are as follows:

- Defining the location of holder foundations and any other subsurface MGP structures that remain at the site
- Identifying and defining the extent of coal tar contamination at the site
- Defining the potential for non-aqueous phase liquid (NAPL) migration into the East River
- Defining MGP-related impacts to groundwater
- Investigating the potential for soil vapor intrusion
- Assessing whether potential pathways exist through which people, flora, or fauna could be exposed to the contaminants

This work plan has been prepared in general accordance with the ACO, the NYSDEC *Draft DER-10 Technical Guidance for Site Characterization and Remedial Investigation,* dated December 25, 2002, and the New York State Department of Health (NYSDOH) *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York,* dated October 2006. As such, this work plan includes a brief site description, site history, and a proposed scope of work for the RI of the Williamsburg former MGP site. The RI scope of work includes the following tasks:

- Records Review
- Field Investigation Sampling, Analysis and Survey
- Quality Assurance / Quality Control (QA/QC) and Data Validation
- Step 1 Fish and Wildlife Resource Impact Analysis (FWRIA)
- Qualitative Human Health Exposure Assessment (QHHEA)
- RI Report Preparation

Detailed descriptions of each proposed work activity are provided in Section 5 of this work plan.

The RI appendices contain historical documents (Appendix A), environmental records information (Appendix B), a Community Air-Monitoring Plan (CAMP) (Appendix C), a Field Sampling Plan (FSP) (Appendix D), a Health and Safety Plan (HASP) (Appendix E) and a Quality Assurance Project Plan (QAPP) (Appendix F).

2. Site Background

2.1 Site Location and Description

The Williamsburg former MGP site was subdivided and sold to third parties in the years following decommissioning and is now comprised of four properties that encompass approximately 5.7 acres in the Williamsburg neighborhood of Brooklyn, New York. Three of the four parcels are contiguous and bordered by the East River, North 11th and North 12th Streets and Kent Avenue. A holder was located on the fourth parcel, which is located on the southeast side of Kent Avenue between North 11th and North 12th Streets. The site location is depicted on Figure 1. The addresses and parcel information for the properties of the Williamsburg former MGP site are listed below.

Williamsburg Former MGP Site

Address	Block	Lot
2 North 11th Street, Brooklyn, NY 11211	2287	30
20 North 12th Street, Brooklyn, NY 11211	2287	16
21 North 12th Street (50 Kent Avenue), Brooklyn, NY 11211	2287	1
35 Kent Avenue, Brooklyn, NY 11211	2288	1

The current site conditions are shown on Plate 1 and are discussed in Section 2.2.3.

2.2 Site History

The site history of the Williamsburg former MGP site and surrounding area was developed through the review of available Sanborn Fire Insurance (Sanborn) Maps and historical newspaper articles. A brief summary of the history of the Williamsburg former MGP site is provided below. The Sanborn Maps are included in Appendix A. A comprehensive illustration of historical features during the span of MGP operations is shown on Plate 1.

2.2.1 MGP History

The Williamsburgh Gas Light Company was incorporated in 1850 (Murphy, 1995) and is the first known operator of the Williamsburg MGP. The Williamsburg MGP is first shown on the 1887 Sanborn Map. The MGP gas production facilities were isolated to the 2 North 11th Street and 20 and 21 North 12th Street properties and consisted of coal gas production facilities including a retort house, an engine room, a meter house, and a condenser house. Gas storage and purification facilities included three gas holders, a governor house, a purifying house, two tar tanks, scrubbers and lime houses. These structures are shown on Plate 1.

In 1895, the Williamsburgh Gas Light Company and others merged to form the Brooklyn Union Gas Company (BUG), a predecessor to NGRID. The 1905 Sanborn Map indicates that the MGP was referred to as the BUG Williamsburg Branch and a gas holder is now shown at 35 Kent Avenue. Based upon the age of construction, the holder was likely a pit style holder with a sub-grade foundation.

According to the 1905 Sanborn Maps, the gas production facilities at 2 North 11th Street remained relatively unchanged with the exception of the addition of iron tanks and a pump house. One circular gas tank, a generator house, a condenser house, and exhauster houses were noted at 20 North 11th Street. Purifying houses were noted at 21 North 12th Street.

By 1916, the Williamsburg MGP appears to have converted to water gas production as evidenced by the addition of generators and conversion of the retort house to a generator house at 20 North 11th Street. Two additional oil tanks and a tar slop tank were noted at 2 North 11th Street. An additional gas holder was noted on the 35 Kent Avenue property (Plate 1).

The Williamsburg MGP ceased operation and the MGP structures dismantled prior to 1941, as evidenced by the vacant lots shown in the 1941 Sanborn Map.

2.2.2 Post-MGP History

Subsequent to dismantlement, the Williamsburg former MGP site was subdivided and redeveloped for commercial, industrial and manufacturing uses. A brief history of the post-MGP use was developed from available Sanborn Maps and is presented below by current parcel address and tax lot. All of these parcels are owned by third parties.

- 2 North 11th Street [Block 2287 Lot 30]: The property was used for oil truck parking from approximately 1978 until 1982. The current warehouse building was constructed in 1985 and used for lumber storage from 1988 until 1995 according to Sanborn Maps.

- 20 North 12th Street [Block 2287 Lot 16]: In 1965 a repair shop, office and scrap metal storage were on the property. By 1978, the property and buildings were vacant except for the office. In 1983, the buildings had been demolished and the property was used for parking. The current warehouse building was constructed in 1985 and used for lumber storage from 1988 until 1995 according to Sanborn Maps.

- 21 North 12th Street (50 Kent Avenue) [Block 2287 Lot 1]: A warehouse/industrial building was constructed by 1951 and was occupied by the Ferro-Co. Corp. for sheet metal product manufacturing. By 1965, the building was occupied by Commercial Corrugated Container Corp. By 1978, the property was occupied by a New York City sanitation garage, which currently occupies the site according to Sanborn Map information.

- 35 Kent Avenue [Block 2288 Lot 1]: According to Sanborn Maps, the property was developed as a garage in 1949 and utilized a gasoline storage tank as part of the operations. Colonial Tempered Glass currently operates the garage.

2.2.3 Current Site Conditions

The current site conditions and the surrounding area are shown on the aerial photograph in Plate 1. As discussed above in the site history, the site was subdivided into four parcels following dismantlement of the MGP. As shown in the aerial photograph, the majority of the Williamsburg former MGP site is either paved or developed with buildings. The current site conditions of each parcel are summarized below.

Williamsburg Former MGP

Address	Current Owner	Block	Lot	Land Use Description
2 North 11th Street Brooklyn, NY 11211	10th Street, LLC.	2287	30	Warehouse
20 North 12th Street Brooklyn, NY 11211	10th Street, LLC.	2287	16	Warehouse
21 North 12th Street (50 Kent Avenue) Brooklyn, NY 11211	Fifty Kent Avenue Associates	2287	1	Garage/Gas Station
35 Kent Avenue Brooklyn, NY 11211	Fourth Avenue Associates	2288	1	Industrial-Factory Building

The Williamsburg former MGP site and surrounding area are zoned for manufacturing (M3-1); as a result, the site is surrounded by commercial and manufacturing businesses. The Williamsburg former MGP site is bordered by the East River to the northwest, North 12th Street and a Bayside Oil terminal to the northeast, and by North 11th Street and warehouses to the southeast and southwest. Kent Avenue bisects the Williamsburg former MGP.

The Williamsburg former MGP site is developed with buildings that are secured with locked entrances or brick walls with gates.

3. Summary of Records Search

GEI completed a search of environmental records for the Williamsburg former MGP site as part of the preparation of the RI Work Plan. The purpose of this review was to determine:

- Environmental data and information currently available for the site
- History and description of the site including nature of operations
- Types, quantities, physical states, locations, methods and dates of hazardous waste disposal at the site
- Identity of other potential responsible parties (PRPs) for releases of hazardous waste at the site

3.1 Records Search

The record search report for the Williamsburg former MGP site included the review or evaluation of the following:

- For potential releases on site, GEI reviewed the NYSDEC's on-line Spills Incidents Database Search and the Environmental Remediation Database Search http://www.dec.ny.gov/chemical/8437.html

- For environmental data, potential hazardous waste storage, and PRPs, GEI relied upon information from Environmental Data Resources (EDR), a commercially available environmental database, searches dated May 11, 2004 and January 15, 2008, and available Sanborn Maps dated 1887 through 1996. EDR environmental database searches and Sanborn Maps are attached in Appendices A and B.

The site history, current site conditions and site security are discussed above within Section 2.2.

A Freedom of Information Act (FOIA) request letter was submitted to the NYSDEC to obtain information for the subject property and abutting properties with environmental records. NYSDEC provided correspondence and spill report information pertaining to the adjacent Bayside Fuel Oil Depot (Site V00587) in response to the FOIA request. No information pertaining to the Williamsburg Former MGP was provided in response to the FOIA request. This Bayside information will be evaluated and incorporated into the site conceptual model as the RI Work Plan for the former MGP is implemented. Relevant data and findings from the FOIA request information will be incorporated into the RI Report for the former MGP.

3.2 Environmental Records Information Summary

A search of the NYSDEC spill incidents and environmental site remediation databases was conducted by GEI on February 4, 2007. The following environmental records were encountered for the site when GEI accessed the databases.

3.2.1 NYSDEC Environmental Site Remediation Database Search

The NYSDEC website contained a record for the adjacent former Bayside Fuel Oil Depot located to the north of the site. No record was found for the Williamsburg Works MGP.

The Bayside Fuel Oil Depot (Site V00587) is located at 1-65 North 12th Street to the north of the site. The Bayside site is listed as a Class A site within the State Voluntary Cleanup Program (VCP), which indicates that a remedial program is underway but not yet currently complete. There is an existing oil spill stipulation (Spill No. 9804544) that has resulted in ongoing recovery of free-product and contaminated groundwater. A Phase II assessment was completed in 2003, and a FOIA request has been submitted to the NYSDEC for the Phase II report. Fuel oil contamination and MGP impacts have been reported at the Bayside site. Impacts, allegedly from the MGP, were observed from 20 feet below ground surface (bgs) to the top of clay encountered at 60 feet bgs. Concentrations of volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), methyl tert-butyl ether (MTBE) and lead exceeded applicable soil cleanup objectives and groundwater standards. The RI phase is reportedly on-going.

3.2.2 NYSDEC Spill Incident Database Search

Multiple spill indents were encountered for the Williamsburg former MGP site at 50 Kent Avenue (a/k/a 21 North 12th Street). The spill incidents indicate that diesel was spilled at the site multiple times due to equipment failure and housekeeping. Quarterly Monitoring Reports indicate persistently high levels of soil and groundwater contamination potentially due to MGP impacts. Multiple spill reports remain open for this property. No other spill incident records were found during the GEI search for the parcels comprising the Williamsburg former MGP site.

Multiple spill incidents were encountered for streets and properties adjacent to and within one block of the Williamsburg former MGP site, including multiple spills at the Bayside Fuel Oil Depot which is located to the north of the site across North 12th Street. Three of the spill reports for the Bayside Fuel Oil Depot report alleged MGP impacts.

3.2.3 Commercial Environmental Records Review

A number of current/historic activities of potential environmental concern were identified on site and at adjacent and nearby properties, based on the EDR database search report and on Sanborn Maps. A summary of findings is presented in Table 1 and illustrated on Figure 2.

3.3 Possible Subsurface Structures

A review of Sanborn Maps revealed that a number of historic subsurface structures may be potentially located within the footprint of the Williamsburg former MGP site. Sanborn Maps depict the following possible subsurface structures were present during the operation of the MGP:

- Seven circular tar/oil tanks were located at 2 North 11th Street
- One gas tank was located at 20 North 12th Street
- Three gasholders were located at 21 North 12th Street
- Two gas holders were located at 35 Kent Avenue

The locations of these former MGP structures are shown on Plate 1.

A review of Sanborn Maps and the EDR environmental records report document post-MGP subsurface structures within the footprint of the former MGP. EDR environmental database searches and Sanborn Maps are attached in Appendices A and B. The structures are summarized below by property:

2 North 11th Street [Block 2287 Lot 30]

- One gasoline tank is shown on the 1965 Sanborn Map.

20 North 12th Street [Block 2287 Lot 16]

- Subsurface structures were not shown on the Sanborn Maps or indicated by the EDR report.

21 North 12th Street (50 Kent Avenue) [Block 2287 Lot 1]

- EDR indicates two, 2,000-gallon diesel underground storage tanks (USTs) were closed and removed in 1997 and one, 2,000-gasoline UST was closed in place in 1995.

35 Kent Avenue [Block 2288 Lot 1]

- One gasoline tank is shown on the 1951 Sanborn Map.

4. Local Environment

The following section provides a brief summary of the local environmental setting of the Williamsburg former MGP site and vicinity.

4.1 Surficial Geology

The Williamsburg former MGP site is underlain by artificial fill and glacial deposits (outwash sands and glacial till) according to published information. According to the 1989 *Surficial Geologic Map of New York, Lower Hudson Street* (Cadwell, 1989), the glacial till beneath the site is of variable texture (i.e., clay, silt-clay, boulder-clay) and typically poorly sorted, with variable clast contents that are well rounded and of varying lithologies. The glacial till deposits are stated to be approximately 100 feet thick in the vicinity of the site. Crystalline bedrock underlies the till, the contact of which is located at approximately elevation -100 feet (National Geodetic Vertical Datum [NGVD]) 1929 according to Buxton et. al. (1981).

4.2 Hydrogeology

The hydrogeology beneath the Williamsburg former MGP site is discussed in terms of the available groundwater data and the nearest water body, the East River. Based upon the surrounding topography, the anticipated depth to groundwater is approximately 10 feet bgs and the anticipated groundwater flow direction is northwest, towards the East River.

The East River is located at the northwestern boundary of the Williamsburg former MGP site. The East River is a saline Class I water body. The best use for saline Class I water bodies is for fishing and boating.

5. Scope of Work

The RI scope of work addresses field investigation tasks that will evaluate the nature and extent of soil and groundwater impacts related to the operation of the Williamsburg former MGP site. The type, number and depth of samples were developed based on a preliminary review of historic sources of information such as historic topographic maps and Sanborn Maps. Accordingly, the proposed sampling program includes sampling of soils, soil vapor and groundwater.

The RI scope of work includes the following tasks:

- Pre-Investigation Tasks
- Field Investigation Sampling and Analysis
- Sample Location Survey
- QA/QC and Data Validation
- Qualitative Human Health Exposure Assessment
- Step I Fish and Wildlife Resources Impact Analysis
- RI Report Preparation

A description of each proposed work activity is provided separately below, with the exception of the RI Report. Preparation of the RI Report is addressed in Section 6.

5.1 Pre-Investigation Tasks

Upon receipt of authorization from NGRID, and the necessary access agreements, the consultant will mobilize to the site to implement the sampling program. The initial field mobilization will include the following items to be completed prior to the commencement of the field RI activities:

- Establish a temporary decontamination area
- Establish a temporary waste storage area and make arrangements with NGRID for the removal of investigation-derived wastes (IDW)
- Identify underground utilities

5.1.1 Site Access

NGRID and its consultant/contractors will need site access granted by private property owners to complete the proposed RI scope of work. NGRID will negotiate access with the private property owners. If access to any site parcels can not be obtained, NGRID will work with the NYSDEC to gain access to complete the RI activities.

5.2 Field Investigation Sampling and Analysis

This section of the RI Work Plan describes the proposed surface soil, test pit, soil boring, groundwater monitoring well and soil vapor point installation, sampling and analysis activities. Table 2 presents the general rationale and proposed sampling and analysis for each of the RI sampling locations and media, and Plate 1 depicts all proposed sampling locations. In addition, procedures for ancillary tasks such as utility clearance, hydraulic conductivity testing, well development, air monitoring, and waste containerization and characterization are discussed in this section as well.

Sampling procedures and methods are detailed within the FSP in Appendix D. The proposed analyses, analytical methods, and QA/QC samples are discussed under each of the following subsections for surface soil, test pit, soil boring, monitoring well, sediment, soil vapor, and ambient air sampling procedures. Laboratory data deliverables and data validation procedures are discussed below in Section 5.5, and QA/QC procedures are detailed within the QAPP in Appendix F.

5.2.1 Utility Clearance

The general location of the proposed RI sample locations were identified during a preliminary site visit. Each actual proposed boring and subsurface investigation location will be marked with white paint by the consultant. The drilling subcontractor will provide the boring locations to the utility clearance organization (New York City and Long Island One Call) to identify potential utility conflicts at the site and within the street right of ways adjacent to the site. Prior to installation, each proposed RI sample location will also be cleared by a private utility mark-out company. A request will be submitted to the private property owner for on-site utility plans prior to completing intrusive activities.

Each test pit, soil boring, soil vapor point and monitoring well location will first be cleared utilizing manual or vacuum extraction methods to a depth of 5 feet bgs, or 1 foot below the estimated depth of any adjacent known utility.

5.2.2 Surface Soil Sample Collection

Nine surface soil samples (WW-SS-01 through WW-SS-09) will be collected from unpaved areas where surface soils are exposed around the exterior of the buildings, adjacent to the footprint of the Williamsburg former MGP. The sample locations are shown on Plate 1. Sample descriptions, rational and analysis are shown in Table 2.

Stainless-steel sampling implements (including spoons or trowels) and stainless steel bowls will be used to collect each surface soil sample from the upper 2 inches beneath any turf, vegetative or gravel layers. The exposed soil will be screened for VOCs using a photoionization detector

(PID). A discrete VOC soil sample will be collected from the area of the highest PID reading. Each surface soil sample will be sampled for VOCs by the United States Environmental Protection Agency (EPA) SW-846 Method 8260B, semivolatile organic compounds (SVOCs) by EPA Method 8270C; Target Analyte List (TAL) metals by EPA Method 6000/ 7000 series; herbicides by EPA Method 8151A; polychlorinated biphenyls (PCBs) by EPA Method 8082; pesticides by EPA Method 8081A; and free cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion American Society for Testing and Materials (ASTM) Method D4282-02]. No compositing or mixing of the VOC sample aliquot will occur. Sample aliquots for analysis of SVOCs, metals, herbicides, PCBs, pesticides and free cyanide will be homogenized in a stainless steel bowl using a stainless steel spoon prior to being placed in laboratory-provided sample containers.

Each sampling implement will be decontaminated in accordance with decontamination procedures described in the FSP (Appendix D). QA/QC samples will include blind duplicate soil samples, MS/MSD samples, and equipment rinsate blank samples. The quality control samples will be completed at a frequency of 1/20 or once per week of sampling. An approved NYSDOH Environmental Laboratory Approval Program (ELAP) laboratory will perform the analyses. One trip blank will be included per shipment of soil samples to the laboratory.

5.2.3 Test Pit Excavation and Sample Collection

A total of six test pits (WW-TP-01 through WW-TP-06) are proposed to be excavated at the Williamsburg former MGP site. The proposed test pit excavation locations are shown on Plate 1, and the descriptions, rationale, and analysis are presented in Table 2. The test pits are proposed to assess the configuration and contents of former MGP structures which may be present in the site subsurface.

Each test pit will be photographed and logged by the field representative during the intrusive utility clearance (Section 5.1.2) and excavation. All material removed from the test pit will be placed on polyethylene sheeting. Odor-suppressing foam and/or other appropriate means to mitigate odor (e.g. plastic sheeting) will be provided by the consultant/contractor to control odor emissions that may result from excavating potentially impacted soils. Test pits will be terminated at the approximate groundwater table or practical extent of the equipment which is approximately 15 feet bgs. Field screening of soils for total organic vapors will be conducted with a PID from the ground surface to the entire depth of the excavation. A minimum of one soil sample will be selected for analysis per each test pit. Samples will be selected from the area exhibiting the most prominent signs of apparent contamination. If no impacts or structures are observed a sample will be collected from the bottom of the test pit. Each sample will be analyzed for VOCs by EPA Method 8260B; SVOCs by EPA Method 8270C; TAL metals by EPA Method 6000/7000 series; herbicides by EPA Method 8151A; PCBs by EPA Method 8082; pesticides by EPA Method 8081A, and free cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion ASTM Method D4282-02].

After the completion of each test pit, the test pit will be backfilled in reverse sequence in which it was excavated, so that materials removed from the bottom of the test pit are placed back at the bottom and materials removed from the top of the test pit are placed back at the top. The test pits will be backfilled in lifts and compacted. Excess soils will be containerized in a lined roll-off which will be characterized by the consultant and disposed of by NGRID. If test pits are excavated in paved areas, the pavement will be restored following completion of RI activities.

QA/QC samples will include blind duplicate soil samples, MS/MSD samples, and equipment rinsate blank samples. The quality control samples will be completed at a frequency of 1/20 or once per week of sampling. A laboratory certified in the NYSDOH ELAP will perform the analyses. One trip blank will be included per shipment of soil samples to the laboratory.

5.2.4 Soil Boring Advancement and Sample Collection

A total of thirty-two (32) soil borings are proposed at the Williamsburg former MGP site. One soil boring (WW-SB-12) and one boring intended to be completed as a monitoring well (WW-MW-09) cannot be installed at this time due to access restrictions to the properties occupied by Citistorage (20 North 12th St and 2 North 11th St). If access can be obtained in the future, these proposed borings could be completed as originally intended. The proposed soil boring and monitoring well locations are shown on Plate 1. Table 2 provides sample description, rationale, and analysis. Each soil boring location will first be cleared utilizing manual methods or vacuum extraction methods to a depth of 5 feet bgs, or 1 foot below the estimated depth of any nearby known utility. NYSDEC requested that this RI Work Plan incorporate contingency "step out" soil boring locations at 20 ft intervals. Plate 1 includes potential step out locations depicted by red hatch marks moving radially away from the proposed borings at the periphery of the former MGP footprint. If MGP impacted materials are encountered in a borehole, then the consultant will clear utilities at the proposed step out location and dynamically delineate the lateral extent of apparent MGP impacts. Potential step out locations are not depicted where fixed structures are present.

Soil samples will be collected and logged continuously from each boring location. It is anticipated that drilling will proceed approximately 10 feet into soils that appear to be un-impacted according to visual and PID assessment in the field. If no impacts are observed at a particular on-site boring location, the boring will terminate at the top of the clay layer, which is anticipated at approximately 60 feet bgs. Any deep drilling through impacted zones will ensure that there is no vertical communication of DNAPL caused by the drilling. Specifically, the upper potentially-impacted units would be cased and sealed into a lower, more confining unit. Drilling methods and procedures will be consistent with the FSP included as Appendix D.

Drilling equipment (i.e., drilling rods, auger, casing, and/or macro-core sampler) will be decontaminated between each sample location. Soil cuttings and decontamination fluids will be

collected in 55-gallon United States Department of Transportation (USDOT) drums, lined roll-off or frac tank and will be disposed of by NGRID following characterization.

Up to three soil samples per boring will be selected for chemical analysis. The first soil sample will be collected from the depth interval indicating the greatest apparent degree of contamination, from beneath the pavement and road base to approximately 5 feet bgs during utility clearance activities, to evaluate shallow subsurface soil conditions for determination of potential exposure pathways at the site. A sample will also be collected during boring advancement at the depth interval indicating the greatest degree of impacts to evaluate the magnitude of the observed impacts at each boring. The greatest degree of contamination will be identified by field screening of the borings with a PID, and by visual and olfactory observations. If soils within a particular boring appear un-impacted then a sample will be collected from the observed groundwater table. A sample will be collected beneath MGP impacts, if present, at the completion of the boring.

Each sample will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270C, TAL metals by EPA Method 6000/7000 series, and free cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion ASTM Method D4282-02]. One sample from within the fill in each soil boring will be analyzed for herbicides by EPA Method 8151A, PCBs by EPA Method 8082 and pesticides by EPA Method 8081A. Environmental forensic analysis of PAHs may be used to evaluate co-mingled or non-MGP related impacts.

Geotechnical parameters will also be evaluated during the RI. Three samples of the clay layer will be analyzed for permeability and Atterberg limits. The fill and glacial outwash layers will also be analyzed for grain size by ASTM method D421/422, moisture content by ASTM method D-2216, and total organic carbon by ASTM method D2974 at 10 to 20 representative sample locations.

Following the collection of subsurface soil samples, each subsurface soil boring not completed as a well (Section 5.3.4) will be abandoned by tremmie grouting the boring from the bottom of the boring to the top in accordance with the FSP (Appendix D).

Each sampling implement will be decontaminated in accordance with decontamination procedures described in the FSP. QA/QC procedures are detailed within the QAPP located in Appendix F. QA/QC samples will include blind duplicate soil samples, MS/MSD samples, and equipment rinsate blank samples. The quality control samples will be completed at a frequency of 1/20. An approved NYSDOH ELAP registered laboratory will perform the analyses. One trip blank will be included per shipment of samples to the laboratory.

5.2.5 Monitoring Well Installation

Fifteen (15) of the proposed soil borings (WW-MW-01 through WW-MW-08 and WW-MW-10 through WW-MW-16) will be completed as permanent monitoring wells. As noted in Section 5.2.4, proposed monitoring well WW-MW-09 cannot be completed at this time due to access restrictions at 20 North 12th Street. Soils at each of the monitoring well locations will be continuously logged as described in Section 5.2.4. Temporary groundwater points will be installed and sampled at three locations (WW-SB-03, WW-SB-05 and WW-SB-07). The locations of the borings and the proposed analysis are shown on Plate 1 and Table 2, respectively. The permanent monitoring wells are proposed to evaluate the groundwater conditions at and immediately adjacent to the Williamsburg former MGP. Two of these monitoring wells will be placed downgradient of the Site, adjacent to the East River. Temporary groundwater points are proposed to evaluate the conditions immediately within the footprint of former MGP structures. Each monitoring well/ point will be installed in general accordance with procedures described below and within the FSP (Appendix D).

Each proposed monitoring well will be screened in the uppermost portion of the water table aquifer. Each well screen will extend approximately two feet above the water table. If DNAPL is encountered in the soil boring, the well screen bottom will be installed on top of any observed confining layer that may be retarding the migration of DNAPL. The screen lengths will not exceed 10 feet. Based upon the vertical extent of DNAPL tar, deep groundwater monitoring wells may be considered. The installation method selected for the deep wells will depend on the depth of contamination, the number of anticipated deep wells, and on the physical drilling conditions.

The monitoring wells will be constructed of 2-inch inside diameter (ID), flush-threaded polyvinyl chloride (PVC) screen and solid casing with a 2-foot sump. The annular space between the well screen and borehole wall will be backfilled with chemically inert sand to promote sufficient groundwater flow to the well and to minimize the passage of any fine-grained formational material into the well. A bentonite clay seal will be placed above the sand pack. The remaining annular space will be filled to grade with cement/bentonite grout. Each monitoring well will be fitted with a lockable cap and finished with a flush-mounted curb box secured with cement.

Temporary points will be constructed of a PVC screen and riser or collected through a stainless steel groundwater sampler. Each temporary groundwater point will be abandoned by tremmie grouting the boring from the bottom of the boring to the top in accordance with the FSP (Appendix D).

Soil cuttings and decontamination fluids generated during the installation of monitoring wells will be collected in 55-gallon USDOT drums, lined roll-off or frac tank and will be disposed of by NGRID subsequent to characterization.

5.2.6 Well Development

Each newly installed monitoring well will be developed by alternatively surging and pumping until the turbidity is less than 50 nephelometric turbidity units (NTUs) or until a maximum of 10 well volumes of water have been removed. A field turbidity meter will be used to monitor the NTU levels. Well development will be completed in general accordance with the FSP in Appendix D. Purged groundwater will be containerized in 55-gallon USDOT drums or frac tank and will be disposed of by NGRID at an approved facility.

5.2.7 Groundwater Sample Collection

The fifteen (15) proposed RI monitoring wells will be gauged and sampled. Each of the newly installed monitoring wells will be sampled after a minimum of two weeks following completion of well development. Prior to sampling, two synoptic rounds of groundwater level measurements will be recorded for the monitoring wells and an established surface water measuring point in the East River; the groundwater will be gauged at both the low tide and high tidal levels.

Monitoring wells will be purged and sampled utilizing low flow groundwater sampling procedures and in accordance with the FSP (Appendix D). Each groundwater sample will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270C, TAL metals by EPA Method 6000/7000 series, herbicides by EPA Method 8151A, pesticides by EPA Method 8081A, PCBs by EPA Method 8082and cyanide by EPA Method 9012.

If DNAPL accumulation is present in any well, then no groundwater sample will be collected for laboratory analysis. If DNAPL is found to accumulate in a well, then the DNAPL will be bailed or pumped from the well and the volume of bailed DNAPL tar will be recorded. The DNAPL recovered from each well will be examined and described by the consultant's field representative. All DNAPL removed from a well will be containerized for disposal. The recovery rate of the DNAPL will be assessed through periodic measurements of DNAPL levels with an oil/water interface probe. DNAPL levels in each monitoring well will be measured and recorded with the time of the measurement after the DNAPL tar has been removed. If present a sample of the accumulated tar may be analyzed for disposal characteristics.

QA/QC procedures are detailed within the QAPP located in Appendix F. QA/QC samples will include blind duplicate soil samples, MS/MSD samples, and equipment rinsate blank samples. The quality control samples will be completed on a frequency of 1/20. An approved ELAP laboratory will perform the analyses. One trip blank will be included per shipment of samples to the laboratory.

5.2.8 Hydraulic Conductivity Testing

In-situ hydraulic conductivity tests (slug tests) will be completed at three (3) selected monitoring wells. The location of the slug tests will be determined after evaluation of the site lithology.

5.2.9 Sediment Sample Collection

A total of seven (7) sediment core locations (WW-SED-01 through WW-SED-07) are proposed for installation in the East River adjacent to the Williamsburg former MGP site. The proposed sediment core locations are shown on Plate 1. Table 2 provides sample description, rationale, and analysis.

Sediment core samples will be collected from a barge using an electric or pneumatically driven vibracore. The sediment cores will be collected in general accordance with the standard operating procedure for sediment sampling using vibratory equipment. The barge will be equipped with oil absorbent boom and other spill control materials in the event that any oily residue is generated during the sampling process.

Sediment cores will be advanced to a depth of 20 feet below the sediment water interface or to vibracore refusal. Sediment samples will be collected and logged continuously from each core location. Sediment sampling methods and procedures will be consistent with the FSP in Appendix D. Core locations will be surveyed using Global Positioning System (GPS) equipment and referenced to New York State Plane Coordinate System and North American Vertical Datum (NAVD).

Up to three sediment samples per core location will be selected for chemical analysis. The first sediment sample will be collected from 0 to 6 inches to evaluate the bioactive zone. A sample will also be collected at the depth interval indicating the greatest degree of impacts to evaluate the magnitude of the observed impacts at each sediment core location. The greatest degree of contamination will be identified by field screening of the cores with a PID, and by visual and olfactory observations. If no impacts are observed, analytical samples will be collected from the sediments at the interface of the sediment deposits and the native material. A sample will also be collected beneath the DNAPL impacts, if present, or at the completion of the coring run.

Each sample will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270C, TAL metals by EPA Method 6000/7000 series, and free cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion ASTM Method D4282-02], herbicides by EPA Method 8151A, PCBs by EPA Method 8082 and pesticides by EPA Method 8081A. Environmental forensic analysis of PAHs may be used to evaluate co-mingled or non-MGP related impacts.

Each sampling implement will be decontaminated in accordance with decontamination procedures described in the FSP in Appendix D. QA/QC procedures are detailed within the QAPP located in Appendix F. QA/QC samples will include blind duplicate sediment samples, MS/MSD samples, and equipment rinsate blank samples. The quality control samples will be completed at a frequency of 1/20. An approved NYSDOH ELAP registered laboratory will perform the analyses. One trip blank will be included per shipment of samples to the laboratory.

5.2.10 Soil Vapor Sample Collection

Soil vapor sampling is proposed for the building located at 35 Kent Avenue. Two (2) soil vapor samples (WW-SV-01, WW-SV-02) are proposed for collection to assess the soil vapor conditions beneath this building. Soil vapor sampling cannot be conducted at this time at the buildings occupied by Citistorage on 2 North 11th Street and 20 North 12th Street because of access restrictions. In addition the structure occupying 50 Kent Avenue is slated for demolition; therefore, soil vapor sampling will not be conducted at this time either.

Each soil vapor point will be installed and samples will be collected in general accordance with the New York State Department of Health's *"Guidance for Evaluating Soil Vapor Intrusion in the State of New York"* and National Grid's *"Draft Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State."*

Soil vapor points installed within building interiors will be installed and completed as permanent sub-slab soil vapor points. Sub-slab soil vapor points will be installed by drilling a hole through the concrete floor slab and then fitting the point with Teflon or stainless steel tubing secured with stainless steel fittings and cap. Each sub-slab soil sample port will be sealed with non-shrinking grout or beeswax and completed with flush-mount manhole covers.

Temporary soil vapor sample points installed outside of buildings will be advanced approximately 5 feet bgs, or 1 foot above the water table. Temporary points will be constructed utilizing a stainless steel screen that is fitted to Teflon or stainless steel tubing secured with stainless steel fittings and caps to the ground surface. The annular space around the screen will be backfilled with inert silica to a minimum of 6 inches above the screen. A bentonite seal will be placed above the sand and the reminder of the annulus will be filled with soil cuttings. The sampling port will be sealed with a 2-inch layer of bentonite paste at the surface.

To ensure that the sampling tube is sealed from the ambient air aboveground, the consultant will utilize helium as a tracer gas as described in the NYSDOH Soil Vapor Intrusion Guidance document. Each sample will be collected utilizing a SUMMA® canister with a laboratory-calibrated flow controller that will not exceed 0.2 liters/minute. Each SUMMA® canister will be shipped to an approved-NYSDOH ELAP registered laboratory for analysis. The sample will be analyzed for VOCs and naphthalene by the EPA Method TO-15 (including naphthalene). The

soil vapor sampling will target the winter heating season between November 15 and March 30 in accordance with NYSDOH Soil Vapor Guidance.

QA/QC procedures are detailed within the QAPP located in Appendix F. QA/QC samples will include one blind duplicate sample collected during each sampling event. An approved NYSDOH ELAP registered laboratory will perform the analyses.

5.2.11 Indoor and Outdoor Air Sample Collection

Two (2) indoor air samples (WW-IA-01, WW-IA-02) and one (1) outdoor ambient air samples (WW-OA-01) are proposed to be collected as part of the Williamsburg RI. The ambient air samples will be used to assess the potential for soil vapor intrusion into the building at 35 Kent Avenue. Soil vapor intrusion assessment at 2 North 11th Street and 20 North 12th Street cannot be conducted at this time due to access restrictions and the building occupying 50 Kent Avenue is slated to be demolished; therefore soil vapor intrusion assessment will not be conducted there either. The proposed locations are shown in Plate 1 and the rationale and analysis are provided in Table 2.

The proposed air samples will be collected from the approximate breathing height (approximately 3 to 5 feet above ground). Each indoor air and outdoor air samples will be collected utilizing an individually certified 6-Liter SUMMA® canister with a laboratory-supplied flow controller that is calibrated to an 8-hour period. The regulator flow rate will not exceed 0.2 liters per minute. Each SUMMA® canister will be shipped to an approved-NYSDOH ELAP registered laboratory for analysis. The samples will be analyzed for VOCs and naphthalene by the modified EPA Method TO-15.

QA/QC procedures are detailed within the QAPP located in Appendix F. QA/QC samples will include one blind duplicate air sample (indoor or outdoor air sample) collected during each sampling event. The ambient air sampling will target the winter heating season between November 15 and March 30 in accordance with NYSDOH Soil Vapor Guidance.

Property information will also be collected in general accordance with the NYSDOH Center of Environmental Health's Indoor Air Quality Questionnaire and Building Form that is provided as Appendix B of the New York State Department of Health's *"Guidance for Evaluating Soil Vapor Intrusion in the State of New York"* and NGRID's *"Draft Standard Operating Procedure-Soil Vapor Intrusion for MGP Sites in New York,"* which is located in the FSP in Appendix D.

5.2.12 Air Monitoring Implementation

A Community Air-Monitoring Plan (CAMP) will be implemented at the site during intrusive field activities. The CAMP will meet the requirements of the NYSDOH's Generic CAMP contained in Appendix 1 of NYSDEC's *Draft DER-10 Technical Guidance For Site*

Investigation and Remediation, dated December 25, 2002. Air quality will be monitored upwind and downwind of each intrusive work area (i.e., boring, monitoring well and test pit locations). VOCs and respirable particulates (PM-10) will be monitored upwind and downwind on a continuous basis. Wind direction will be determined using a wind sock(s) and/or flagging poles installed on site.

Total volatile organic vapors will be monitored using a PID. Particulate dust will be monitored using a DataRAM particulate meter or equivalent. The equipment will be calibrated at least daily or in accordance with manufacturers' recommendations. The proposed CAMP is presented in Appendix C of this work plan.

5.2.13 Decontamination and Investigation-Derived Wastes

Drilling equipment will be decontaminated at the established decontamination pad between each sample location in accordance with the FSP in Appendix D. Sampling equipment used for sample collection (e.g., stainless steel split spoons, sample spoons, and hand trowels) will be decontaminated prior to use and reuse or disposable sampling equipment will be used.

Soil cuttings and wastewaters produced during decontamination will be collected and contained within 55-gallon USDOT drums, roll-off or frac tank. NGRID will arrange for the disposal of the investigation-derived wastes after they have been characterized at the completion of the field program.

5.2.14 Waste Characterization Sample Collection

As stated above, NGRID will arrange for the disposal of the investigation-derived wastes at the completion of the RI field program.

A waste profile sample of soil and fluid investigation-derived wastes will be collected to characterize the wastes to determine the appropriate disposal options available. Samples will be collected into laboratory-preserved bottles, chilled with ice and submitted to the laboratory under chain of custody as described in the FSP and QAPP. Each disposal sample media will be sampled for parameters to meet the requirements of the approved disposal facilities. A list of potential disposal parameters is provided in the QAPP.

5.3 Survey

Each of the completed RI sample locations including test pits, soil borings, temporary groundwater points, monitoring wells and soil vapor locations will be surveyed by a New York State Licensed Land Surveyor. The elevation of each temporary monitoring well will be determined to ±0.01 foot and will be tied into the site benchmark. All locations and elevations will be referenced to the New York State Plane Coordinate System and NAVD.

5.4 Quality Assurance/Quality Control and Data Validation

An approved ELAP laboratory will provide New York State Category B data deliverables for all samples analyzed as part of the RI. The data will be validated in accordance with New York State Analytical Service Protocols (NYSASP). A data usability summary report will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any pertinent data excursions or limitations on the use of the data. The data usability report will be used in preparing the RI Report, and will be submitted as part of the RI Report. QA/QC procedures and data validation requirements for this RI are further addressed in the QAPP located in Appendix F.

5.5 Qualitative Human Health Exposure Assessment

A QHHEA will be prepared for the Williamsburg former MGP site. This assessment will generally follow the guidelines provided in the New York State Department of Health *Qualitative Human Health Exposure Assessment* (Appendix 3B to NYSDEC's December 2002 *Draft DER-10 Technical Guidance for Site Investigation and Remediation*). In general, the assessment will identify the exposure setting, identify exposure pathways, and evaluate the fate and transport of the identified contaminants of concern. The QHHEA will include all environmental data gathered pertaining to the RI. The qualitative assessment will identify potential risks for specific potential receptors based on complete pathways of exposure to contaminant levels exceeding default "screening criteria," such as the NYSDEC Part 375 soil standards and groundwater standards. The assessment will be used to render an opinion as to whether potential complete exposure pathway(s) and/or risk exist for potential receptors.

5.6 Step I Fish and Wildlife Resource Impact Analysis

A Step I FWRIA will be completed for the site. The Step I analysis will be conducted in accordance with the current version of NYSDEC's *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (*FWIA*). The general objectives of the Step I assessment are:

- Identify the fish and wildlife resources, habitats, cover type, wetland and stream classifications at the site and in the vicinity
- Identify the fauna expected within each cover type and aquatic habitat
- Document observations of stress to the site soils and vegetation
- Describe the value of habitat to expected fauna
- Describe the value of the fish and wildlife resources to humans
- Determine whether contaminants are present that potentially could affect the expected fish and wildlife resources
- Recommend whether a Step II FWRIA is warranted

The findings of the Step I FWRIA will be included in the RI Report.

6. RI Report Preparation

A RI report will be prepared for submittal to NYSDEC and NYSDOH. The report will present the findings of the RI and will describe the nature and extent and fate and transport of all encountered contaminants associated with the Williamsburg former MGP. The RI report will identify specific contaminant concentrations throughout each media (e.g., soil, groundwater, soil vapor, sediment, etc.) and compare contaminants of concern against appropriate regulatory criteria, which is necessary to assess whether any media require remediation or further evaluation. The RI report will also incorporate the findings of the hydraulic conductivity testing, QHHEA and Step I FWRIA.

7. Schedule

NGRID is actively procuring consultant services to implement this RI scope of work. A detailed schedule will be established upon the approval of this work plan and prior to commencing RI field activities. NGRID will notify NYSDEC five working days prior to the anticipated start date of the remedial investigation program.

8. References

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Tables

Table 1
Summary of Environmental Records Information
Williamsburg Works MGP Site
Brooklyn, New York

On Site				Abutting Properties				Properties within One Block			
Parcel I.D. No.	Company Name	Facility Operations (years)	Ranking	Parcel I.D. No.	Company Name	Facility Operations (years)	Ranking	Parcel I.D. No.	Company Name	Facility Operations (years)	Ranking
1	NYC Department of Sanitation	Service Garage SQG/AST/UST (1970s-present)	Moderate chem-oil use & storage/moderate potential for release/on site >10 yrs.	3	North 12th Street Pro./Bayside Fuel Oil Dept. Corp./Transgas Energy Systems/Paragon Oil Co. Division of Texaco, Inc./Standard Oil Co.	Bulk Fuel Terminal/Refinery SQG (1880s-present)	Large chemical & oil use & storage/ abutting site/high potential for release/>20yrs	7	Hecla Iron Works	Iron Works (1900s-1920s)	Moderate chem-oil use/moderate potential for release/one block fr. site >10 yrs./upgradient fr. site
1	Commercial Corrugated Container Corporation	Manufacturing (1960s-1970s)	Minimal chem-oil use/minimal potential for release/on-site ≤10 yrs.(short duration)	4	Standard Oil Company	Petroleum Refinery (1900s-1920s)	Large chemical & oil use & storage /abutting site/high potential for release/≥20yrs	8	New York Quinine & Chemical Works, Inc.	Chemical Manufacturing (1880s-1950s)	Moderate chem-oil use/moderate potential for release/one block fr. site >10 yrs./upgradient fr. site
1	Ferro-Co. Corporation	Sheet Metal Product Manufacturer (1950s-1960s)	Moderate chem/oil use & storage/moderate potential for release/on site >10 yrs.	5	Hemisphere Steel Products/Parker Steel Products	Steel Product Manufacturer/SQG (1960s-present)	Moderate chem-oil use/moderate potential for release/abutting site >10 yrs.	9	Tuttle & Bailey Manufacturing Co.	Hot Air Ventilation & Register Factory/Foundry (1880s-1930s)	Moderate chem-oil use/moderate potential for release/one block fr. site >10 yrs./upgradient fr. site
2	Unknown	Oil truck parking (1970s-1980s)	Moderate chem/oil use & storage/moderate potential for release/on site >10 yrs.	6	Arkell Safety Bag Co.	Elastic Paper Lining Manufacturer (1900-1940s)	Moderate chem-oil use/moderate potential for release/abutting site >10 yrs.	10	Hecla Iron Works	Mill Works/Foundry (1880s-1930s)	Moderate chem-oil use/moderate potential for release/one block fr. site >10 yrs./upgradient fr. site
13	Unknown	Scrap Metal Yard/Repair Shop (1960s)	Large chem-oil use & storage/on-site/high potential for release	11	Pratt Manufacturing Company/Standard Oil Company of New York	Oil Company (1880s-1940s)	Moderate chem-oil use/moderate potential for release/abutting site >10 yrs.				
13	North 12th Street Transfer Station	SWF/Spills	Large chem-oil storage/on-site/high potential for release/ documented impact	12	Hildreth Varnish Company/C.C. Reed & Company	Varnish Manufacturer (1880s-late 1940s)	Moderate chem-oil use/moderate potential for release/abutting site >10 yrs.				

Notes:
AST - aboveground storage tank
SWF - solid waste facility
SQG - small quantity generator of hazardous waste
UST - underground storage tank

Table 2
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples			VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	VOCs (Expanded) (Modified TO-15)
				Soil	Groundwater	Soil Vapor/ Indoor Air/ Outdoor Air								
Surface Soil Sample Locations														
WW-SS-01	North 12th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-02	North 11th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-03	North 12th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-04	North 11th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-05	North 12th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-06	North 11th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-07	North 12th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-08	North 11th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
WW-SS-09	North 12th Street, adjacent to the site	Soil sample to evaluate surface soil conditions adjacent to the site	0-2"	1	0	0	X	X	X	X	X	X	X	
Test Pit Locations														
WW-TP-01	Block 2287, Lot 1, within the gas holder footprint	Assess the location, depth, configuration and contents of the former gas holder	Depth at greatest suspected impacts	1	0	0	X	X	X	X	X	X	X	
WW-TP-02	Block 2287, Lot 1, within the gas holder footprint	Assess the location, depth, configuration and contents of the former gas holder	Depth at greatest suspected impacts	1	0	0	X	X	X	X	X	X	X	
WW-TP-03	Block 2287, Lot 1, within the gas holder footprint	Assess the location, depth, configuration and contents of the former gas holder	Depth at greatest suspected impacts	1	0	0	X	X	X	X	X	X	X	
WW-TP-04	Block 2287, Lot 1, within the gas holder footprint	Assess the location, depth, configuration and contents of the former gas holder	Depth at greatest suspected impacts	1	0	0	X	X	X	X	X	X	X	
WW-TP-05	Block 2287, Lot 1, within the gas holder footprint	Assess the location, depth, configuration and contents of the former gas holder	Depth at greatest suspected impacts	1	0	0	X	X	X	X	X	X	X	
WW-TP-06	Block 2287, Lot 1, within the gas holder footprint	Assess the location, depth, configuration and contents of the former gas holder	Depth at greatest suspected impacts	1	0	0	X	X	X	X	X	X	X	

Table 2
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples			VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	VOCs (Expanded) (Modified TO-15)
				Soil	Groundwater	Soil Vapor/ Indoor Air/ Outdoor Air								
Subsurface Soil Borings, Monitoring Wells and Temporary Groundwater Monitoring Points														
WW-SB-01	North 11th Street, south of the site	Evaluate soil quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-02	North 12th Street, north of the site	Evaluate soil quality adjacent to the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-03	Block 2287, Lot 1, within the gas holder footprint	Evaluate soil and groundwater quality within the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-04	Block 2287, Lot 1, within the gas holder footprint	Evaluate soil quality within the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-05	Block 2287, Lot 1, within the gas holder footprint	Evaluate soil and groundwater quality within the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-06	Block 2287, Lot 1, within the gas holder footprint	Evaluate soil quality within the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-07	Block 2287, Lot 1, within the gas holder footprint	Evaluate soil and groundwater quality within the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-08	Block 2287, Lot 1, within the gas holder footprint	Evaluate soil quality within the former gas holder footprint	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-09	North 12th Street, north of the site	Evaluate soil quality north of the site, adjacent to the former condenser house	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-10	North 11th Street, south of the site	Evaluate soil quality south of the site, adjacent to the former purifying house	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-11	North 12th Street, north of the site	Evaluate soil quality north of the site, adjacent to the former condensers	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	

Table 2
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples			VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	VOCs (Expanded) (Modified TO-15)
				Soil	Groundwater	Soil Vapor/ Indoor Air/ Outdoor Air								
WW-SB-13	North 11th Street, south of the site	Evaluate soil quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-14	North 12th Street, north of the site	Evaluate soil quality north of the site, adjacent to the former retort house and generator house	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-15	North 12th Street, north of the site	Evaluate soil quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-16	North 12th Street, north of the site	Evaluate soil quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-17	North 11th Street, south of the site	Evaluate soil quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-SB-18	Kent Avenue, north of the site	Evaluate soil quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-01	Wythe Avenue, east and upgradient of the site	Evaluate soil and groundwater quality upgradient of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-02	North 11th Street, south of the site	Evaluate soil and groundwater quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-03	North 12th Street, north of the site	Evaluate soil and groundwater quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-04	Block 2287, Lot 1, downgradient of the gas holder	Evaluate soil and groundwater quality downgradient of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-05	Block 2287, Lot 1, adjacent to the gas holders	Evaluate soil and groundwater quality adjacent to the former gas holders	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	

Table 2
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples			VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	VOCs (Expanded) (Modified TO-15)
				Soil	Groundwater	Soil Vapor/ Indoor Air/ Outdoor Air								
WW-MW-06	North 11th Street, south of the site	Evaluate soil and groundwater quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-07	North 12th Street, north of the site	Evaluate soil and groundwater quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-08	North 11th Street, south of the site	Evaluate soil and groundwater quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-10	North 12th Street, north of the site	Evaluate soil and groundwater quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-11	North 11th Street, south of the site	Evaluate soil and groundwater quality south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-12	North 11th Street, south of the site	Evaluate soil and groundwater quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-13	North 12th Street, north of the site	Evaluate soil and groundwater quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-14	North 11th Street, downgradient of and south of the site	Evaluate soil and groundwater quality downgradient of and south of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-15	North 12th Street, downgradient of and north of the site	Evaluate soil and groundwater quality downgradient of and north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	
WW-MW-16	Kent Avenue, north of the site	Evaluate soil and groundwater quality north of the site	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	0	X	X	X	X	X[1]	X[1]	X[1]	

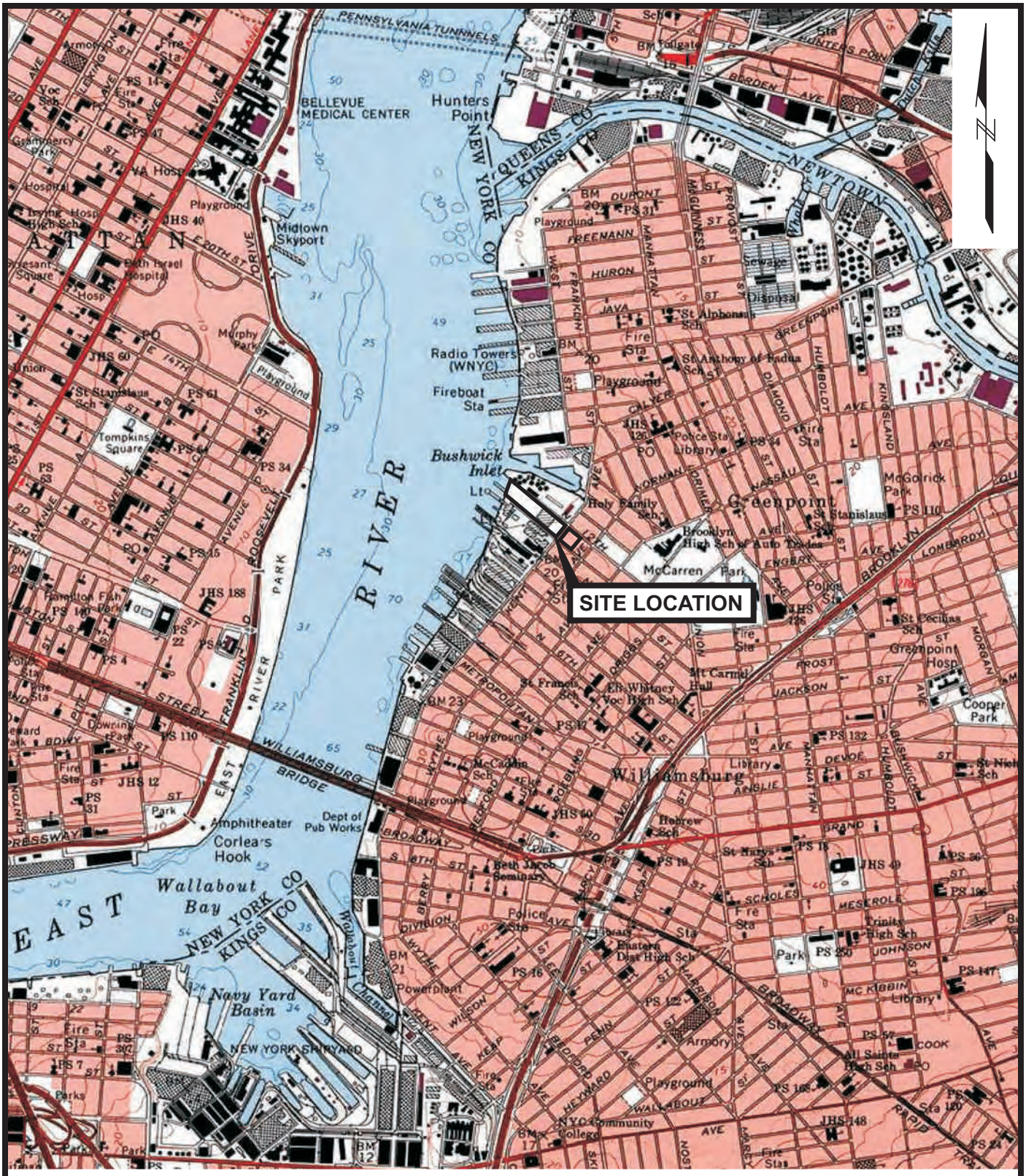
Table 2
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples			VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	VOCs (Expanded) (Modified TO-15)
				Soil	Groundwater	Soil Vapor/ Indoor Air/ Outdoor Air								
Sediment Sample Locations														
WW-SED-01	East River, adjacent to the site	Evaluate sediment quality adjacent to the site	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
WW-SED-02	East River, adjacent to the site	Evaluate sediment quality adjacent to the site	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
WW-SED-03	East River, adjacent to the site	Evaluate sediment quality adjacent to the site	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
WW-SED-04	East River, adjacent to the site	Evaluate sediment quality adjacent to the site	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
WW-SED-05	East River	Evaluate sediment quality in the East River	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
WW-SED-06	East River	Evaluate sediment quality in the East River	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
WW-SED-07	East River	Evaluate sediment quality in the East River	0-6", depth at greatest suspected impact and beneath impacts	3	0	0	X	X	X	X	X	X	X	
Soil Vapor Sample Locations														
WW-SV-01	Block 2288, Lot 1, within the footprint of the former gas holder	Soil vapor sample to screen the soil conditions within the footprint of the former gas holder	Beneath the building slab	0	0	1								X
WW-SV-02	Block 2288, Lot 1, within the footprint of the former gas holder	Soil vapor sample to screen the soil conditions within the footprint of the former gas holder	Beneath the building slab	0	0	1								X
Indoor Air Sample Locations														
WW-IA-01	Block 2288, Lot 1	Sample to evaluate indoor air quality at the building located at Block 2288, Lot 1	At the height of the breathing zone	0	0	1								X
WW-IA-02	Block 2288, Lot 1	Sample to evaluate indoor air quality at the building located at Block 2288, Lot 1	At the height of the breathing zone	0	0	1								X
Outdoor Air Sample Locations														
WW-OA-01	North 12th Street, adjacent to Block 2288, Lot 1	Sample to evaluate ambient air quality outside of the building located at Block 2288, Lot 1	At the height of the breathing zone	0	0	1								X

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA TO-15 analysis will include VOCs and naphthalene
EPA - Environmental Protection Agency
VOC - volatile organic compounds
SVOC - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
bgs - below ground surface
[1]-One sample from within the fill in each soil boring
[2]-Soils will be analyzed by Free Cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion American Society for Testing and Materials (ASTM)]

Prepared by: MJF

Figures



SOURCE: MAP CREATED WITH TOPO!™ 2000 WILDFLOWER PRODUCTIONS (www.topo.com)

0 2000 4000

SCALE, FEET

REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

GEI Consultants

SITE LOCATION MAP

Project 080090-1002 | May 2008 | Figure 1

KEYSPAN\WILLIAMSBURG\WORK PLAN\WILLIAMSBURG LOCATION MAP.CDR

LEGEND

- APPROXIMATE FORMER MGP BOUNDARY
- APPROXIMATE CURRENT PROPERTY BOUNDARY

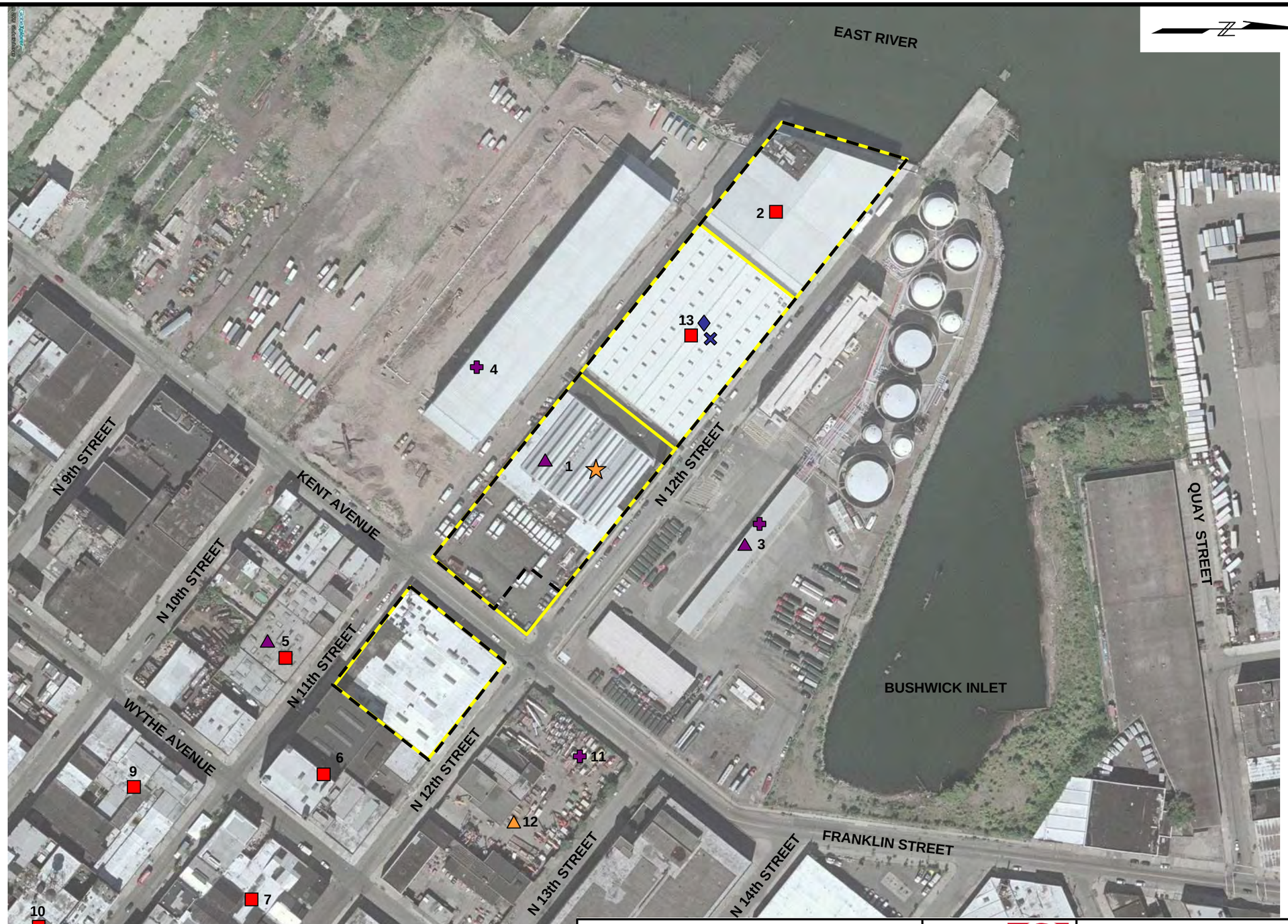
RECENT REGULATORY RECORDS

- RCRA (TSDF, CORRACTS), CERCLIS, VCP, LANDFILL, DISPOSAL SITE
- RCRA (LQG, SQG)
- MAJOR OIL OR CHEMICAL STORAGE
- MINOR OIL STORAGE
- SPILLS, TRIS

HISTORIC LAND USE

- MANUFACTURING AND COMMERCIAL
- OIL, PETROCHEMICAL
- CHEMICAL, PAINT, FERTILIZER, PLASTIC

NOTE:
SEE TABLE 1 FOR INFORMATION ABOUT THESE SITES.



SOURCE:
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NOTE: NOT TO SCALE

REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

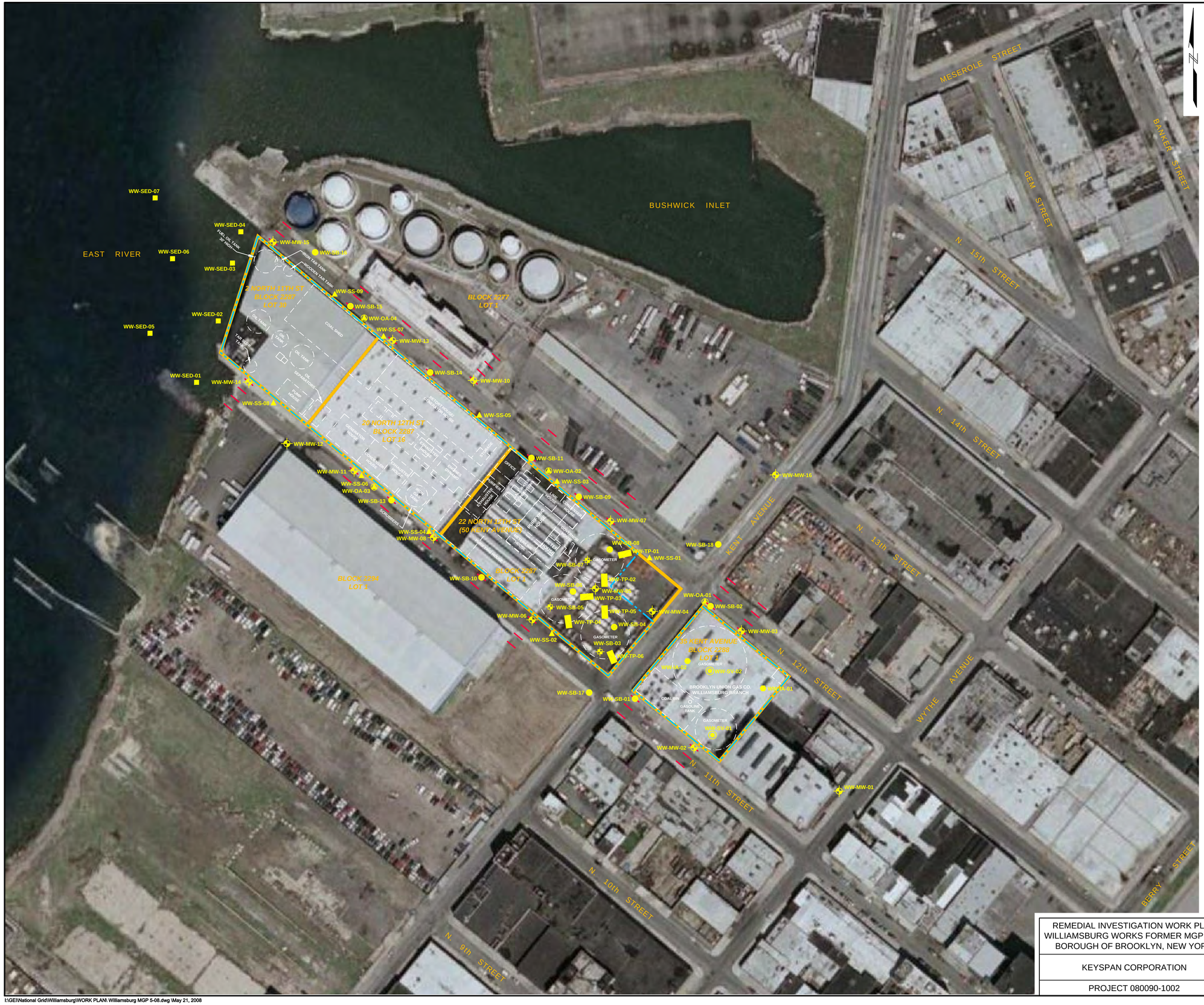
GEI Consultants

Project 080090-1002

SUMMARY OF ENVIRONMENTAL RECORDS

May 2008 Figure 2

Plate



LEGEND

- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE
- HISTORIC STRUCTURE

PROPOSED SAMPLES

- WW-MW-05 — PROPOSED REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION
- WW-SB-01 — PROPOSED RI SOIL BORING LOCATION
- WW-SB-03 — PROPOSED SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION
- WW-SS-01 — PROPOSED SURFACE SOIL SAMPLE LOCATION
- WW-SV-01 — PROPOSED SOIL VAPOR POINT
- WW-TP-01 — PROPOSED TEST PIT LOCATION
- WW-IA-01 — PROPOSED INDOOR AIR SAMPLE LOCATION
- WW-OA-01 — PROPOSED OUTDOOR AIR SAMPLE LOCATION
- WW-SED-01 — PROPOSED SEDIMENT SAMPLE LOCATION
- POTENTIAL SAMPLE OFFSET LOCATION

0 80 160

SCALE, FEET

SOURCES:

1. PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, IMAGE © DIGITALGLOBE 2008.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM http://www.oasisnyc.net, ACCESSED JANUARY 2008.

DRAFT

REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

KEYSPAN CORPORATION

PROJECT 080090-1002

GEI Consultants
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CONNECTICUT 06033

PROPOSED SAMPLE LOCATIONS

May 2008 Plate 1

I:\GEI\National Grid\Williamsburg\WORK PLAN\ Williamsburg MGP 5-08.dwg May 21, 2008

Appendix A

Historical Documents (electronic only)

Certified Sanborn® Map Report

Sanborn® Library search results
Certification # EA8F-42E4-9D99

Williamsburg MGP
Kent Ave
Williamsburg, NY 11211

Inquiry Number 2119865.3s

January 15, 2008

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

Certified Sanborn® Map Report

1/15/08

Site Name:
Williamsburg MGP
Kent Ave
Williamsburg, NY 11211

EDR Inquiry # 2119865.3s

Client Name:
GEI Consultants Inc.
455 Winding Brook Drive
Glastonbury, CT 06033

Contact: Melissa Felter

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by GEI Consultants Inc. were identified for the years listed below (selected maps only*). The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Williamsburg MGP
Address: Kent Ave
City, State, Zip: Williamsburg, NY 11211
Cross Street:
P.O. # NA
Project: Williamsburg
Certification # EA8F-42E4-9D99

* Environmental Data Resources, Inc. has been instructed by GEI Consultants Inc. to print ONLY the Sanborn Maps for the years listed below:

1981 (2)	1941 (2)
1980 (2)	1916 (2)
1979 (2)	1905 (2)
1978 (2)	1887 (1)
1965 (2)	
1951 (2)	

Total Maps: 19

Sanborn® Library search results
Certification # EA8F-42E4-9D99

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

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Site Name: Williamsburg MGP
Address: Kent Ave

City, ST, ZIP: Williamsburg NY 11211

Client: GEI Consultants Inc.
EDR Inquiry: 2119865.3s
Order Date: 1/15/2008 8:57:16 AM
Certification # EA8F-42E4-9D99

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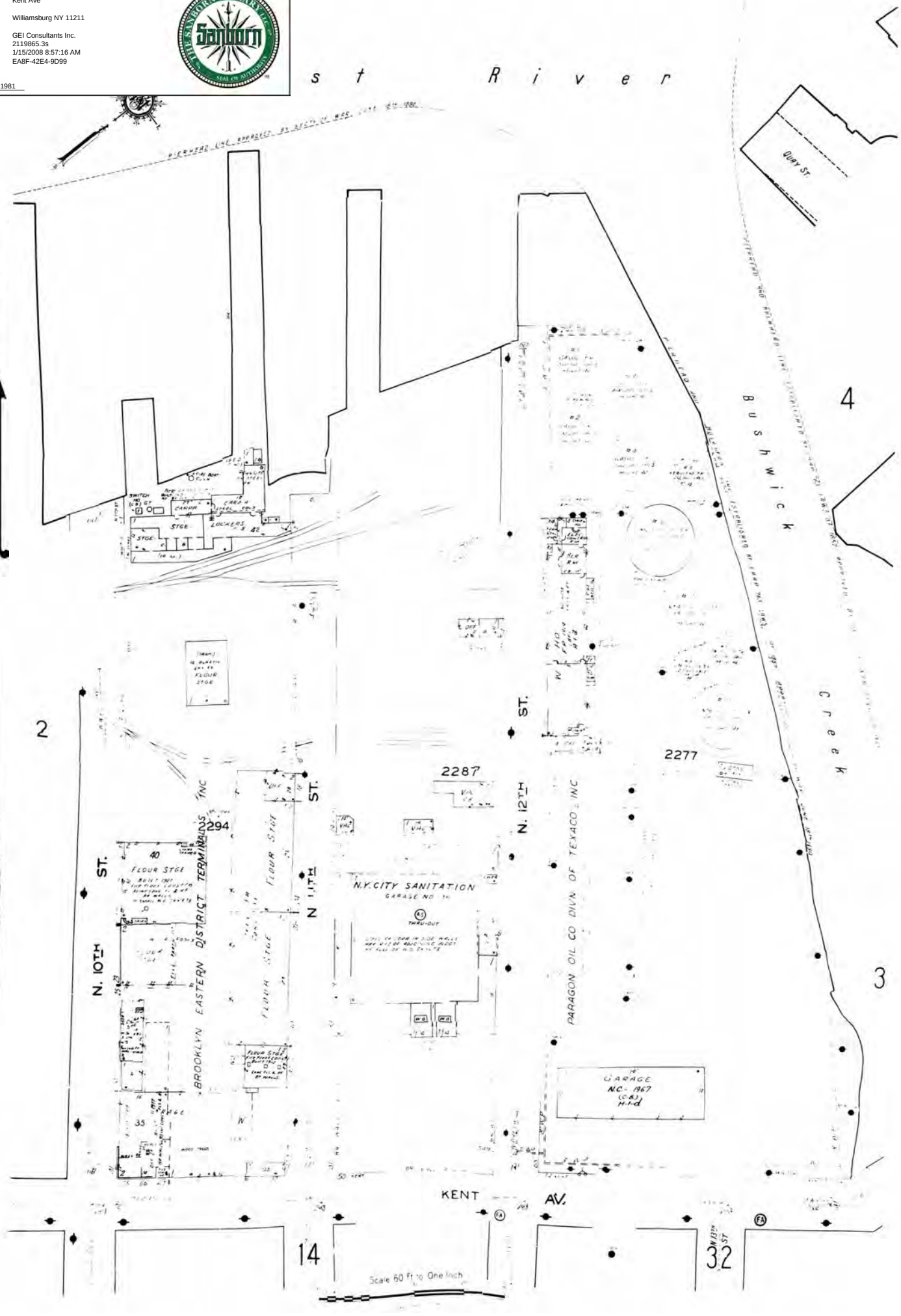

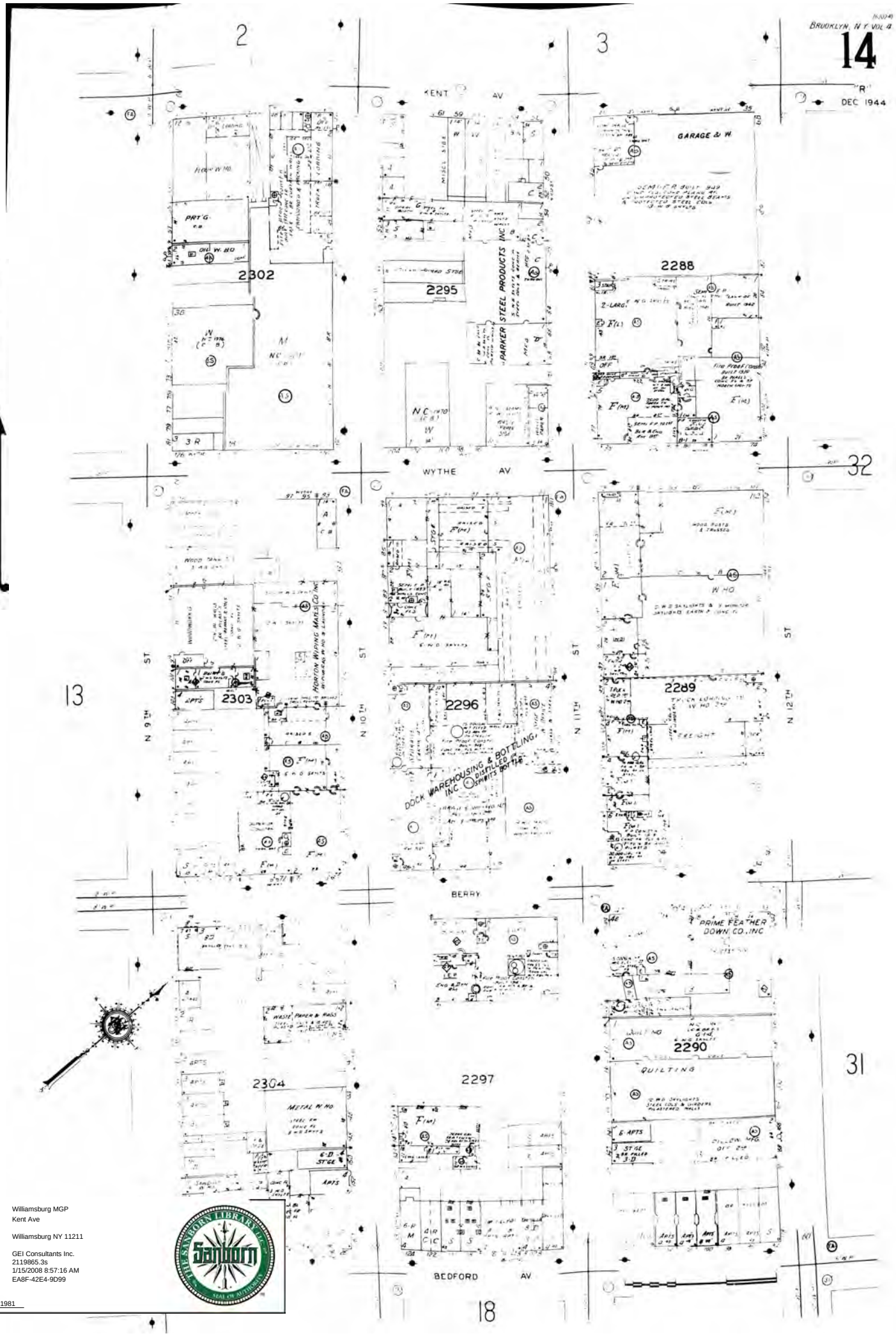

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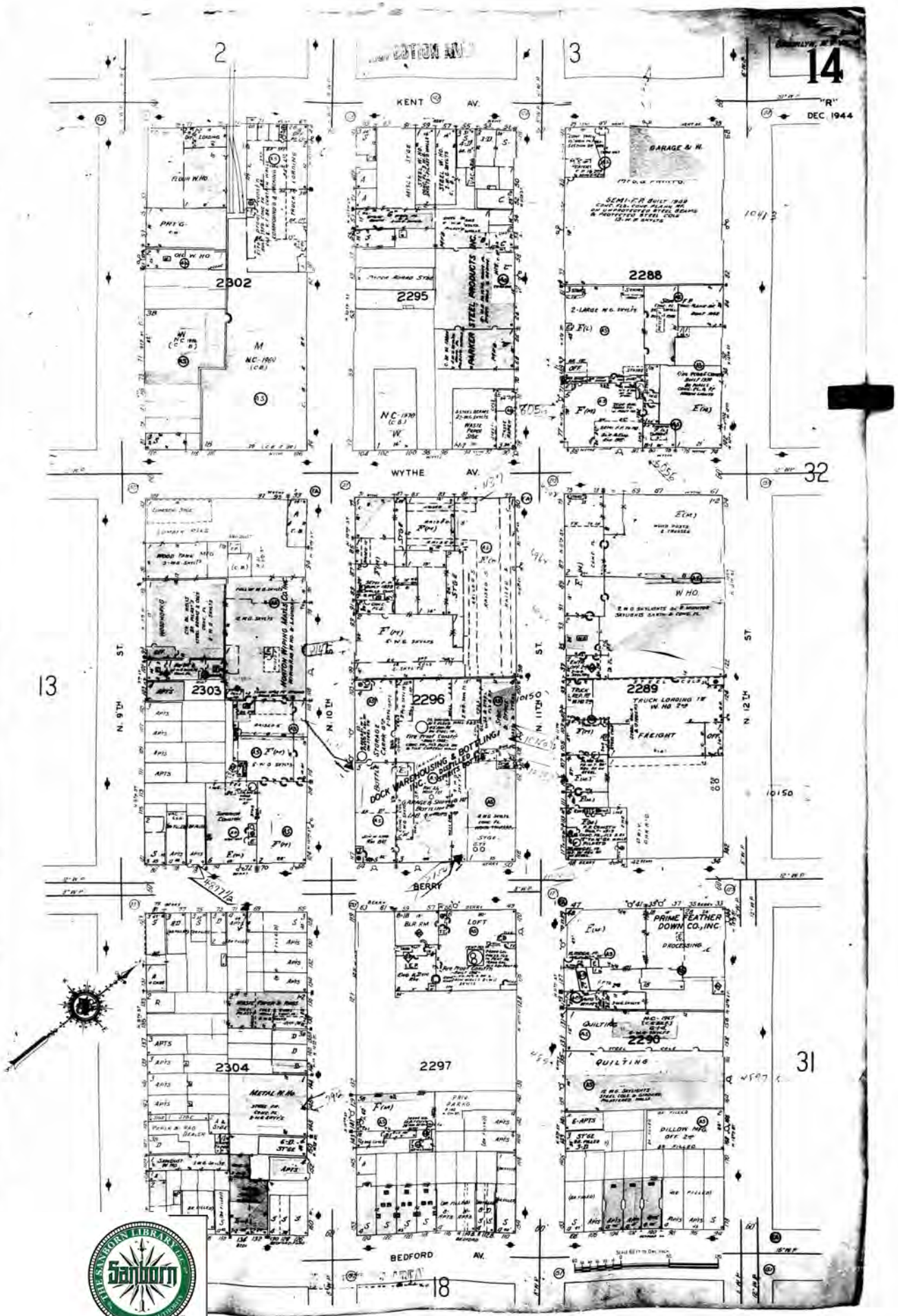
Address:	Kent Ave
City, ST, ZIP:	Williamsburg NY 11211
Client:	GEI Consultants Inc.
EDR Inquiry:	2119865.3s
Order Date:	1/15/2008 8:57:16 AM
Certification #	EA8F-42E4-9D99

Copyright: 1981



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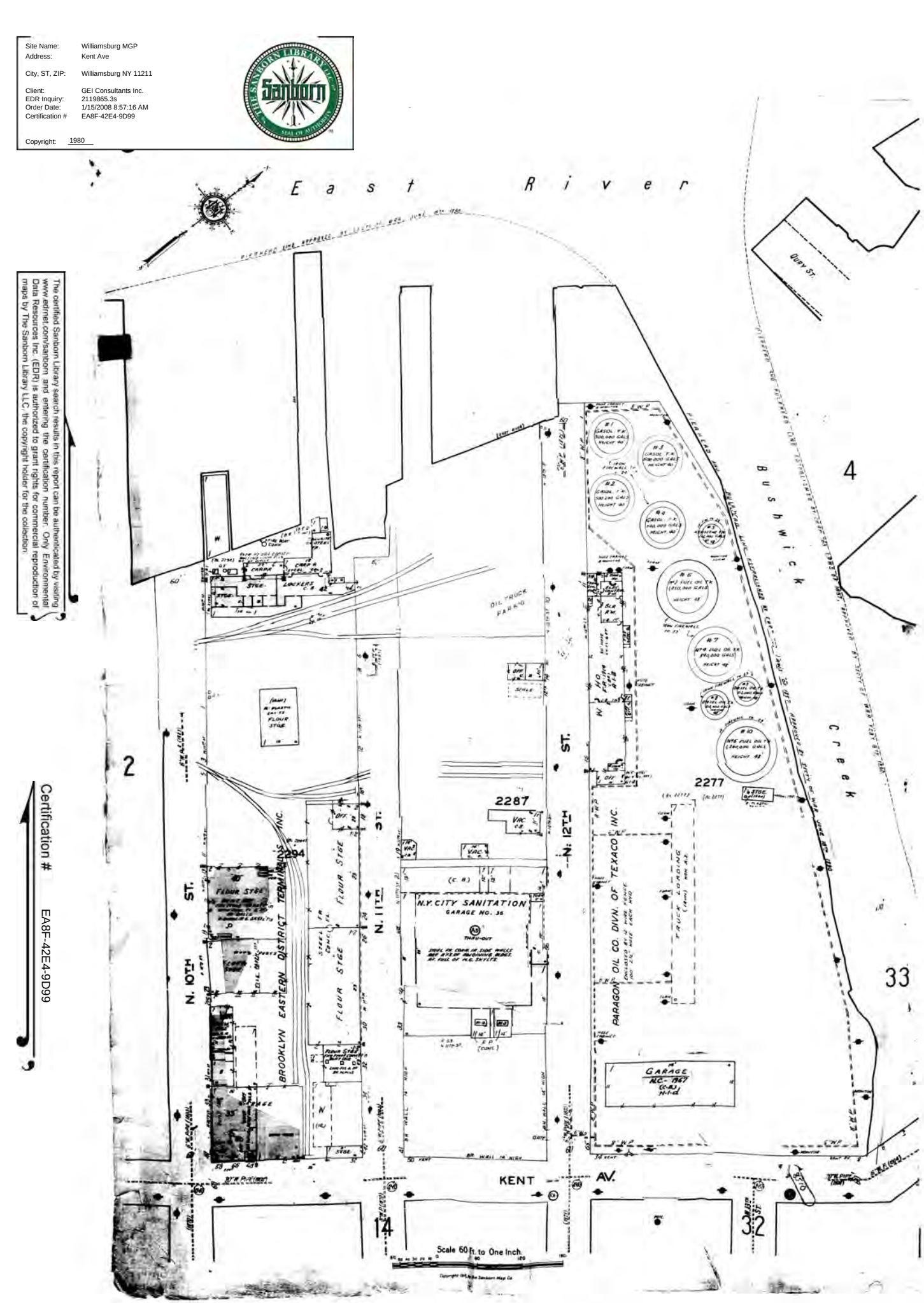
Copyright: 1980



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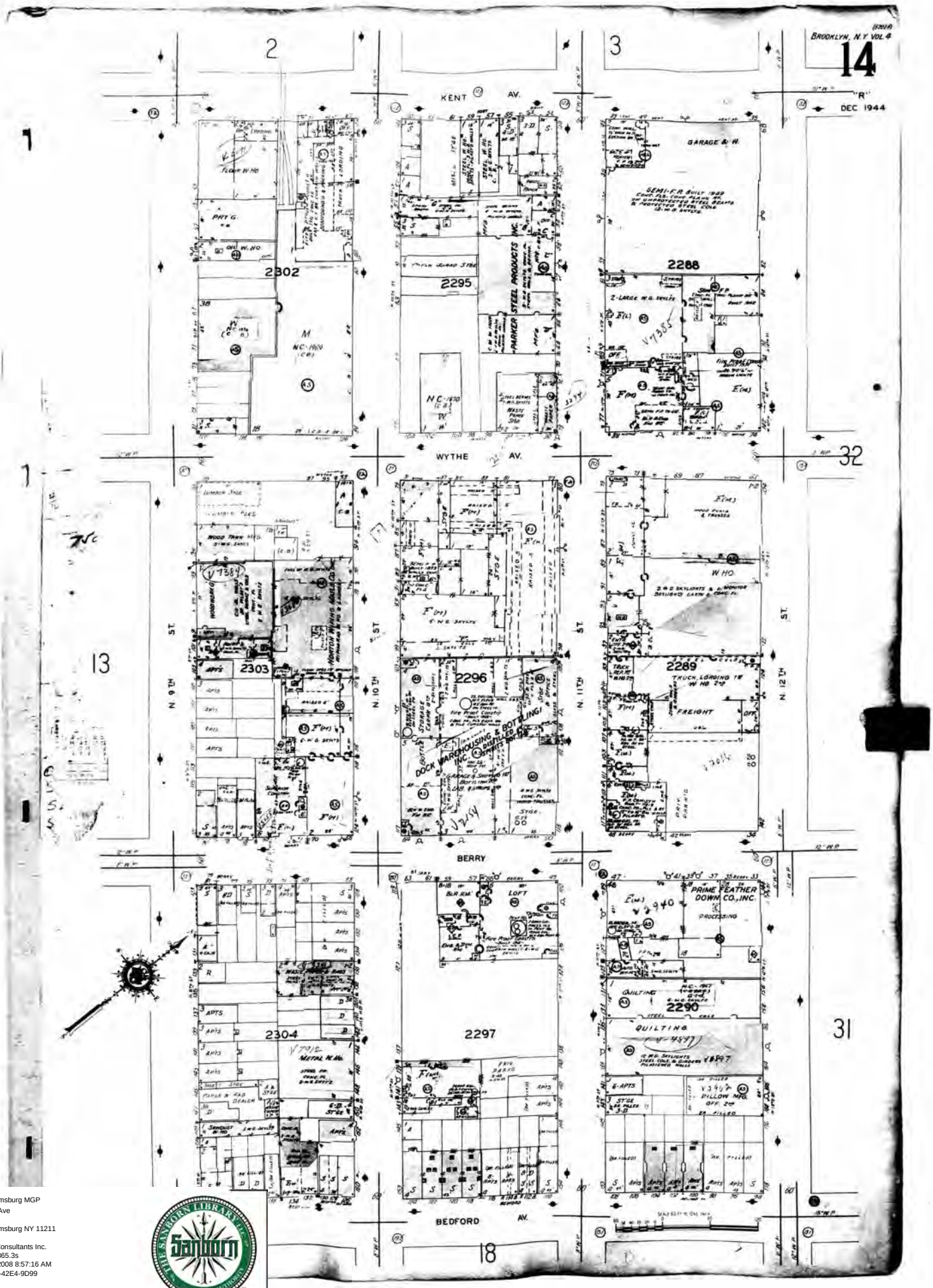

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Order Date:	1/15/2008 8:57:16 AM
Certification #	EA8F-42E4-9D99

Copyright: 1979

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Address: Kent Ave

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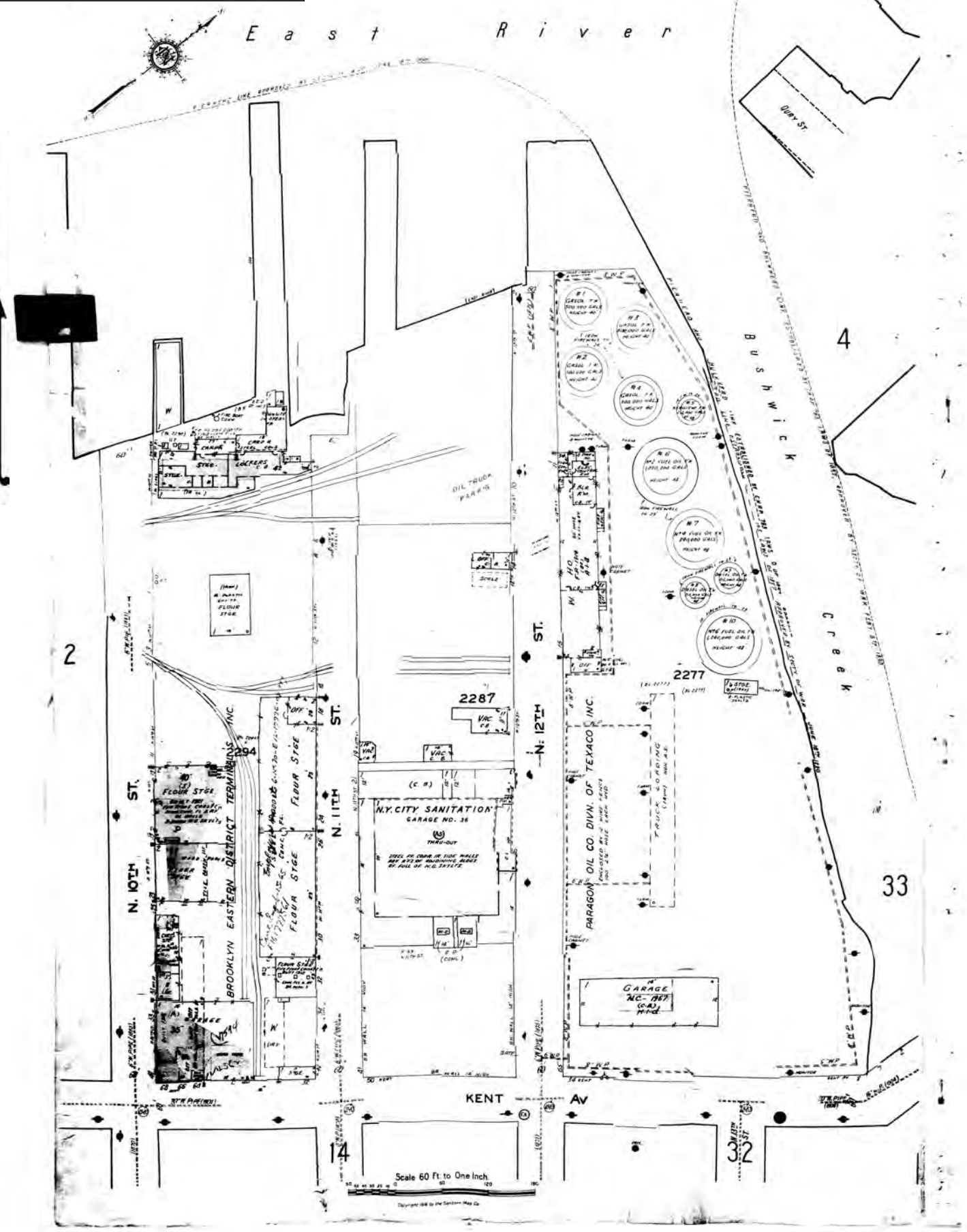

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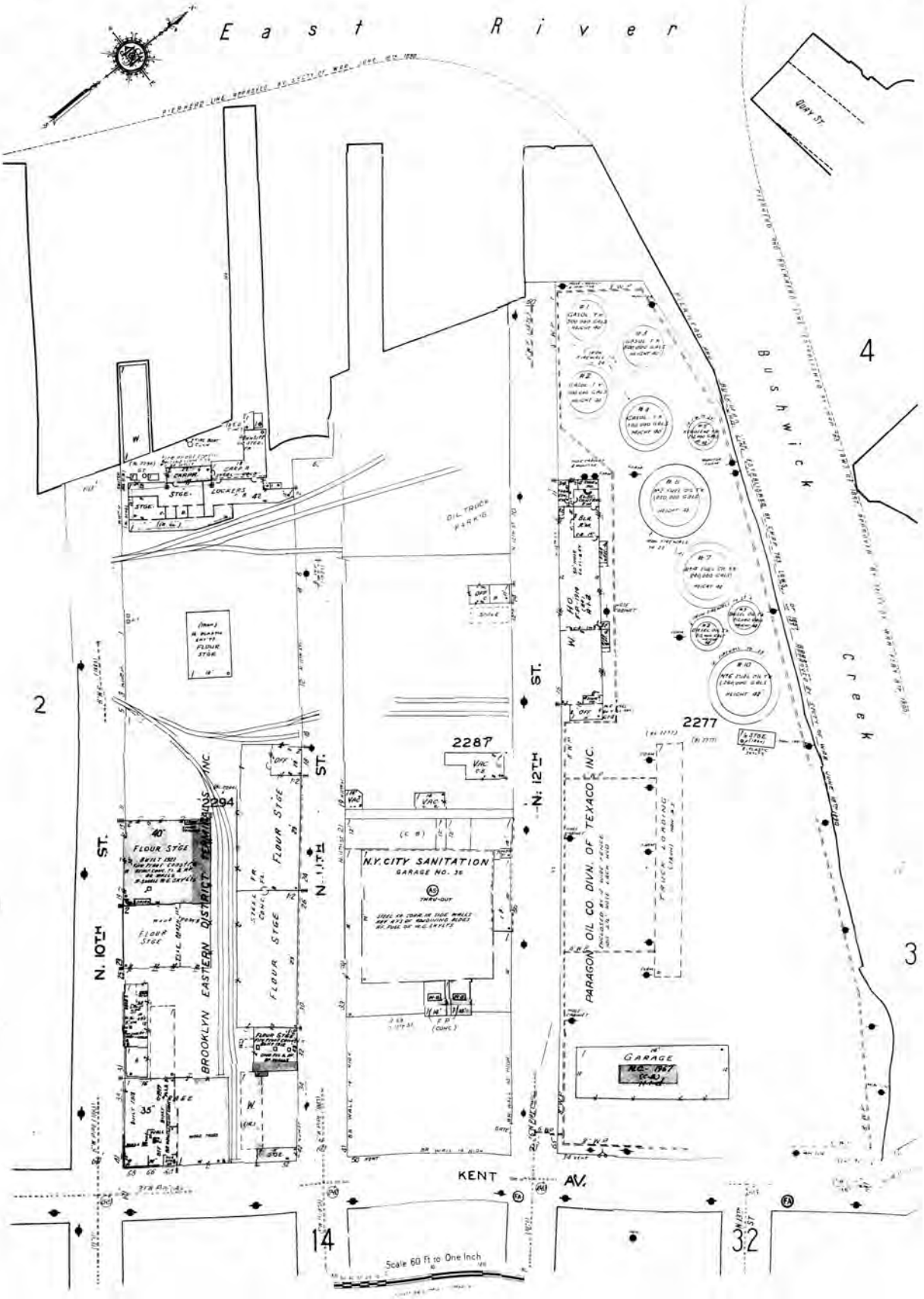

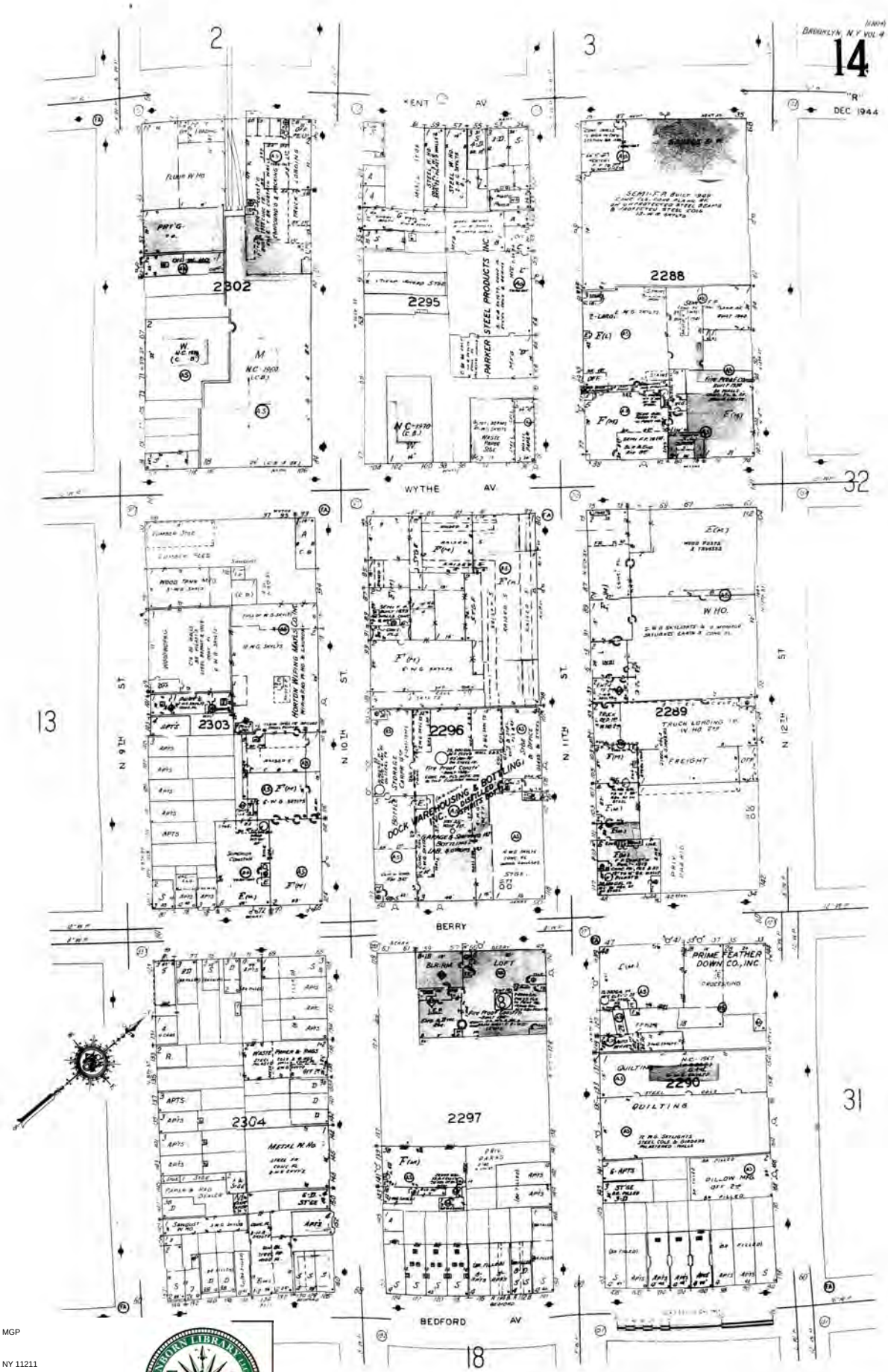

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Copyright: 1965

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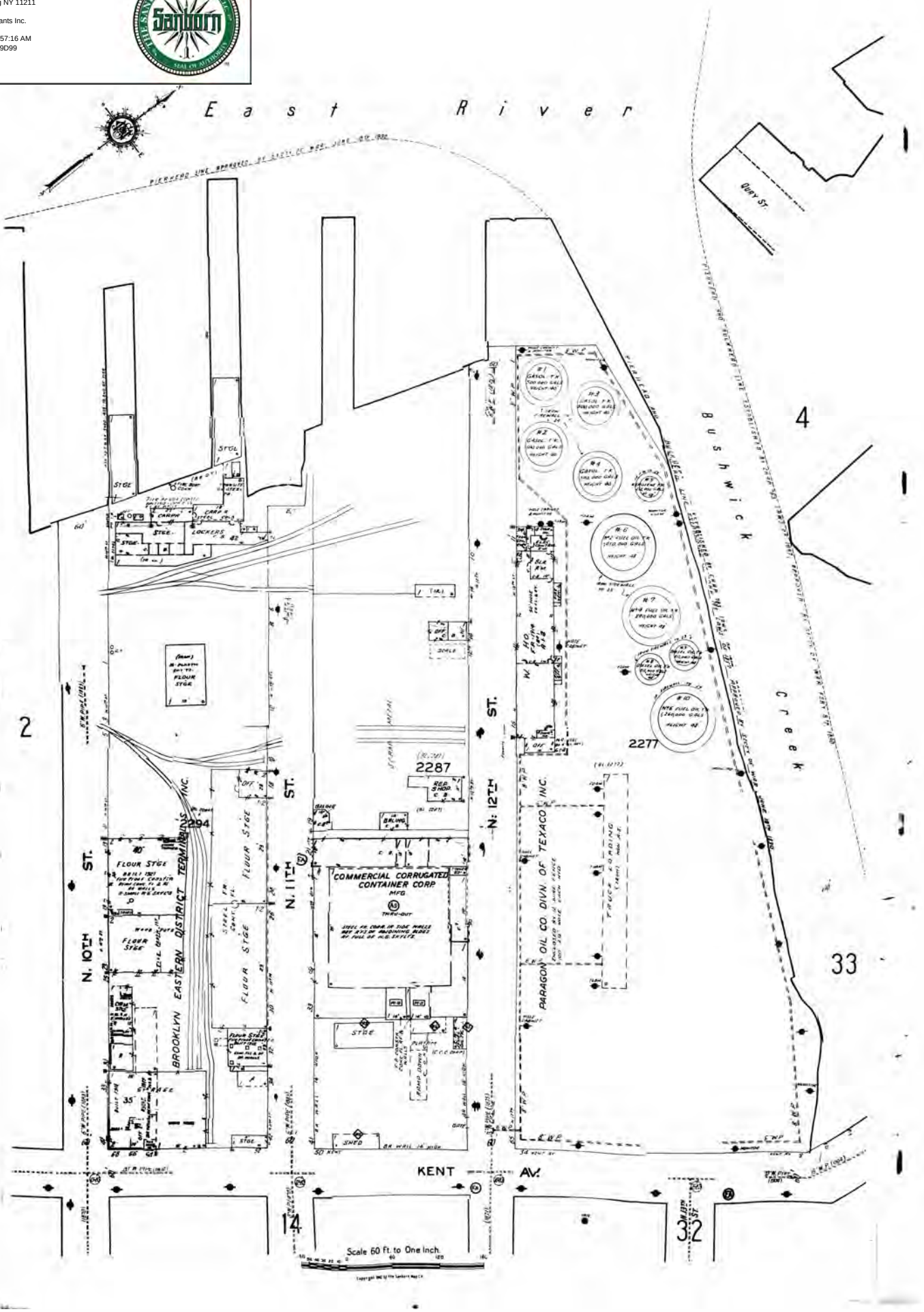

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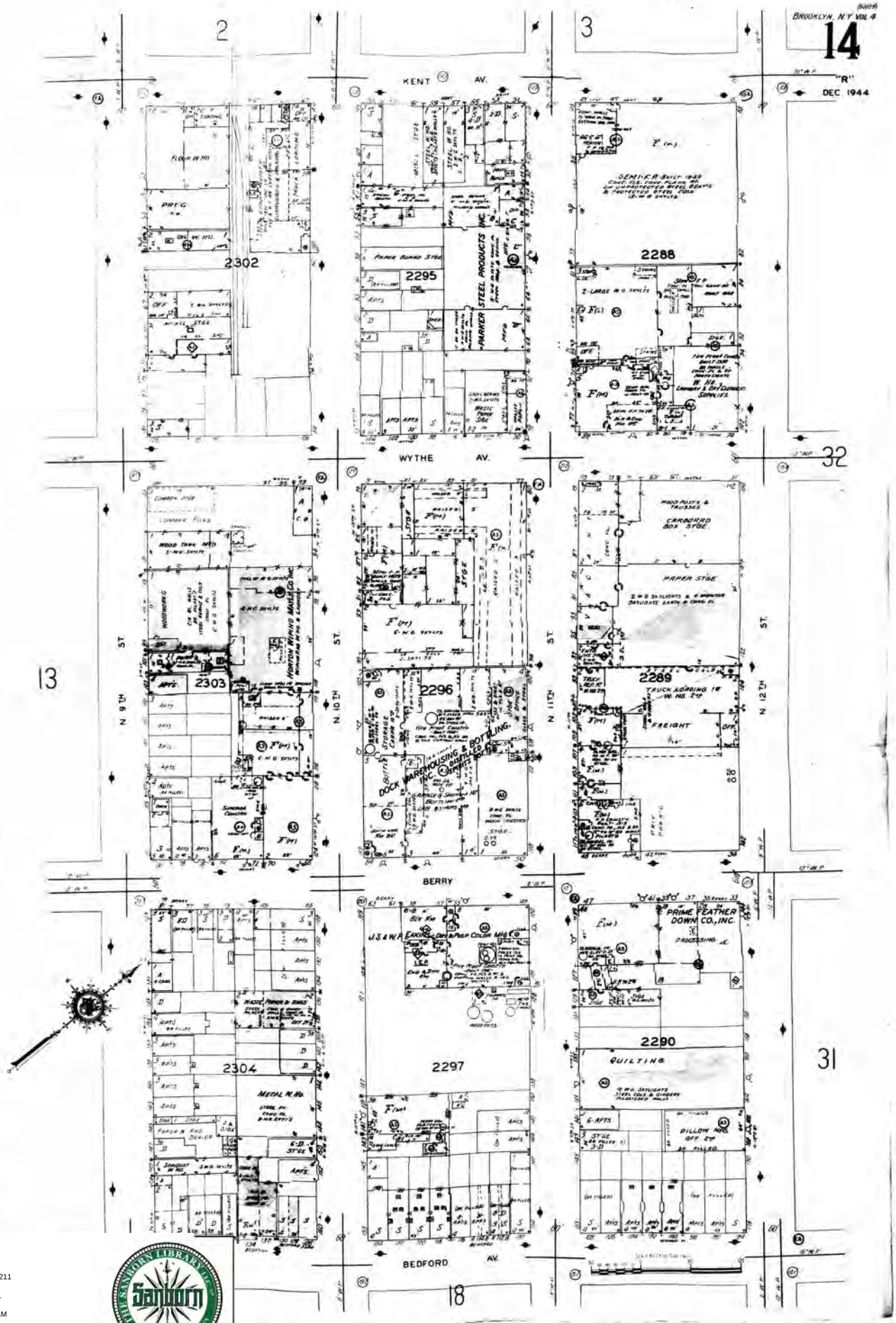

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Copyright: 1965

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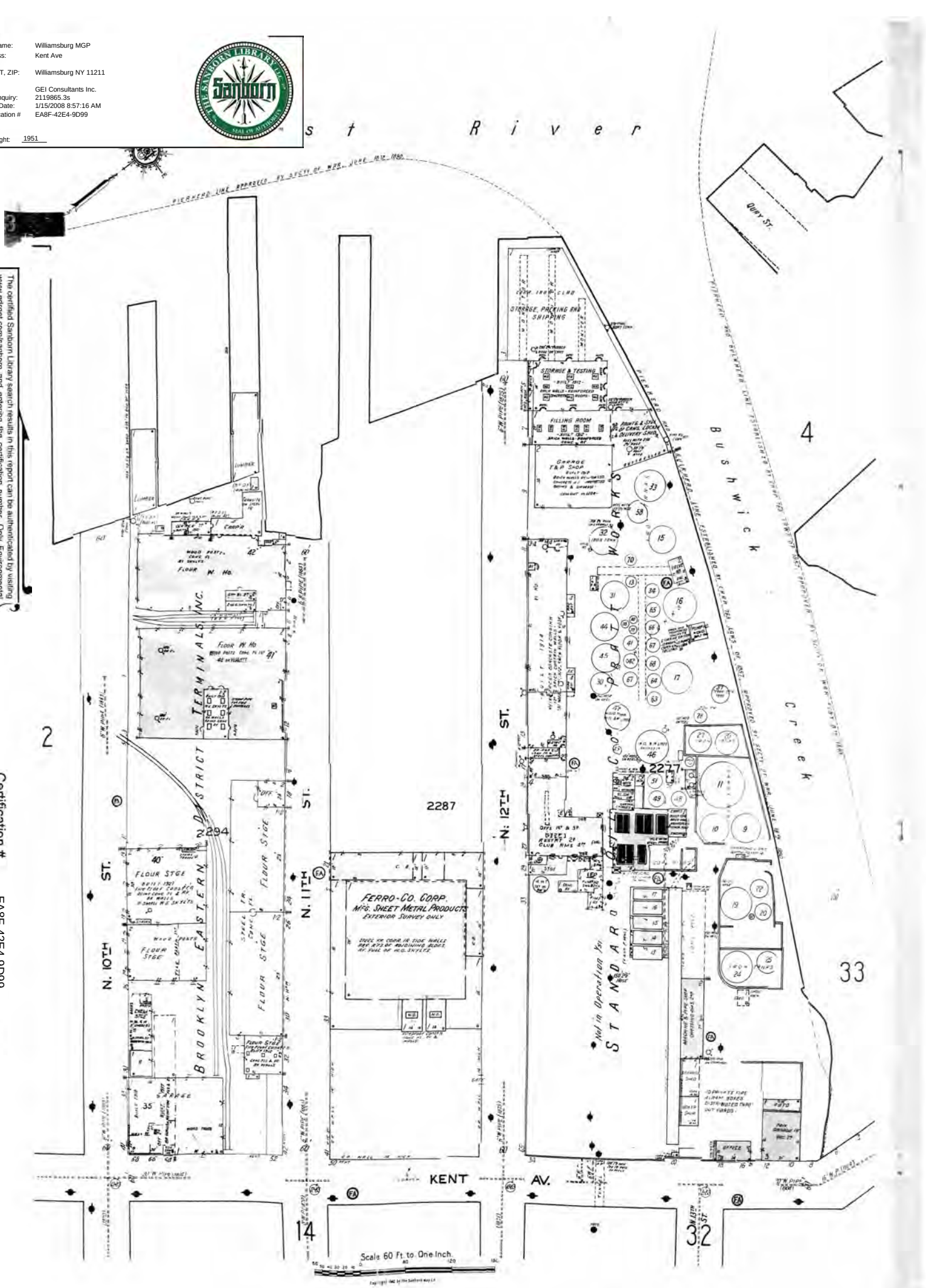

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Copyright: 1951

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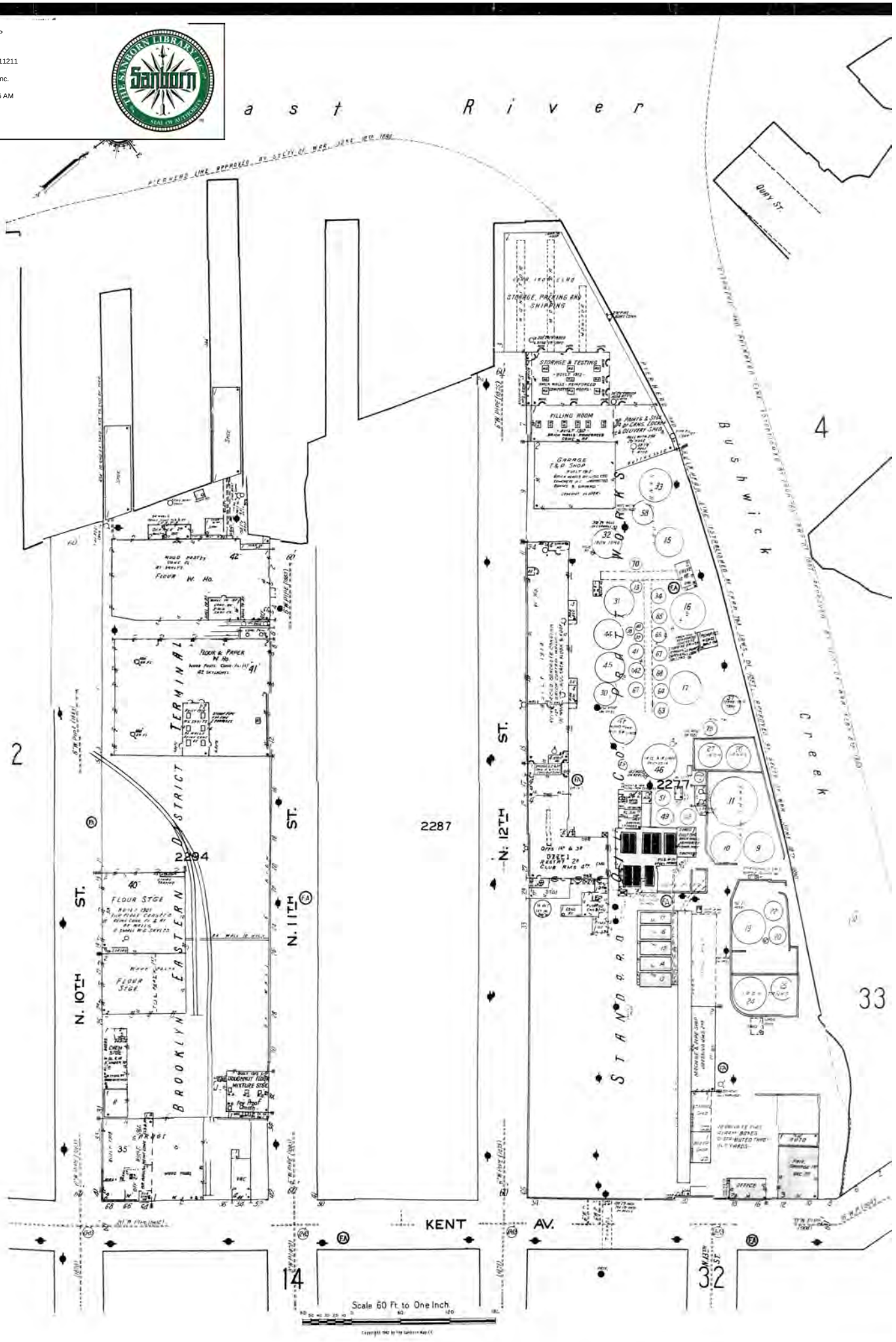

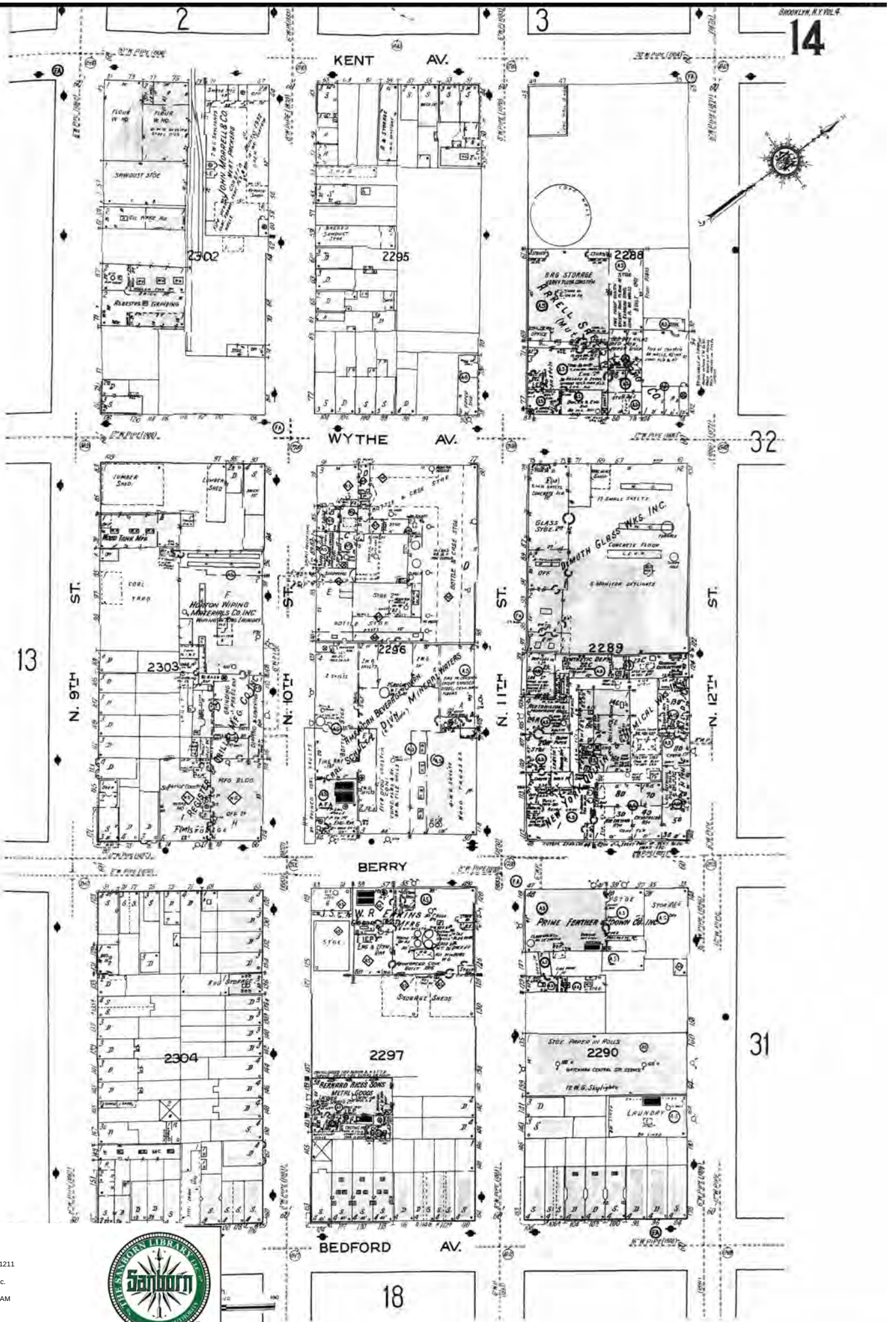

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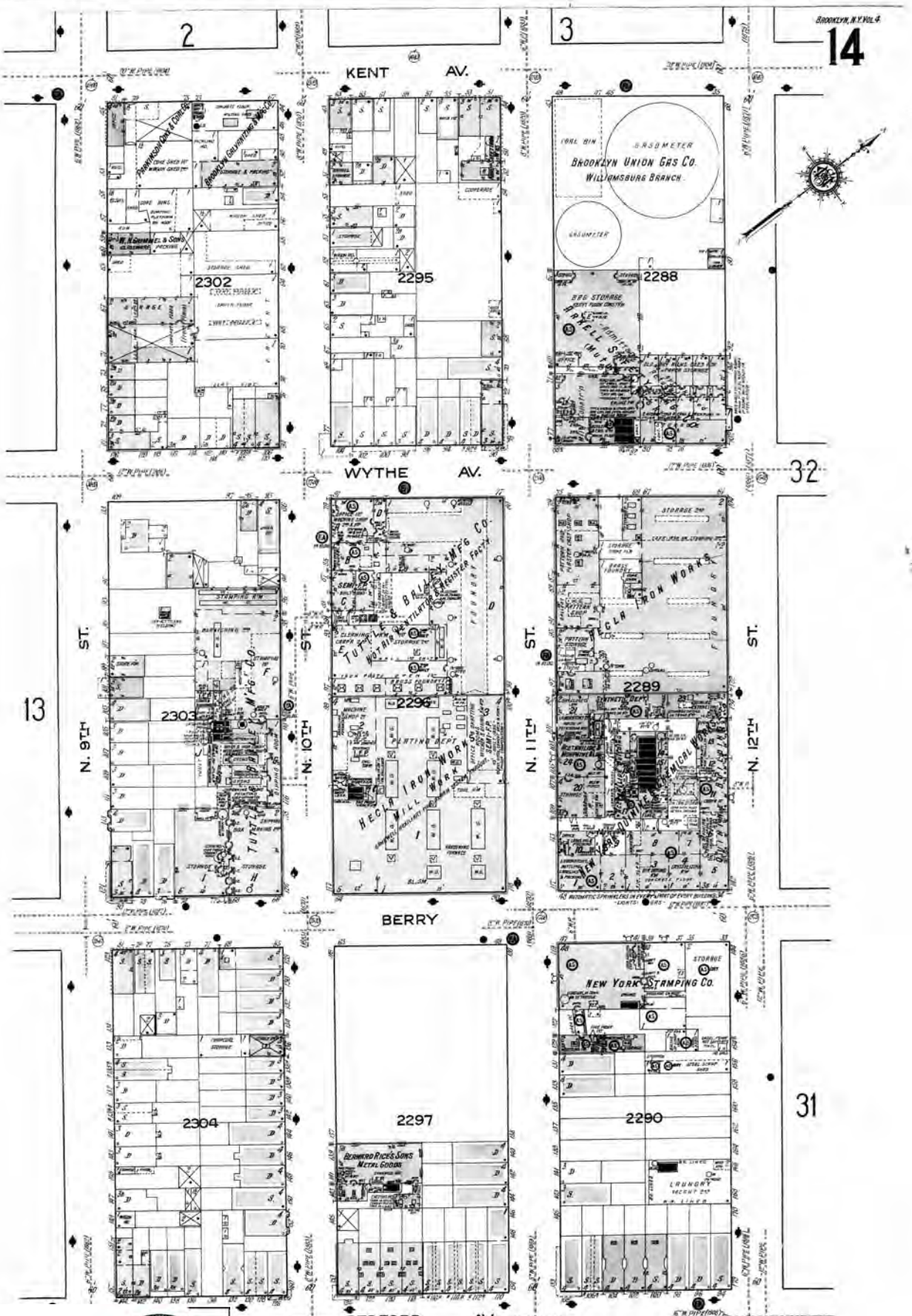

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Copyright: 1916

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Copyright: 1916

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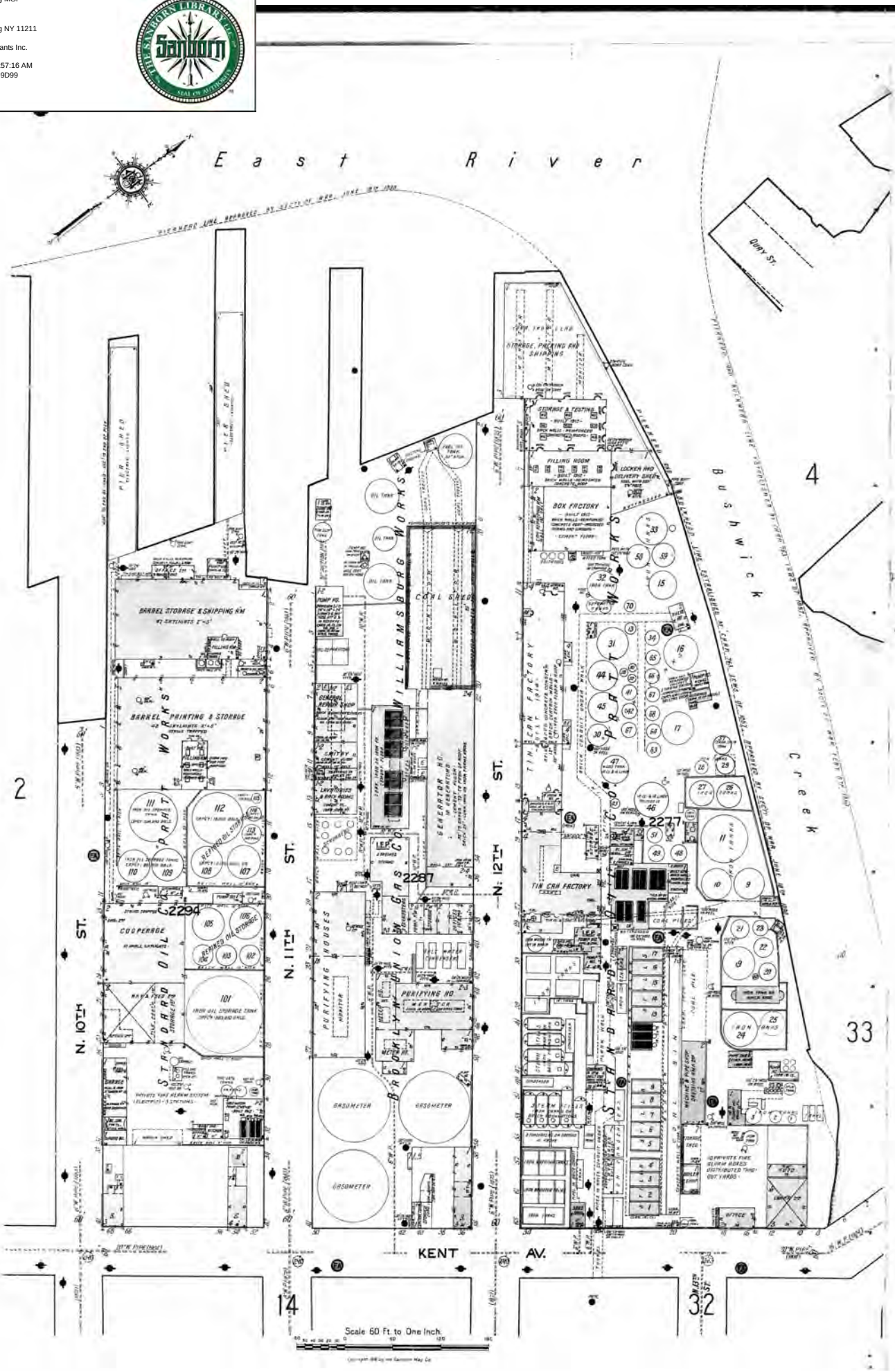

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Copyright: 1905

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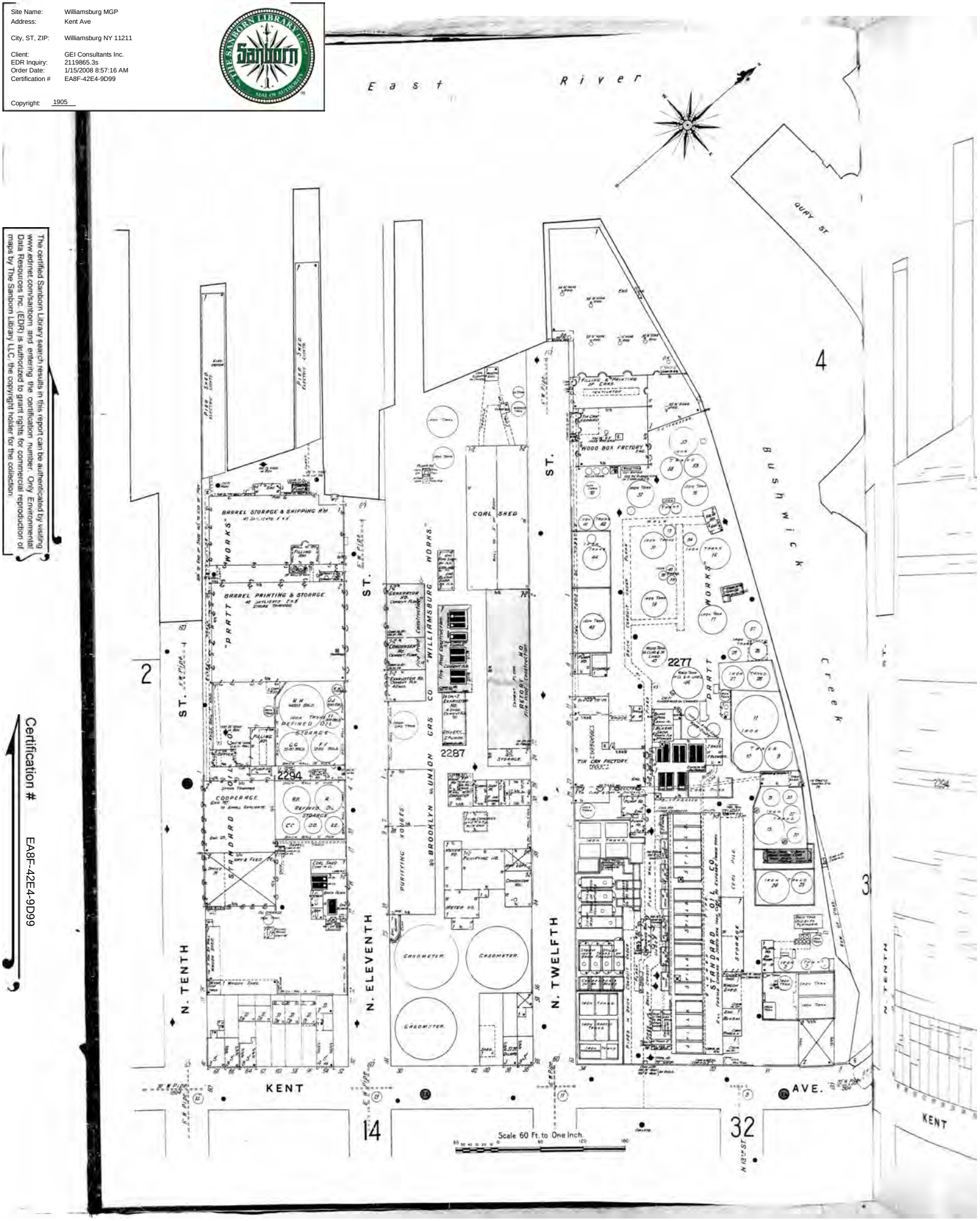

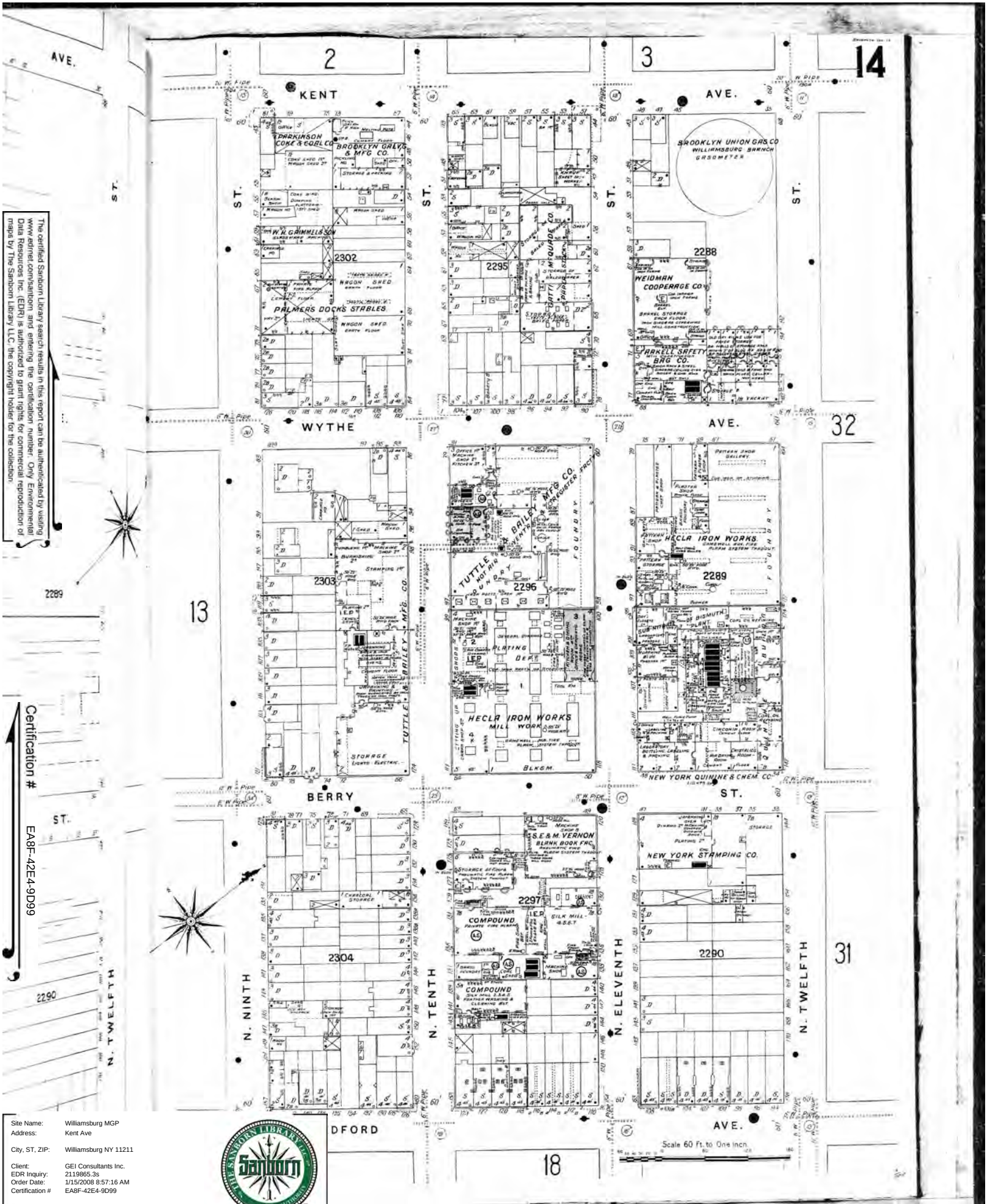

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Copyright: 1887

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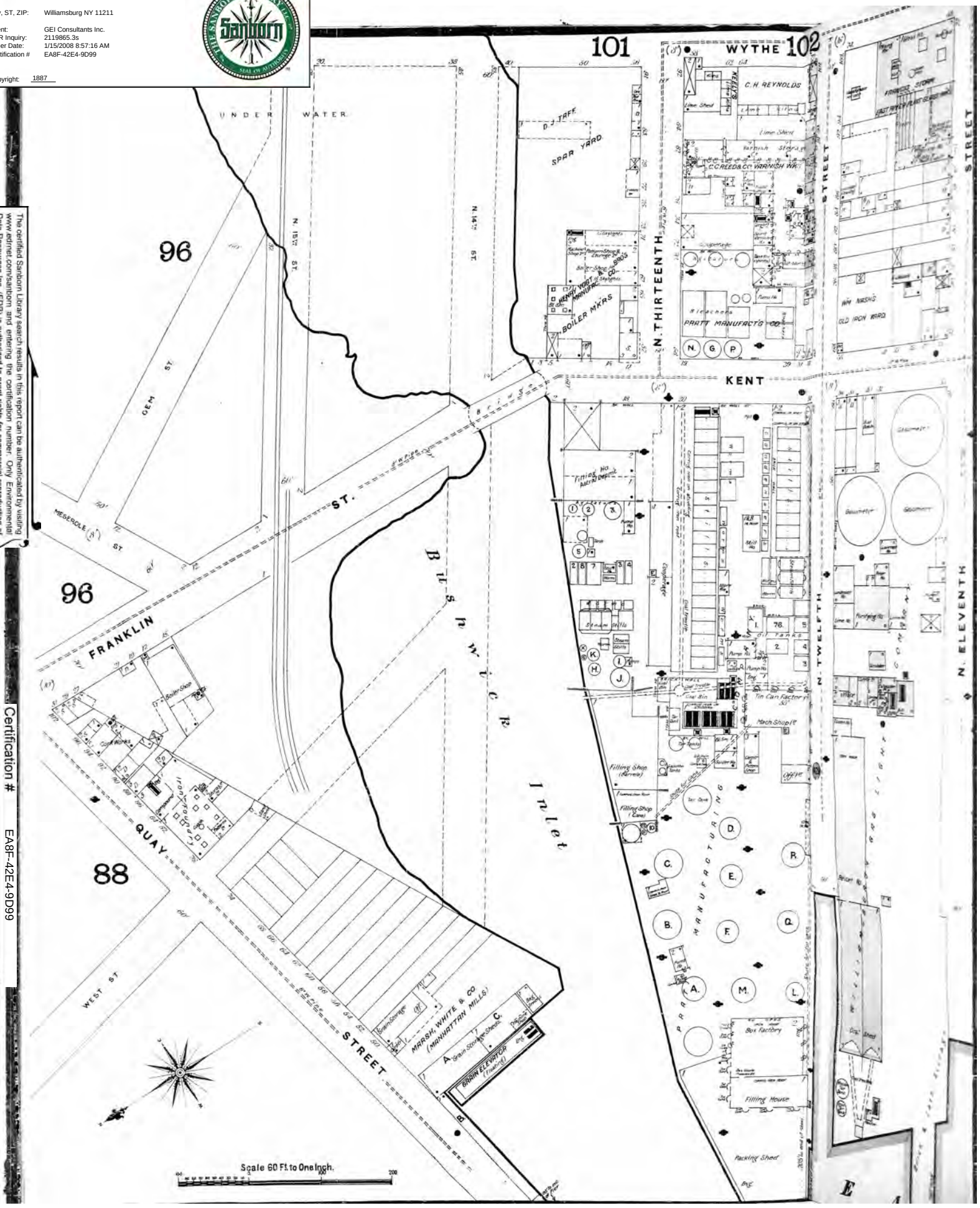

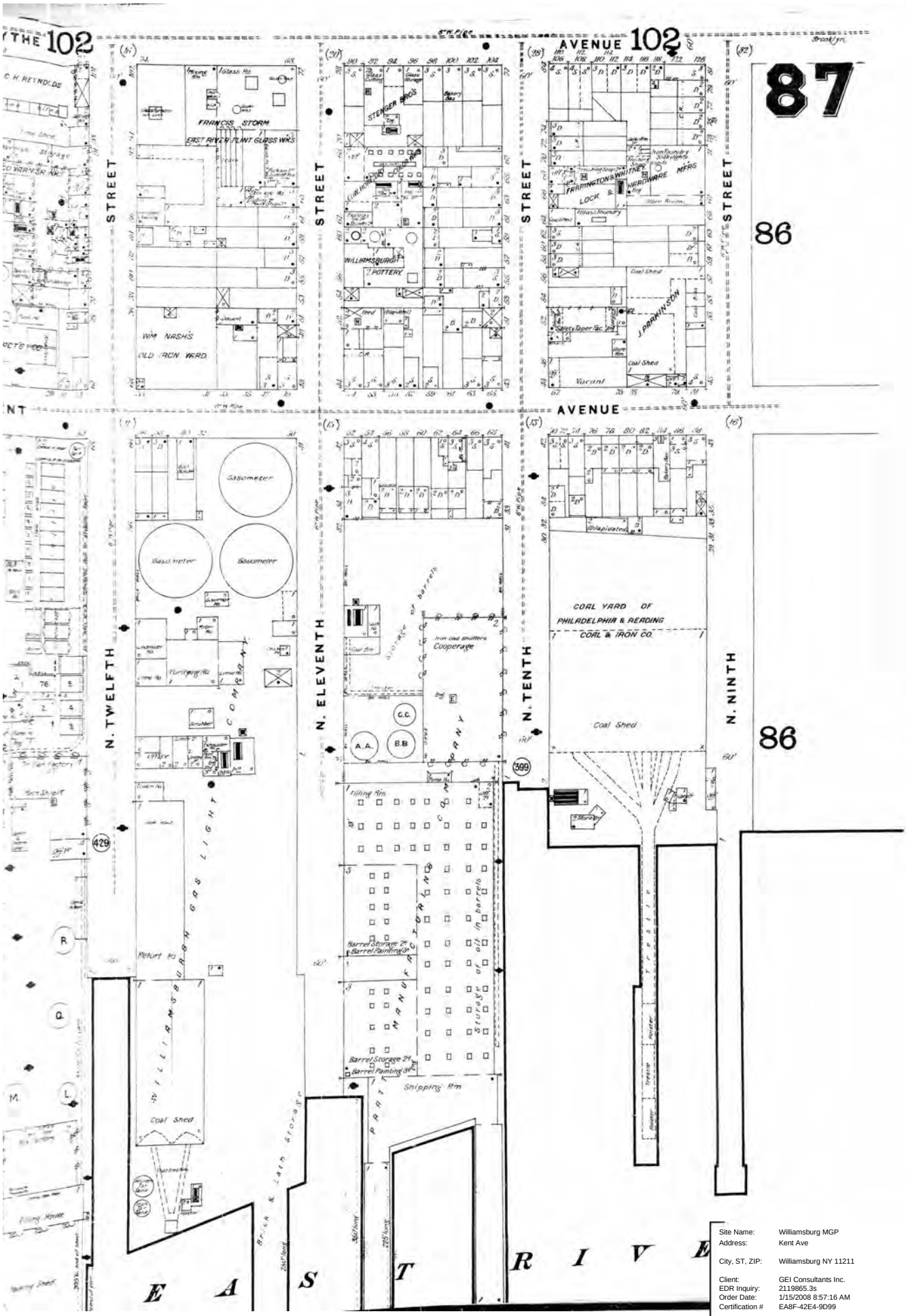

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Copyright: 1887

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The EDR Aerial Photo Decade Package

Williamsburg MGP
Kent Ave
Williamsburg, NY 11211

Inquiry Number: 2119865.4

January 16, 2008

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
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EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography January 16, 2008

Target Property:

Kent Ave

Williamsburg, NY 11211

Year	***Scale***	***Details***	***Source***
1954	Aerial Photograph. Scale: 1"=750'	Panel #: 2440073-F8/Flight Date: February 23, 1954	EDR
1966	Aerial Photograph. Scale: 1"=750'	Panel #: 2440073-F8/Flight Date: February 23, 1966	EDR
1966	Aerial Photograph. Scale: 1"=750'	Panel #: 2440073-F8/Flight Date: February 23, 1966	EDR
1975	Aerial Photograph. Scale: 1"=750'	Panel #: 2440073-F8/Flight Date: April 01, 1975	EDR
1984	Aerial Photograph. Scale: 1"=750'	Panel #: 2440073-F8/Flight Date: April 27, 1984	EDR
1994	Aerial Photograph. Scale: 1"=750'	Panel #: 2440073-F8/Flight Date: April 04, 1994	EDR

INQUIRY #: 2119865.4
YEAR: 1954
= 750'
N

INQUIRY #: 2119865.4
YEAR: 1966
= 750'
N

INQUIRY #: 2119865.4
YEAR: 1966
= 750'
N

INQUIRY #: 2119865.4
YEAR: 1975
= 750'
N

INQUIRY #: 2119865.4

YEAR: 1984

= 750'

N

INQUIRY #: 2119865.4
YEAR: 1994
= 750'
N

Appendix B

Environmental Records Information (electronic only)

The EDR Radius Map
with GeoCheck®

Williamsburg MGP
Kent Ave
Williamsburg, NY 11211

Inquiry Number: 2119865.2s

January 15, 2008

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

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Internet: www.edrnet.com

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Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

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EXECUTIVE SUMMARY

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TARGET PROPERTY INFORMATION

ADDRESS

KENT AVE
WILLIAMSBURG, NY 11211

COORDINATES

Latitude (North):	40.723020 - 40° 43' 22.9''
Longitude (West):	73.959370 - 73° 57' 33.7''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	587887.0
UTM Y (Meters):	4508319.5
Elevation:	10 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	40073-F8 BROOKLYN, NY
Most Recent Revision:	1995

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL National Priority List
Proposed NPL Proposed National Priority List Sites
Delisted NPL National Priority List Deletions
NPL LIENS Federal Superfund Liens
CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
LIENS 2 CERCLA Lien Information
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
HMIRS Hazardous Materials Information Reporting System
DOT OPS Incident and Accident Data

EXECUTIVE SUMMARY

US CDL Clandestine Drug Labs
US BROWNFIELDS A Listing of Brownfields Sites
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
LUCIS Land Use Control Information System
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
ODI Open Dump Inventory
MINES Mines Master Index File
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
RADINFO Radiation Information Database
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SWTIRE Registered Waste Tire Storage & Facility List
ENG CONTROLS Registry of Engineering Controls
INST CONTROL Registry of Institutional Controls
DRYCLEANERS Registered Drycleaners
BROWNFIELDS Brownfields Site List
SPDES State Pollutant Discharge Elimination System
AIRS Air Emissions Data
RES DECL Restrictive Declarations Listing

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

FEDERAL RECORDS

CERCLIS-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 06/21/2007 has revealed that there is 1 CERC-NFRAP site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
SERVICE PLATING CO LTD	***154 N 7TH ST***	***1/4 - 1/2 S***	***AJ238***	***815***

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 09/18/2007 has revealed that there is 1 CORRACTS site within approximately 1.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
RADIAC RESEARCH CORP	***33 S FIRST ST***	***1/2 - 1 SW***	***AP273***	***924***

RCRA-TSDF: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-TSDF list, as provided by EDR, and dated 09/11/2007 has revealed that there is 1 RCRA-TSDF site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
RADIAC RESEARCH CORP	***33 S FIRST ST***	***1/2 - 1 SW***	***AP273***	***924***

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 09/11/2007 has revealed that there are 5 RCRA-LQG sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
432 DRIGGS AVENUE CORP	181 N 11TH ST	1/4 - 1/2 SE	AL241	840

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
432 DRIGGS AVENUE CORP	181 N 11TH ST	1/4 - 1/2 SE	AL242	841

Lower Elevation	Address	Dist / Dir	Map ID	Page
HARDCHROME ELECTRO PROCESSING	***8 MESEROLE AVE***	***1/8 - 1/4 NNE***	***P150***	***438***
NYC TRANSIT - STORAGE FACILITY	90 QUAY ST	1/8 - 1/4 NNE	U167	522
NYC TRANSIT - STORAGE FACILITY	90 QUAY ST	1/8 - 1/4 NNE	U168	524

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 09/11/2007 has revealed that there are 3 RCRA-SQG sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
125 NORTH 10TH STREET LLC	***125 N 10TH ST***	***1/8 - 1/4 SSE***	***W179***	***556***
WH CHRISTIAN & SONS	***211-217 BANKER ST***	***1/4 - 1/2 NE***	***AC206***	***677***

Lower Elevation	Address	Dist / Dir	Map ID	Page
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 09/11/2007 has revealed that there are 5 RCRA-CESQG sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NYCTA - 7TH STREET FAN PLANT	***N 7TH & KENT ST***	***1/8 - 1/4 SSW***	***Q138***	***413***
CLEANERS SALES & EQUIPMENT	***135 KENT AVE***	***1/4 - 1/2 SW***	***Y214***	***721***
NYC BD OF ED - AUTOMOTIVE HIGH	***50 BEDFORD AVE***	***1/4 - 1/2 E***	***AI234***	***796***

Lower Elevation	Address	Dist / Dir	Map ID	Page
NYCDEP - BROOKLYN WATER MAINTE	22 N 15TH ST	1/8 - 1/4 NE	P106	319
NYCDEP - BROOKLYN WATER MAINTE	22 N 15TH ST	1/8 - 1/4 NE	P107	320

EXECUTIVE SUMMARY

RCRA-NonGen: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA-NonGen list, as provided by EDR, and dated 09/11/2007 has revealed that there are 25 RCRA-NonGen sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NYC DEPT OF SANITATION BROOKLY	***50 KENT AVENUE***	***0 - 1/8 S***	***A31***	***85***
54 NORTH 11TH ST BUILDING	***54 NORTH 11TH STREET***	***0 - 1/8 SSE***	***B34***	***92***
CON ED - MH 4353	***N 10 ST & KENT AVE***	***0 - 1/8 SSW***	***C39***	***116***
V5137	***44-84 N 10TH STREET***	***0 - 1/8 SSW***	***C46***	***130***
CON EDISON - VAULT 4146	13 ST & KENT AVE	0 - 1/8 ENE	D50	136
CON EDISON - VAULT 4146	13 ST & KENT AVE	0 - 1/8 ENE	D51	138
BLAST OFF SERVICES INC	***91 N 12TH ST 1ST FLOOR***	***0 - 1/8 E***	***D53***	***153***
SYLVAN EQUIPMENT CORP	***91 N 12TH ST***	***0 - 1/8 E***	***D57***	***167***
NATIONS RENT	***91 N 12TH ST***	***0 - 1/8 E***	***D58***	***169***
CITY METAL SMELTING & REFINING	***61 N 13TH ST***	***0 - 1/8 E***	***G69***	***187***
MANHATTAN POLY BAG CO	***94 N 13TH ST***	***1/8 - 1/4 E***	***G86***	***217***
BROOKLYN EASTERN DISTRICT TERM	***116 KENT AVE***	***1/8 - 1/4 SSW***	***Q124***	***355***
SEAL RITE PAINT & CHEMICAL	***119 N 11TH ST***	***1/8 - 1/4 SE***	***O143***	***424***
CON ED - MH 57009	***55 BERRY ST***	***1/8 - 1/4 SE***	***W147***	***430***
TANKS-A-LOT INC	***115 KENT AVE***	***1/8 - 1/4 SSW***	***Q157***	***461***
REGENT CONTROL CORP	***4-6 BERRY ST***	***1/8 - 1/4 E***	***AA183***	***591***
NASHMATEL WARE	***1 NASSAU AVE***	***1/8 - 1/4 E***	***AA199***	***654***
W H CHRISTIAN & SONS INC	***31 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U202***	***670***

Lower Elevation	Address	Dist / Dir	Map ID	Page
TRANSGAS ENERGY SYSTEMS LLC	***1 N 12TH ST - SUB YARD***	***1/8 - 1/4 NW***	***M93***	***279***
V E 2 PLATING CO	***7-11 N 15 ST***	***1/8 - 1/4 NE***	***P101***	***296***
POLY CONVERTERS OF AMERICA INC	***2 MESEROLE AVE***	***1/8 - 1/4 NNE***	***P131***	***370***
CON EDISON - VS 5778	***40-49 QUAY ST.***	***1/8 - 1/4 N***	***X152***	***447***
WH CHRISTIAN & SONS	***22-28 FRANKLIN STREET***	***1/8 - 1/4 NNE***	***U160***	***486***
PAT & DOMS BODY & FENDER REPAI	***25 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U178***	***546***
CONSOLIDATED FREIGHTWAYS	***11 WEST ST***	***1/8 - 1/4 N***	***X193***	***635***

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 12/31/2006 has revealed that there are 5 ERNS sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NORTH 12TH AND KENT	NORTH 12TH AND KENT	0 - 1/8 ENE	A32	92

Lower Elevation	Address	Dist / Dir	Map ID	Page
15 NORTH 11TH STREET	15 NORTH 11TH STREET	0 - 1/8 WNW	E60	173
20 NORTH 12TH ST PIER 12	20 NORTH 12TH ST PIER 1	0 - 1/8 NW	F72	192
BAY SIDE FUEL	BAY SIDE FUEL	0 - 1/8 W	I82	212
BAYSIDE FUEL DOCK	BAYSIDE FUEL DOCK	0 - 1/8 W	I83	213

EXECUTIVE SUMMARY

FTTS: FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act) over the previous five years. To maintain currency, EDR contacts the Agency on a quarterly basis.

A review of the FTTS list, as provided by EDR, and dated 07/06/2007 has revealed that there is 1 FTTS site within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
EATON ALLEN CORP	67 KENT AVE	0 - 1/8 SSW	C43	128

HIST FTTS: A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

A review of the HIST FTTS list, as provided by EDR, and dated 10/19/2006 has revealed that there is 1 HIST FTTS site within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
EATON ALLEN CORP	67 KENT AVE	0 - 1/8 SSW	C37	112

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 10/18/2007 has revealed that there are 13 FINDS sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NYC DEPT OF SANITATION BROOKLY	***50 KENT AVENUE***	***0 - 1/8 S***	***A31***	***85***
HEMISPHERE STEEL PRODUCTS CO	54 N 11TH ST	0 - 1/8 SSE	B33	92
54 NORTH 11TH ST BUILDING	***54 NORTH 11TH STREET***	***0 - 1/8 SSE***	***B34***	***92***
CON ED - MH 4353	N 10 ST & KENT AVE	0 - 1/8 SSW	C41	127
EATON ALLEN	67 KENT AVENUE	0 - 1/8 SSW	C42	127
V5137	44-84 N 10TH STREET	0 - 1/8 SSW	C45	129
KO-REC-TYPE CORP	67 KENT AVE	0 - 1/8 SSW	C48	134
BLAST OFF SERVICES INC	***91 N 12TH ST 1ST FLOOR***	***0 - 1/8 E***	***D53***	***153***
SYLVAN EQUIPMENT CORP	***91 N 12TH ST***	***0 - 1/8 E***	***D57***	***167***
NATIONS RENT	***91 N 12TH ST***	***0 - 1/8 E***	***D58***	***169***
ALBEST METAL STAMPING	1 KENT AVE	0 - 1/8 NE	D67	185
CITY METAL SMELTING & REFINING	***61 N 13TH ST***	***0 - 1/8 E***	***G69***	***187***

Lower Elevation	Address	Dist / Dir	Map ID	Page
N 12TH ST TRANSFER CORP-20 N 1	20 NORTH 12TH STREET	0 - 1/8 NW	F73	192

EXECUTIVE SUMMARY

STATE AND LOCAL RECORDS

HSWDS: The List includes any known or suspected hazardous substance waste disposal sites. Also included are sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites and non-registry sites that U.S. EPA Preliminary Assessment (PA) reports or Site Investigation (SI) reports were prepared. Hazardous Substance Waste Disposal Sites are eligible to be Superfund sites now that the New York State Superfund has been refinanced and changed. This means that the study inventory has served its purpose and will no longer be maintained as a separate entity The latest version of the study is frozen in time. The sites on the study will not automatically be made superfund sites, rather each site will be further evaluated for listing in the registry. So overtime they will be added to the registry or not.

A review of the HSWDS list, as provided by EDR, and dated 01/01/2003 has revealed that there is 1 HSWDS site within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BUG, WILLIAMSBURG WORKS	KENT AVENUE, NORTH 12TH	0 - 1/8	A7	16

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Conservation's Inactive Hazardous waste Disposal Sites in New York State.

A review of the SHWS list, as provided by EDR, and dated 08/15/2007 has revealed that there is 1 SHWS site within approximately 1.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BQE/ANSBACHER COLOR & DYE FACT	MEEKER AVENUE	1/2 - 1 SSE	275	1030

Class Code: Does not present a significant threat to the public health or the environment - action may be deferred.

DEL SHWS: A database listing of sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites.

A review of the DEL SHWS list, as provided by EDR, and dated 05/01/2007 has revealed that there are 2 DEL SHWS sites within approximately 1.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MOBIL OIL BROOKLYN TERMINAL	300 NORTH HENRY STREET	1/2 - 1 ENE	278	1032
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
FORMER MANHATTAN ADHESIVES PLA	425-459 GREENPOINT AVEN	1 - 2 NE	279	1034

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the list.

A review of the SWF/LF list, as provided by EDR, and dated 10/26/2007 has revealed that there are 8 SWF/LF sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CORZO CONTRACTING CO INC	190 BANKER STREET	1/8 - 1/4 ENE	AB196	648
NATIONAL PAPER STOCK; INC.	136 NORTH 10TH STREET	1/8 - 1/4 SSE	W204	675
JORAL CARTING INC.	157 KENT AVE.	1/4 - 1/2 SW	AG247	851
V. M. TRANSFER; LTD.(CARDELLA)	175 KENT AVE	1/4 - 1/2 SW	249	853

Lower Elevation	Address	Dist / Dir	Map ID	Page
NORTH 12TH AVE & KENT AVE	***N 12TH AVE / KENT AVE***	***0 - 1/8 NW***	***F75***	***194***
LOSTRITTO & CALANDRILLO CORP.	1-23 MESEROLE AVE	1/8 - 1/4 NNE	P133	403
NEKBOH RECYCLING(5 N. 7TH ST.	5 NORTH 7TH STREET (KE	1/8 - 1/4 WSW	182	590
DEMICCO BROS. INC.	***2 NORTH 5TH STREET***	***1/4 - 1/2 SW***	***AH229***	***782***

Registered Recycling Facility List from the Department of Environmental Conservation.

A review of the SWRCY list, as provided by EDR, and dated 10/26/2007 has revealed that there are 2 SWRCY sites within approximately 0.625 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
DEMICCO BROS. INC.	***2 NORTH 5TH STREET***	***1/4 - 1/2 SW***	***AH229***	***782***
RECYCLE AMERICA ALLIANCE (A WA	2 NORTH 5TH STREET	1/4 - 1/2 SW	AH230	784

LTANKS: Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills

A review of the LTANKS list, as provided by EDR, and dated 10/02/2007 has revealed that there are 37 LTANKS sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BROOKLYN NORTH ONE Date Closed: 05/31/05	***50 KENT AVE***	***0 - 1/8 S***	***A30***	***82***
BAROUH EATON CORP Date Closed: 05/06/03	***67 KENT AVENUE***	***0 - 1/8 SSW***	***C40***	***124***
NATIONS RENT Date Closed: 12/09/03	***91 N. 12TH ST***	***0 - 1/8 E***	***D55***	***158***
Not reported Date Closed: 10/31/05	***93 NORTH 9TH ST***	***1/8 - 1/4 S***	***L115***	***334***
COMMERCIAL BUILDING Date Closed: 06/21/05	***93 NORTH 9TH STREET***	***1/8 - 1/4 S***	***L116***	***337***
146 WYTHE AVE/BROOKLYN Date Closed: 08/24/89	***146 WYTHE AVENUE***	***1/8 - 1/4 S***	***R136***	***407***
NASH METALWARE CO. Date Closed: / /	***1 NASSAU AVE.***	***1/8 - 1/4 E***	***AA197***	***649***
WH CHRISTIAN & SONS Date Closed: 03/03/03	***31 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U201***	***668***
X Date Closed: 05/26/05	211 BANKER STREET	1/4 - 1/2 NE	AC205	676
PS 610 Date Closed: 03/21/05 Date Closed: / /	***50 BEDFORD AVE***	***1/4 - 1/2 E***	***AI232***	***788***

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WINTER RESIDENCE Date Closed: 05/10/07	167 N. 9TH ST	1/4 - 1/2 SSE	235	808
154-158 NORTH 7TH ST/BKLY Date Closed: / /	***154-158 NORTH 7TH STREE***	***1/4 - 1/2 S***	***AJ237***	***812***
187 BEDFORD AVE Date Closed: / /	187 BEDFORD AVENUE	1/4 - 1/2 SSE	AJ248	852
ST VINCENT DEPAUL CHURCH Date Closed: 12/21/05	167 N. 6TH ST	1/4 - 1/2 SSE	AN250	854
NYCPD 94TH PRECINCT Date Closed: / /	100 MESEROLE AVENUE	1/4 - 1/2 NE	251	855
RESIDENCE Date Closed: 02/21/06	92 NORMAN AVE	1/4 - 1/2 ENE	252	860
111 MILTON STREET Date Closed: 01/27/94	***111 MILTON STREET***	***1/4 - 1/2 NNE***	***253***	***861***
Not reported Date Closed: 12/12/03	***179 N 6TH STREET***	***1/4 - 1/2 SSE***	***AN254***	***864***
NORTH 1ST ST TERMINAL Date Closed: / /	***214 KENT AVE***	***1/4 - 1/2 SW***	***AO256***	***873***
UNKNOWN GAS STATION Date Closed: 10/25/05	***2 ROBLING ST***	***1/4 - 1/2 SE***	***257***	***883***
46-11 METROPOLITAN AVE Date Closed: 12/12/96	***46-11 METROPOLITAN AVE***	***1/4 - 1/2 SW***	***AO259***	***886***
NORTH 1ST ST TERMINAL Date Closed: / /	***N FIRST ST / KENT AV***	***1/4 - 1/2 SW***	***AO260***	***888***
NORTH 1ST ST TERMINAL Date Closed: 11/24/90	***NORTH 1ST ST / KENT A***	***1/2 - 1 SW***	***AO263***	***892***
FYN PAINT Date Closed: 05/23/00	***33 NORTH 1ST STREET***	***1/2 - 1 SW***	***264***	***899***
140 GREENPOINT AVE Date Closed: 10/28/03	***140 GREENPOINT AVE***	***1/2 - 1 NNE***	***265***	***902***
ADAMS DELI Date Closed: 03/14/01	***112 NASSAU AVE***	***1/2 - 1 E***	***266***	***904***
BRUMAR SHEET METAL INC Date Closed: 09/26/06	498 LEONARD STREET	1/2 - 1 E	267	907
GNA AUTO Date Closed: / /	308 METROPOLITAN AVE	1/2 - 1 S	268	909
BERKMAN BROS. INC. Date Closed: 03/31/93	***55 ECKFORD ST.***	***1/2 - 1 E***	***269***	***910***
176 MCGUINNES AVE/GAS STA Date Closed: / /	***176 MCGUINES AVE***	***1/2 - 1 NE***	***270***	***914***
68 RICHARDSON STREET Date Closed: 06/11/01	***68 RICHARDSON STREET***	***1/2 - 1 ESE***	***271***	***917***
145 WEST STREET Date Closed: 12/02/94 Date Closed: 12/02/94	***145 WEST STREET***	***1/2 - 1 N***	***272***	***919***
D61 KENT AVE. BKLYN/RADIA Date Closed: 08/05/87	***261 KENT AVE.***	***1/2 - 1 SW***	***AP274***	***1027***

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
TRANSGAS ENERGY SYSTEMS Date Closed: 09/22/06	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***
WH CHRISTIAN & SONS Date Closed: / /	***22-28 FRANKLIN STREET***	***1/8 - 1/4 NNE***	***U160***	***486***
11 WEST STREET Date Closed: 03/06/03	***11 WEST STREET***	***1/8 - 1/4 N***	***X194***	***639***
USA WASTE OF NYC Date Closed: 11/23/05	***2 N 5TH ST***	***1/4 - 1/2 SW***	***AH231***	***785***

HIST LTANKS: A listing of leaking underground and aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills. In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY LTANKS database.

A review of the HIST LTANKS list, as provided by EDR, and dated 01/01/2002 has revealed that there are 25 HIST LTANKS sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BAROUH EATON CORP	***67 KENT AVENUE***	***0 - 1/8 SSW***	***C40***	***124***
NATIONS RENT	***91 N. 12TH ST***	***0 - 1/8 E***	***D55***	***158***
Not reported	***93 NORTH 9TH ST***	***1/8 - 1/4 S***	***L115***	***334***
COMMERCIAL BUILDING	***93 NORTH 9TH STREET***	***1/8 - 1/4 S***	***L116***	***337***
146 WYTHE AVE/BROOKLYN	***146 WYTHE AVENUE***	***1/8 - 1/4 S***	***R136***	***407***
WH CHRISTIAN & SONS	***31 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U201***	***668***
PS 610	***50 BEDFORD AVE***	***1/4 - 1/2 E***	***AI232***	***788***
154-158 NORTH 7TH ST/BKLY	***154-158 NORTH 7TH STREE***	***1/4 - 1/2 S***	***AJ237***	***812***
111 MILTON STREET	***111 MILTON STREET***	***1/4 - 1/2 NNE***	***253***	***861***
Not reported	***179 N 6TH STREET***	***1/4 - 1/2 SSE***	***AN254***	***864***
NORTH 1ST ST TERMINAL	***214 KENT AVE***	***1/4 - 1/2 SW***	***AO256***	***873***
UNKNOWN GAS STATION	***2 ROBLING ST***	***1/4 - 1/2 SE***	***257***	***883***
46-11 METROPOLITAN AVE	***46-11 METROPOLITAN AVE***	***1/4 - 1/2 SW***	***AO259***	***886***
NORTH 1ST ST TERMINAL	***N FIRST ST / KENT AV***	***1/4 - 1/2 SW***	***AO260***	***888***
NORTH 1ST ST TERMINAL	***NORTH 1ST ST / KENT A***	***1/2 - 1 SW***	***AO263***	***892***
FYN PAINT	***33 NORTH 1ST STREET***	***1/2 - 1 SW***	***264***	***899***
ADAMS DELI	***112 NASSAU AVE***	***1/2 - 1 E***	***266***	***904***
BERKMAN BROS. INC.	***55 ECKFORD ST.***	***1/2 - 1 E***	***269***	***910***
176 MCGUINNES AVE/GAS STA	***176 MCGUINES AVE***	***1/2 - 1 NE***	***270***	***914***
68 RICHARDSON STREET	***68 RICHARDSON STREET***	***1/2 - 1 ESE***	***271***	***917***
145 WEST STREET	***145 WEST STREET***	***1/2 - 1 N***	***272***	***919***
D61 KENT AVE. BKLYN/RADIA	***261 KENT AVE.***	***1/2 - 1 SW***	***AP274***	***1027***

Lower Elevation	Address	Dist / Dir	Map ID	Page
WH CHRISTIAN & SONS	***22-28 FRANKLIN STREET***	***1/8 - 1/4 NNE***	***U160***	***486***
11 WEST STREET	***11 WEST STREET***	***1/8 - 1/4 N***	***X194***	***639***
USA WASTE OF NYC	***2 N 5TH ST***	***1/4 - 1/2 SW***	***AH231***	***785***

EXECUTIVE SUMMARY

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the UST list, as provided by EDR, and dated 10/02/2007 has revealed that there are 31 UST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
DSNY BROOKLYN DISTRICT 1 GARAG	50 KENT AVENUE	0 - 1/8 S	A28	77
NATIONS RENT	***91 NORTH 12TH STREET***	***0 - 1/8 E***	***D52***	***139***
MILLCRAFT MFG CO. IN	***75 NORTH 11TH ST***	***0 - 1/8 SE***	***64***	***178***
STANDARD WHITE METALS CORP	***121 N 12 ST***	***1/8 - 1/4 ESE***	***H91***	***239***
JOSEPH J SARCONA TRUCKING CO	***124 NORTH 12TH STREET***	***1/8 - 1/4 ESE***	***N96***	***285***
168 NORTH 14TH STREET	168 NORTH 14TH STREET	1/8 - 1/4 E	98	291
EAST RIVER STATE PARK (FORMERL	32 NORTH 8TH STREET	1/8 - 1/4 SW	Q108	322
NORTHSIDE ARTS INDUSTRIES CON	***119 NORTH 11TH STREET***	***1/8 - 1/4 SE***	***O142***	***421***
CARPORT CORP.	115 KENT AVENUE	1/8 - 1/4 SSW	Q158	481
125 NORTH TENTH ST	***125 N. 10TH ST***	***1/8 - 1/4 SSE***	***W181***	***586***
CORZO CONTRACTING CO INC	***190 BANKER STREET***	***1/8 - 1/4 ENE***	***AB195***	***644***
NASH METAL WARE CO, INC	***1 NASSAU AVENUE***	***1/8 - 1/4 E***	***AA198***	***651***
W. H. CHRISTIAN & SONS INC	***31 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U200***	***659***
WH CHRISTIAN & SONS	***211-217 BANKER ST***	***1/4 - 1/2 NE***	***AC206***	***677***
ERDE BAKERY	***170 WYTHE AVENUE***	***1/4 - 1/2 SSW***	***AD207***	***702***
139 NORTH 10TH STREET	***139 NORTH 10TH STREET***	***1/4 - 1/2 SE***	***211***	***715***
135 KENT AVE. MGMT. CORP.	135 KENT AVENUE	1/4 - 1/2 SW	Y215	724
S & B CAAMANO	***54 FRANKLIN ST***	***1/4 - 1/2 NNE***	***217***	***727***
MONTROSE SUPPLY & EQUIP CO	71 NORTH 6TH ST	1/4 - 1/2 SSW	AD218	730
S.C. TRUCK & AUTO REPAIR INC	***125 BERRY STREET***	***1/4 - 1/2 S***	***225***	***764***
AUTOMOTIVE TRADES HS	***50 BEDFORD AVENUE***	***1/4 - 1/2 E***	***AI233***	***792***
SERVICE PLATING CO LTD	***154 N 7TH ST***	***1/4 - 1/2 S***	***AJ238***	***815***
51-55 NASSAU AVENUE	51-55 NASSAU AVENUE	1/4 - 1/2 E	AM243	843
RIZZO TRUCKING INC	***91 N 5TH ST***	***1/4 - 1/2 S***	***246***	***848***

Lower Elevation	Address	Dist / Dir	Map ID	Page
V E 2 PLATING CO	***7-11 N 15 ST***	***1/8 - 1/4 NE***	***P101***	***296***
ACME SMOKED FISH CO	***26-56 GEM ST***	***1/8 - 1/4 NE***	***S129***	***365***
QUAY STREET SHOP	***40-96 QUAY STREET***	***1/8 - 1/4 N***	***X153***	***450***
W. H. CHRISTIAN & SONS, INC.	22-28 FRANKLIN STREET	1/8 - 1/4 NNE	U161	509
CONSOLIDATED FREIGHTWAYS	***11 WEST STREET***	***1/8 - 1/4 N***	***X191***	***606***
P. CHIMENTO TRUCKING, INC	***11 WEST ST***	***1/8 - 1/4 N***	***X192***	***609***
USA WASTE SERVICES, INC.	***2 NORTH FIFTH STREET***	***1/4 - 1/2 SW***	***AH228***	***776***

CBS UST: Chemical Bulk Storage Database. Registration data collected as required by 6 NYCRR Part 596. It includes facilities storing hazardous substances listed in 6 NYCRR Part 597, in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size. Includes facilities registered (and closed) since effective date of CBS regulations (July 15, 1988) through the date request is processed.

A review of the CBS UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 2 CBS UST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BAROUH EATON ALLEN CORP.	***67 KENT AVE.***	***0 - 1/8 SSW***	***C47***	***131***

Lower Elevation	Address	Dist / Dir	Map ID	Page
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

EXECUTIVE SUMMARY

MOSF UST: Major Oil Storage Facilities Database. Facilities are licensed pursuant to Article 12 of the Navigation Law, 6 NYCRR Part 610 and 17 NYCRR Part 30. These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater. Includes MOSF's licensed or closed since April 1, 1986, (responsibility was transferred from DOT on October 13, 1985) plus available data obtained from DOT facilities licensed since Article 12 became law on April 1, 1978.

A review of the MOSF UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 2 MOSF UST sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NORTH FIRST STREET FUEL OIL TE	***214 KENT AVENUE***	***1/4 - 1/2 SW***	***AO255***	***866***
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

HIST UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the HIST UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 29 HIST UST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BROOKLYN NORTH 1 (BROOKLYN GAR	***50 KENT AVENUE***	***0 - 1/8 S***	***A26***	***62***
NATIONS RENT	***91 NORTH 12TH STREET***	***0 - 1/8 E***	***D52***	***139***
MILLCRAFT MFG CO. IN	***75 NORTH 11TH ST***	***0 - 1/8 SE***	***64***	***178***
STANDARD WHITE METALS CORP	***121 N 12 ST***	***1/8 - 1/4 ESE***	***H91***	***239***
JOSEPH J SARCONA TRUCKING CO	***124 NORTH 12TH STREET***	***1/8 - 1/4 ESE***	***N96***	***285***
NORTHSIDE ARTS INDUSTRIES CON	***119 NORTH 11TH STREET***	***1/8 - 1/4 SE***	***O142***	***421***
C & J COLLISION INC.	115 KENT AVENUE	1/8 - 1/4 SSW	Q156	458
125 NORTH TENTH ST	***125 N. 10TH ST***	***1/8 - 1/4 SSE***	***W181***	***586***
CORZO CONTRACTING CO INC	***190 BANKER STREET***	***1/8 - 1/4 ENE***	***AB195***	***644***
NASH METAL WARE CO, INC	***1 NASSAU AVENUE***	***1/8 - 1/4 E***	***AA198***	***651***
W. H. CHRISTIAN & SONS INC	***31 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U200***	***659***
WH CHRISTIAN & SONS	***211-217 BANKER ST***	***1/4 - 1/2 NE***	***AC206***	***677***
ERDE BAKERY	***170 WYTHE AVENUE***	***1/4 - 1/2 SSW***	***AD207***	***702***
139 NORTH 10TH STREET	***139 NORTH 10TH STREET***	***1/4 - 1/2 SE***	***211***	***715***
S & B CAAMANO	***54 FRANKLIN ST***	***1/4 - 1/2 NNE***	***217***	***727***
MONTROSE SUPPLY & EQUIP CO	***71 NORTH 6TH ST***	***1/4 - 1/2 SSW***	***AD220***	***733***
S.C. TRUCK & AUTO REPAIR INC	***125 BERRY STREET***	***1/4 - 1/2 S***	***225***	***764***
AUTOMOTIVE TRADES HS	***50 BEDFORD AVENUE***	***1/4 - 1/2 E***	***AI233***	***792***
SERVICE PLATING CO LTD	***154 N 7TH ST***	***1/4 - 1/2 S***	***AJ238***	***815***
51-55 NASSAU AVENUE	51-55 NASSAU AVENUE	1/4 - 1/2 E	AM244	844
RIZZO TRUCKING INC	***91 N 5TH ST***	***1/4 - 1/2 S***	***246***	***848***
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
V E 2 PLATING CO	***7-11 N 15 ST***	***1/8 - 1/4 NE***	***P101***	***296***
NYC DEP B-9 FACILITY	22 NORTH 15TH STREET	1/8 - 1/4 NE	P103	309
ACME SMOKED FISH CO	***26-56 GEM ST***	***1/8 - 1/4 NE***	***S129***	***365***
QUAY STREET SHOP	***40-96 QUAY STREET***	***1/8 - 1/4 N***	***X153***	***450***
W H CHRISTIAN & SONS INC	22-28 FRANKLIN ST	1/8 - 1/4 NNE	U159	484
CONSOLIDATED FREIGHTWAYS	***11 WEST STREET***	***1/8 - 1/4 N***	***X191***	***606***
P. CHIMENTO TRUCKING, INC	***11 WEST ST***	***1/8 - 1/4 N***	***X192***	***609***
USA WASTE SERVICES, INC.	***2 NORTH FIFTH STREET***	***1/4 - 1/2 SW***	***AH228***	***776***

EXECUTIVE SUMMARY

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database.

A review of the AST list, as provided by EDR, and dated 10/02/2007 has revealed that there are 20 AST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BROOKLYN NORTH 1 (BROOKLYN GAR	***50 KENT AVENUE***	***0 - 1/8 S***	***A26***	***62***
BAROUH EATON ALLEN CORP.	***67 KENT AVE.***	***0 - 1/8 SSW***	***C47***	***131***
NATIONS RENT	***91 NORTH 12TH STREET***	***0 - 1/8 E***	***D52***	***139***
BAROUH EATON ALLEN CORP.	96 NORTH 10TH STREET	1/8 - 1/4 SSE	L90	238
ENGINE COMPANY 212	***136 WYTHE AVENUE***	***1/8 - 1/4 S***	***K114***	***331***
A & M T EITELBAUM	***111 NORTH 11TH ST***	***1/8 - 1/4 SE***	***O120***	***346***
55 BERRY ST	55 BERRY ST	1/8 - 1/4 SE	O146	429
CORZO CONTRACTING CO INC	***190 BANKER STREET***	***1/8 - 1/4 ENE***	***AB195***	***644***
WH CHRISTIAN & SONS	***211-217 BANKER ST***	***1/4 - 1/2 NE***	***AC206***	***677***
ERDE BAKERY	***170 WYTHE AVENUE***	***1/4 - 1/2 SSW***	***AD207***	***702***
MARGARITA SLAVIK	***95 NORTH 7TH STREET***	***1/4 - 1/2 S***	***AD209***	***711***
MESEROLE AVENUE LLC	239 BANKER STREET	1/4 - 1/2 NE	Z210	713
MONTROSE SUPPLY & EQUIP CO	***71 NORTH 6TH ST***	***1/4 - 1/2 SSW***	***AD220***	***733***
NJZ COLORS INC.	***105 BEDFORD AVENUE***	***1/4 - 1/2 SE***	***AF222***	***747***
JOHN ORAVECZ CHILD CARE	***25 NASSAU AVE***	***1/4 - 1/2 E***	***224***	***761***
FNW REALTY	***151 KENT AVENUE***	***1/4 - 1/2 SW***	***AG227***	***774***
AUTOMOTIVE TRADES HS	***50 BEDFORD AVENUE***	***1/4 - 1/2 E***	***AI233***	***792***
PUBLIC SCHOOL 31 (OLD)-BROOKLY	75 MESEROLE AVE	1/4 - 1/2 NE	AK239	836

Lower Elevation	Address	Dist / Dir	Map ID	Page
P. CHIMENTO TRUCKING, INC	***11 WEST ST***	***1/8 - 1/4 N***	***X192***	***609***
4 GS TRUCK RENTING CO.	150 KENT AVENUE	1/4 - 1/2 SW	AE213	720

HIST AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database.

A review of the HIST AST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 2 HIST AST sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BROOKLYN NORTH 1 (BROOKLYN GAR	***50 KENT AVENUE***	***0 - 1/8 S***	***A26***	***62***
BAROUH EATON ALLEN CORP	67 KENT AVE	0 - 1/8 SSW	C44	128

CBS AST: Chemical Bulk Storage Database. Registration data collected as required by 6 NYCRR Part 596. It includes facilities storing hazardous substances listed in 6 NYCRR Part 597, in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size. Includes facilities registered (and closed) since effective date of CBS regulations (July 15, 1988) through the date request is processed.

A review of the CBS AST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 3 CBS AST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NASH METALWARE CO.	***1 NASSAU AVE.***	***1/8 - 1/4 E***	***AA197***	***649***
CLEANER SALES & EQUIPMENT CORP	***135 KENT AVENUE***	***1/4 - 1/2 SW***	***Y216***	***725***

Lower Elevation	Address	Dist / Dir	Map ID	Page
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

EXECUTIVE SUMMARY

MOSF AST: Major Oil Storage Facilities Database. Facilities are licensed pursuant to Article 12 of the Navigation Law, 6 NYCRR Part 610 and 17 NYCRR Part 30. These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater. Includes MOSF's licensed or closed since April 1, 1986, (responsibility was transferred from DOT on October 13, 1985) plus available data obtained from DOT facilities licensed since Article 12 became law on April 1, 1978.

A review of the MOSF AST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 2 MOSF AST sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NORTH FIRST STREET FUEL OIL TE	***214 KENT AVENUE***	***1/4 - 1/2 SW***	***AO255***	***866***
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

MANIFEST: Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

A review of the NY MANIFEST list, as provided by EDR, and dated 08/27/2007 has revealed that there are 42 NY MANIFEST sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NYC DEPT OF SANITATION BROOKLY	***50 KENT AVENUE***	***0 - 1/8 S***	***A31***	***85***
54 NORTH 11TH ST BUILDING	***54 NORTH 11TH STREET***	***0 - 1/8 SSE***	***B34***	***92***
CON ED - MH 4353	***N 10 ST & KENT AVE***	***0 - 1/8 SSW***	***C39***	***116***
V5137	***44-84 N 10TH STREET***	***0 - 1/8 SSW***	***C46***	***130***
BLAST OFF SERVICES INC	***91 N 12TH ST 1ST FLOOR***	***0 - 1/8 E***	***D53***	***153***
SYLVAN EQUIPMENT CORP	***91 N 12TH ST***	***0 - 1/8 E***	***D57***	***167***
NATIONS RENT	***91 N 12TH ST***	***0 - 1/8 E***	***D58***	***169***
ALBEST METAL STAMPING	1 KENT AVE	0 - 1/8 NE	D66	183
MANHATTAN POLY BAG CO	***94 N 13TH ST***	***1/8 - 1/4 E***	***G86***	***217***
NYCDEP	101 KENT AVE	1/8 - 1/4 SSW	J110	325
CONSOLIDATED EDISON	KENT AVENUE / 8TH STREE	1/8 - 1/4 SSW	J111	326
NYCTA - 7TH STREET FAN PLANT	***N 7TH & KENT ST***	***1/8 - 1/4 SSW***	***Q138***	***413***
CON ED - MH 57009	***55 BERRY ST***	***1/8 - 1/4 SE***	***W147***	***430***
TANKS-A-LOT INC	***115 KENT AVE***	***1/8 - 1/4 SSW***	***Q157***	***461***
125 NORTH 10TH STREET LLC	***125 N 10TH ST***	***1/8 - 1/4 SSE***	***W179***	***556***
REGENT CONTROL CORP	***4-6 BERRY ST***	***1/8 - 1/4 E***	***AA183***	***591***
STRATFORD TOOL	152 BANKER ST	1/8 - 1/4 ENE	AB189	602
NASHMATEL WARE	***1 NASSAU AVE***	***1/8 - 1/4 E***	***AA199***	***654***
WH CHRISTIAN & SONS	***211-217 BANKER ST***	***1/4 - 1/2 NE***	***AC206***	***677***
ARTHUR J EVERS CORP	***221 BANKER ST***	***1/4 - 1/2 NE***	***AC208***	***708***
CLEANERS SALES & EQUIPMENT	***135 KENT AVE***	***1/4 - 1/2 SW***	***Y214***	***721***
MONTROSE TEXTILE MACHINERY CO	***71 N 6TH ST***	***1/4 - 1/2 SSW***	***AD219***	***731***
HORSE HEAD INDUSTRIES	***105 BEDFORD AVENUE***	***1/4 - 1/2 SE***	***AF221***	***744***
N J Z COLORS INC	***105 BEDFORD AVE***	***1/4 - 1/2 SE***	***AF223***	***749***
NYNEX-MANHOLE	***KENT AVE & N 5TH ST***	***1/4 - 1/2 SW***	***AG226***	***772***
NYC BD OF ED - AUTOMOTIVE HIGH	***50 BEDFORD AVE***	***1/4 - 1/2 E***	***AI234***	***796***
C & J COLLISION SERVICE	***74 GUERNSEY ST***	***1/4 - 1/2 ENE***	***236***	***809***
SERVICE PLATING CO LTD	***154 N 7TH ST***	***1/4 - 1/2 S***	***AJ238***	***815***
NYC BD OF ED - PUBLIC SCHOOL 3	***75 MESEROLE AVE***	***1/4 - 1/2 NE***	***AK240***	***837***
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
TRANSGAS ENERGY SYSTEMS LLC	***1 N 12TH ST - SUB YARD***	***1/8 - 1/4 NW***	***M93***	***279***
V E 2 PLATING CO	***7-11 N 15 ST***	***1/8 - 1/4 NE***	***P101***	***296***
POLY CONVERTERS OF AMERICA INC	***2 MESEROLE AVE***	***1/8 - 1/4 NNE***	***P131***	***370***
POLY CONVERTERS OF AMERICA INC	2 MESEROLE AVE	1/8 - 1/4 NNE	P132	390
HARDCHROME ELECTRO PROCESSING	***8 MESEROLE AVE***	***1/8 - 1/4 NNE***	***P150***	***438***
CON EDISON - VS 5778	***40-49 QUAY ST.***	***1/8 - 1/4 N***	***X152***	***447***
WH CHRISTIAN & SONS	***22-28 FRANKLIN STREET***	***1/8 - 1/4 NNE***	***U160***	***486***
NYC TRANSIT - STORAGE FACILITY	90 QUAY ST	1/8 - 1/4 NNE	U169	526
PAT & DOMS BODY & FENDER REPAI	***25 FRANKLIN ST***	***1/8 - 1/4 NNE***	***U178***	***546***
CONSOLIDATED FREIGHTWAYS	***11 WEST ST***	***1/8 - 1/4 N***	***X193***	***635***
WASTE MANAGEMENT OF NEW YORK	***144-162 KENT AVE***	***1/4 - 1/2 SW***	***AE212***	***717***
V2306	***2-50 NOBLE STREET***	***1/4 - 1/2 NNW***	***245***	***846***

SPILLS: Data collected on spills reported to NYSDEC. is required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

A review of the NY Spills list, as provided by EDR, and dated 10/02/2007 has revealed that there are 74 NY Spills sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
KENT AVENUE/N.9TH ST. Date Closed: 06/09/06	***KENT AVE / N 9TH ST***	***0 - 1/8***	***A1***	***6***
MANHOLE 4354 Date Closed: 02/19/03	***KENT AV / 14TH ST***	***0 - 1/8***	***A2***	***8***
MANHOLE 62550 Date Closed: 09/26/00	***KENT AV/NORTH 11 ST***	***0 - 1/8***	***A3***	***10***
TWO PTS OIL IN MANHOLE #4352 Date Closed: / /	KENT AVENUE / NORTH	0 - 1/8	A4	13
VS3477 Date Closed: 06/29/05	KENT AV / N 12TH ST	0 - 1/8	A5	14
MANHOLE #4353 Date Closed: / /	KENT AVENUE / N. 10	0 - 1/8	A6	15
MANHOLE # 4352 Date Closed: / /	KENT AVE / NORTH 11	0 - 1/8	A8	18
MANHOLE # 264, NYNEX Date Closed: 03/06/95	***KENT AVE / N. 12TH STRE***	***0 - 1/8***	***A9***	***19***
MANHOLE 4354 Date Closed: 10/29/02	***KENT AVE/N 14TH ST***	***0 - 1/8***	***A10***	***21***
Not reported Date Closed: 03/18/02	***KENT AV/NORTH 14TH STRE***	***0 - 1/8***	***A11***	***23***
VAULT 3223 Date Closed: 11/28/01	***KENT AVE/ N 11TH ST***	***0 - 1/8***	***A12***	***26***
MANHOLE#4353 Date Closed: / /	KENT AVE./ N. 10TH ST.	0 - 1/8	A13	28
MANHOLE 4352 Date Closed: 08/17/06	***KENT AV / N 11TH ST***	***0 - 1/8***	***A14***	***30***
MANHOLE 4353 Date Closed: 06/05/00 Date Closed: 06/09/06	***KENT AV / 10TH ST***	***0 - 1/8***	***A15***	***32***

**Additional key fields are available in the Map Findings section*

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MANHOLE #4352 Date Closed: 03/27/02	***KENT AVE / NORTH 11TH***	***0 - 1/8***	***A16***	***38***
MANHOLE 4352 Date Closed: 12/18/01	***KENT AVE/N. 11TH AVE***	***0 - 1/8***	***A17***	***40***
N 12TH ST & KENT AVE/BKLY Date Closed: 07/21/89	***NORTH 12TH ST / KENT***	***0 - 1/8 E***	***A18***	***42***
Not reported Date Closed: 03/03/03	***NORTH 12TH ST / KENT***	***0 - 1/8 E***	***A19***	***45***
MANHOLE #63427 VS/3477 Date Closed: / /	NORTH 12TH ST/KENT AVE	0 - 1/8 E	A20	47
REGULATOR B9 TRIPS OUT! Date Closed: 04/29/86	***N.12TH ST. / KENT AVE***	***0 - 1/8 E***	***A21***	***49***
N 12TH ST & KENT AVE Date Closed: 06/09/06	***N 12TH ST / KENT AVE***	***0 - 1/8 E***	***A22***	***51***
VS4120 Date Closed: 09/23/05	N 12 ST AT KENT AVE	0 - 1/8 E	A23	54
50 KENT AVENUE Date Closed: 10/31/03 Date Closed: 12/10/04	***50 KENT AVENUE***	***0 - 1/8 S***	***A24***	***56***
STREET Date Closed: 02/13/03	***NORTH 11 STREET/KENT AV***	***0 - 1/8 S***	***A25***	***60***
MH 4352 Date Closed: 06/11/02	***NORTH 11TH / KENT AVE***	***0 - 1/8 S***	***A27***	***74***
MANHOLE 4352 Date Closed: 02/28/02	***11TH ST / KENT AVE***	***0 - 1/8 S***	***A29***	***79***
NORTH 13TH ST & KENT AVE Date Closed: 06/09/06	***NORTH 13TH ST / KENT***	***0 - 1/8 NE***	***D36***	***110***
N 10TH ST/KENT AVE Date Closed: 06/09/06	***N 10TH ST/KENT AVE***	***0 - 1/8 SSW***	***C38***	***113***
VAULT#4146 Date Closed: 04/22/05	NORTH 13TH/ KENT AVE	0 - 1/8 ENE	D49	135
Not reported Date Closed: 11/19/03	91 NORTH 12TH ST	0 - 1/8 E	D54	157
SYLVAN EQUIPTMENT Date Closed: / /	***91 NORTH 12TH ST***	***0 - 1/8 E***	***D56***	***162***
MANHOLE 59560 Date Closed: 11/26/04	12TH ST / WITHE AVE	0 - 1/8 ESE	H74	192
MANHOLE 627 Date Closed: 01/29/02	***WYTHE AV / N 12TH ST***	***0 - 1/8 ESE***	***H76***	***198***
Not reported Date Closed: 09/22/00	***74-76 WYTHE AV***	***0 - 1/8 ESE***	***H77***	***200***
N 9TH ST & KENT AVE/BKLYN Date Closed: 10/16/97	***N 9TH ST / KENT AVE***	***0 - 1/8 SSW***	***J84***	***213***
WYTHE AVE & N 13TH ST Date Closed: / /	***WYTHE AVE / N 13TH ST***	***1/8 - 1/4 E***	***G85***	***215***
MANHOLE# 25 Date Closed: 10/23/06	9TH ST/WYTHE AVE	1/8 - 1/4 S	K99	293

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MANHOLE #15 Date Closed: 09/28/05	8 ST AT KENT AVE	1/8 - 1/4 SSW	J109	324
MANHOLE 55860 Date Closed: 10/13/05	8 ST / KENT AVE	1/8 - 1/4 SSW	J112	328
IN FRONT OF Date Closed: 09/22/04	90 NORTH 9TH ST	1/8 - 1/4 S	K113	329
RESIDENTS Date Closed: 03/26/97	***67 NORTH 8TH STREET***	***1/8 - 1/4 SSW***	***R117***	***340***
APARTMENT BUILDING Date Closed: / /	***73 NORTH 8TH STREET***	***1/8 - 1/4 SSW***	***K125***	***357***
Not reported Date Closed: 02/25/03	***73 NORTH 8TH ST***	***1/8 - 1/4 SSW***	***K126***	***359***
73 NORTH 8TH ST/BROOKLYN Date Closed: 03/14/05	***73 NORTH 8TH STREET***	***1/8 - 1/4 SSW***	***K127***	***361***
VAULT 2017 Date Closed: 02/07/05	***55 BERRY ST***	***1/8 - 1/4 SE***	***W148***	***433***
VAULT2476 Date Closed: 02/07/05	***55 BERRY ST***	***1/8 - 1/4 SE***	***W149***	***436***
NORTH 7TH ST & KENT AVE Date Closed: 05/18/05	***NORTH 7TH ST / KENT A***	***1/8 - 1/4 SSW***	***Y165***	***516***
KENT AVE BETW N 7 & 8TH Date Closed: 06/09/06	***KENT AVE / N 7TH ST***	***1/8 - 1/4 SSW***	***Y166***	***520***
PARKED VEHICLE AT Date Closed: 01/22/07	135 WYTHE AVE	1/8 - 1/4 S	R174	538
Not reported Date Closed: 10/18/05	***125 NORTH 10TH ST***	***1/8 - 1/4 SSE***	***W180***	***584***
TM 641 Date Closed: 10/23/01	***BANKER ST / NORMAN AV***	***1/8 - 1/4 ENE***	***AB185***	***596***
MANHOLE 64827 Date Closed: 01/19/05	BANKER ST / NORMAN AV	1/8 - 1/4 ENE	AB186	598
MANHOLE 641 Date Closed: 11/19/04	BANKER ST/NORMAN AVE	1/8 - 1/4 ENE	AB187	600
Not reported Date Closed: 09/23/04	150 BANKER ST	1/8 - 1/4 ENE	AB188	601
MANHOLE #39 Date Closed: 03/26/02	***9TH ST/BERRY ST***	***1/8 - 1/4 SSE***	***190***	***604***

Lower Elevation	Address	Dist / Dir	Map ID	Page
WILLIAMSBURG Date Closed: 08/29/86	***WILLIAMSBURG***	***0 - 1/8 NW***	***E68***	***185***
CITY STORAGE Date Closed: 08/10/98	***20 NORTH 12TH ST***	***0 - 1/8 NW***	***F70***	***188***
NORTH 12TH AVE & KENT AVE Date Closed: 06/09/06	***N 12TH AVE / KENT AVE***	***0 - 1/8 NW***	***F75***	***194***
Not reported Date Closed: 06/09/06	***NORTH 14 TH/KENT AVE***	***0 - 1/8 NE***	***D78***	***202***

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
MANHOLE #TM 625	***N 14TH ST / KEMT AV***	***0 - 1/8 NE***	***D79***	***206***
Date Closed: 11/07/02				
TM 625 -	***N. 14TH ST / KENT AVE***	***0 - 1/8 NE***	***D80***	***208***
Date Closed: 06/06/02				
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***
Date Closed: 05/20/03				
Date Closed: 07/11/03				
**Additional key fields are available in the Map Findings section*				
MANHOLE #4347	***FRANKLIN ST / N 15TH***	***1/8 - 1/4 NNE***	***P102***	***307***
Date Closed: 02/19/03				
NYC DEP BORROW SHOP	***22 NORTH 15TH ST***	***1/8 - 1/4 NE***	***P104***	***313***
Date Closed: 05/23/05				
Date Closed: / /				
NYC DEP B9 NORTH 15 YARD	***22 NORTH 15TH STREET***	***1/8 - 1/4 NE***	***P105***	***316***
Date Closed: / /				
VAULT #3533	***15TH ST / GEM ST***	***1/8 - 1/4 ENE***	***S118***	***342***
Date Closed: 10/28/02				
MANHOLE# 62580	18 FRANKLIN ST	1/8 - 1/4 NNE	P141	420
Date Closed: 10/06/06				
STRUCTURE #5778	40-96 QUAY STREET	1/8 - 1/4 N	X155	457
Date Closed: 09/26/03				
VAULT 5803	***QUAY ST/WEST ST***	***1/8 - 1/4 N***	***U163***	***512***
Date Closed: 01/22/02				
VAULT VS3184	***MESEROLE AVE/ GEM ST***	***1/8 - 1/4 NE***	***Z170***	***529***
Date Closed: 10/19/99				
VS #3184	***MESEROLE AVE/GEM ST***	***1/8 - 1/4 NE***	***Z171***	***531***
Date Closed: 02/26/02				
VAULT VS3184	***MESEROLE / GEM ST***	***1/8 - 1/4 NE***	***Z172***	***534***
Date Closed: 05/03/07				
VANAGE SERVICE 3184	***MESEROLE AVE / GEM ST***	***1/8 - 1/4 NE***	***Z173***	***536***
Date Closed: 04/04/02				
11 WEST STREET	***11 WEST STREET***	***1/8 - 1/4 N***	***X194***	***639***
Date Closed: 02/12/03				

HIST SPILLS: This database contains records of chemical and petroleum spill incidents. Under State law, petroleum and hazardous chemical spills that can impact the waters of the state must be reported by the spiller (and, in some cases, by anyone who has knowledge of the spills). In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY SPILLS database.

A review of the NY Hist Spills list, as provided by EDR, and dated 01/01/2002 has revealed that there are 55 NY Hist Spills sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
KENT AVENUE/N.9TH ST.	***KENT AVE / N 9TH ST***	***0 - 1/8***	***A1***	***6***
MANHOLE 4354	***KENT AV / 14TH ST***	***0 - 1/8***	***A2***	***8***
MANHOLE 62550	***KENT AV/NORTH 11 ST***	***0 - 1/8***	***A3***	***10***

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MANHOLE # 264, NYNEX	KENT AVE / N. 12TH STRE	0 - 1/8	A9	19
MANHOLE 4354	KENT AVE/N 14TH ST	0 - 1/8	A10	21
Not reported	KENT AV/NORTH 14TH STRE	0 - 1/8	A11	23
VAULT 3223	KENT AVE/ N 11TH ST	0 - 1/8	A12	26
MANHOLE 4352	KENT AV / N 11TH ST	0 - 1/8	A14	30
MANHOLE 4353	KENT AV / 10TH ST	0 - 1/8	A15	32
MANHOLE #4352	KENT AVE / NORTH 11TH	0 - 1/8	A16	38
MANHOLE 4352	KENT AVE/N. 11TH AVE	0 - 1/8	A17	40
N 12TH ST & KENT AVE/BKLY	NORTH 12TH ST / KENT	0 - 1/8 E	A18	42
Not reported	NORTH 12TH ST / KENT	0 - 1/8 E	A19	45
REGULATOR B9 TRIPS OUT!	N.12TH ST. / KENT AVE	0 - 1/8 E	A21	49
N 12TH ST & KENT AVE	N 12TH ST / KENT AVE	0 - 1/8 E	A22	51
50 KENT AVENUE	50 KENT AVENUE	0 - 1/8 S	A24	56
STREET	NORTH 11 STREET/KENT AV	0 - 1/8 S	A25	60
MH 4352	NORTH 11TH / KENT AVE	0 - 1/8 S	A27	74
MANHOLE 4352	11TH ST / KENT AVE	0 - 1/8 S	A29	79
BROOKLYN NORTH ONE	50 KENT AVE	0 - 1/8 S	A30	82
NORTH 13TH ST & KENT AVE	NORTH 13TH ST / KENT	0 - 1/8 NE	D36	110
N 10TH ST/KENT AVE	N 10TH ST/KENT AVE	0 - 1/8 SSW	C38	113
SYLVAN EQUIPTMENT	91 NORTH 12TH ST	0 - 1/8 E	D56	162
MANHOLE 627	WYTHE AV / N 12TH ST	0 - 1/8 ESE	H76	198
Not reported	74-76 WYTHE AV	0 - 1/8 ESE	H77	200
N 9TH ST & KENT AVE/BKLYN	N 9TH ST / KENT AVE	0 - 1/8 SSW	J84	213
WYTHE AVE & N 13TH ST	WYTHE AVE / N 13TH ST	1/8 - 1/4 E	G85	215
RESIDENTS	67 NORTH 8TH STREET	1/8 - 1/4 SSW	R117	340
APARTMENT BUILDING	73 NORTH 8TH STREET	1/8 - 1/4 SSW	K125	357
Not reported	73 NORTH 8TH ST	1/8 - 1/4 SSW	K126	359
73 NORTH 8TH ST/BROOKLYN	73 NORTH 8TH STREET	1/8 - 1/4 SSW	K127	361
VAULT 2017	55 BERRY ST	1/8 - 1/4 SE	W148	433
VAULT2476	55 BERRY ST	1/8 - 1/4 SE	W149	436
NORTH 7TH ST & KENT AVE	NORTH 7TH ST / KENT A	1/8 - 1/4 SSW	Y165	516
KENT AVE BETW N 7 & 8TH	KENT AVE / N 7TH ST	1/8 - 1/4 SSW	Y166	520
Not reported	125 NORTH 10TH ST	1/8 - 1/4 SSE	W180	584
TM 641	BANKER ST / NORMAN AV	1/8 - 1/4 ENE	AB185	596
MANHOLE #39	9TH ST/BERRY ST	1/8 - 1/4 SSE	190	604

Lower Elevation	Address	Dist / Dir	Map ID	Page
WILLIAMSBURG	WILLIAMSBURG	0 - 1/8 NW	E68	185
CITY STORAGE	20 NORTH 12TH ST	0 - 1/8 NW	F70	188
NORTH 12TH AVE & KENT AVE	N 12TH AVE / KENT AVE	0 - 1/8 NW	F75	194
Not reported	NORTH 14 TH/KENT AVE	0 - 1/8 NE	D78	202
MANHOLE #TM 625	N 14TH ST / KEMT AV	0 - 1/8 NE	D79	206
TM 625 -	N. 14TH ST / KENT AVE	0 - 1/8 NE	D80	208
TRANSGAS ENERGY SYSTEMS	1 NORTH 12TH STREET	1/8 - 1/4 NW	M92	242
MANHOLE #4347	FRANKLIN ST / N 15TH	1/8 - 1/4 NNE	P102	307
NYC DEP BORROW SHOP	22 NORTH 15TH ST	1/8 - 1/4 NE	P104	313
NYC DEP B9 NORTH 15 YARD	22 NORTH 15TH STREET	1/8 - 1/4 NE	P105	316
VAULT #3533	15TH ST / GEM ST	1/8 - 1/4 ENE	S118	342
VAULT 5803	QUAY ST/WEST ST	1/8 - 1/4 N	U163	512
VAULT VS3184	MESEROLE AVE/ GEM ST	1/8 - 1/4 NE	Z170	529
VS #3184	MESEROLE AVE/GEM ST	1/8 - 1/4 NE	Z171	531
VAULT VS3184	MESEROLE / GEM ST	1/8 - 1/4 NE	Z172	534
VANAGE SERVICE 3184	MESEROLE AVE / GEM ST	1/8 - 1/4 NE	Z173	536
11 WEST STREET	11 WEST STREET	1/8 - 1/4 N	X194	639

EXECUTIVE SUMMARY

NY VCP: Voluntary Cleanup Agreements. The voluntary remedial program uses private monies to get contaminated sites remediated to levels allowing for the sites' productive use. The program covers virtually any kind of site and contamination.

A review of the VCP list, as provided by EDR, and dated 08/15/2007 has revealed that there are 3 VCP sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
101-105 WEST STREET	101-105 WEST STREET, BR	1/4 - 1/2 N	261	891
FYN PAINT AND LACQUER CO., INC	230 KENT AVENUE	1/2 - 1 SW	AO262	892
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
BAYSIDE OIL	1-65 NORTH 12TH STREET	1/8 - 1/4 NW	M94	284

MOSF: These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

A review of the MOSF list, as provided by EDR, and dated 10/02/2007 has revealed that there are 3 MOSF sites within approximately 0.625 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NORTH FIRST STREET FUEL OIL TE	***214 KENT AVENUE***	***1/4 - 1/2 SW***	***AO255***	***866***
WILLIAMS MASPETH TERMINAL INC.	46-75 METROPOLITAN AVE	1/4 - 1/2 SSW	AO258	885
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

CBS: These facilities store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size

A review of the CBS list, as provided by EDR, and dated 10/02/2007 has revealed that there are 4 CBS sites within approximately 0.375 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BAROUH EATON ALLEN CORP.	***67 KENT AVE.***	***0 - 1/8 SSW***	***C47***	***131***
NASH METALWARE CO.	***1 NASSAU AVE.***	***1/8 - 1/4 E***	***AA197***	***649***
CLEANER SALES & EQUIPMENT CORP	***135 KENT AVENUE***	***1/4 - 1/2 SW***	***Y216***	***725***
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
TRANSGAS ENERGY SYSTEMS	***1 NORTH 12TH STREET***	***1/8 - 1/4 NW***	***M92***	***242***

E DESIGNATION: Lots designation with an ?E? on the Zoning Maps of the City of New York for potential hazardous material contamination, air and/or noise quality impacts.

A review of the E DESIGNATION list, as provided by EDR, and dated 03/28/2007 has revealed that there are 35 E DESIGNATION sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
LOT 5,TAXBLOCK 2294	33 NORTH 10 STREET	0 - 1/8 SW	C35	108
LOT 70,TAXBLOCK 2301	40 NORTH 10 STREET	0 - 1/8 SW	C61	173

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
LOT 60,TAXBLOCK 2301	32 NORTH 10 STREET	0 - 1/8 SW	C62	175
LOT 5,TAXBLOCK 2309	56 NORTH 9 STREET	1/8 - 1/4 S	K88	234
LOT 13,TAXBLOCK 2309	62 NORTH 9 STREET	1/8 - 1/4 S	K89	236
LOT 14,TAXBLOCK 2296	100 NORTH 11 STREET	1/8 - 1/4 SE	O97	289
LOT 17,TAXBLOCK 2309	70 NORTH 9 STREET	1/8 - 1/4 S	K100	294
LOT 17,TAXBLOCK 2317	74 NORTH 8 STREET	1/8 - 1/4 SSW	K119	345
LOT 12,TAXBLOCK 2317	64 NORTH 8 STREET	1/8 - 1/4 SSW	Q122	352
LOT 6,TAXBLOCK 2317	107 KENT AVENUE	1/8 - 1/4 SSW	Q123	354
LOT 7,TAXBLOCK 2317	105 KENT AVENUE	1/8 - 1/4 SSW	Q128	364
LOT 9,TAXBLOCK 2310	NORTH 9 STREET	1/8 - 1/4 S	T130	368
LOT 16,TAXBLOCK 2317	72 NORTH 8 STREET	1/8 - 1/4 SSW	R134	404
LOT 11,TAXBLOCK 2310	96 NORTH 9 STREET	1/8 - 1/4 S	T135	405
LOT 14,TAXBLOCK 2289	34 BERRY STREET	1/8 - 1/4 ESE	V139	417
LOT 5,TAXBLOCK 2290	33 BERRY STREET	1/8 - 1/4 ESE	V140	419
LOT 1,TAXBLOCK 2317	113 KENT AVENUE	1/8 - 1/4 SSW	Q144	425
LOT 5,TAXBLOCK 2297	55 BERRY STREET	1/8 - 1/4 SE	O145	427
LOT 36,TAXBLOCK 2317	63 NORTH 7 STREET	1/8 - 1/4 SSW	R151	445
LOT 18,TAXBLOCK 2317	76 NORTH 8 STREET	1/8 - 1/4 SSW	R164	515
LOT 11,TAXBLOCK 2325	66 NORTH 7 STREET	1/8 - 1/4 SSW	Y176	542
LOT 12,TAXBLOCK 2325	68 NORTH 7 STREET	1/8 - 1/4 SSW	Y177	544
LOT 10,TAXBLOCK 2290	156 NORTH 12 STREET	1/8 - 1/4 ESE	V184	594
LOT 10,TAXBLOCK 2304	136 NORTH 10 STREET	1/8 - 1/4 SSE	W203	672

Lower Elevation	Address	Dist / Dir	Map ID	Page
LOT 1,TAXBLOCK 2294	16 NORTH 11 STREET	0 - 1/8 WNW	E59	172
LOT 1,TAXBLOCK 2277	26 NORTH 12 STREET	0 - 1/8 NW	F63	177
LOT 1,TAXBLOCK 2287	21 NORTH 12 STREET	0 - 1/8 NW	F65	181
LOT 16,TAXBLOCK 2287	20 NORTH 12 STREET	0 - 1/8 NW	F71	190
LOT 100,TAXBLOCK 2590	1 FRANKLIN STREET	0 - 1/8 NE	D81	211
LOT 30,TAXBLOCK 2287	2 NORTH 11 STREET	1/8 - 1/4 WNW	87	233
LOT 222,TAXBLOCK 2590	9 QUAY STREET	1/8 - 1/4 NNE	P121	349
LOT 215,TAXBLOCK 2590	11 FRANKLIN STREET	1/8 - 1/4 NNE	U137	409
LOT 1,TAXBLOCK 2590	40 QUAY STREET	1/8 - 1/4 N	X154	453
LOT 25,TAXBLOCK 2590	56 QUAY STREET	1/8 - 1/4 N	X162	511
LOT 210,TAXBLOCK 2590	27 FRANKLIN STREET	1/8 - 1/4 NNE	U175	539

EDR PROPRIETARY RECORDS

EDR Manufactured Gas Plants: The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

A review of the Manufactured Gas Plants list, as provided by EDR, has revealed that there are 3 Manufactured Gas Plants sites within approximately 1.125 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WYTHE AVE. (BERRY ST.) STATION	WYTHE AVE., BERRY ST.,	1/8 - 1/4 ESE	N95	284

EXECUTIVE SUMMARY

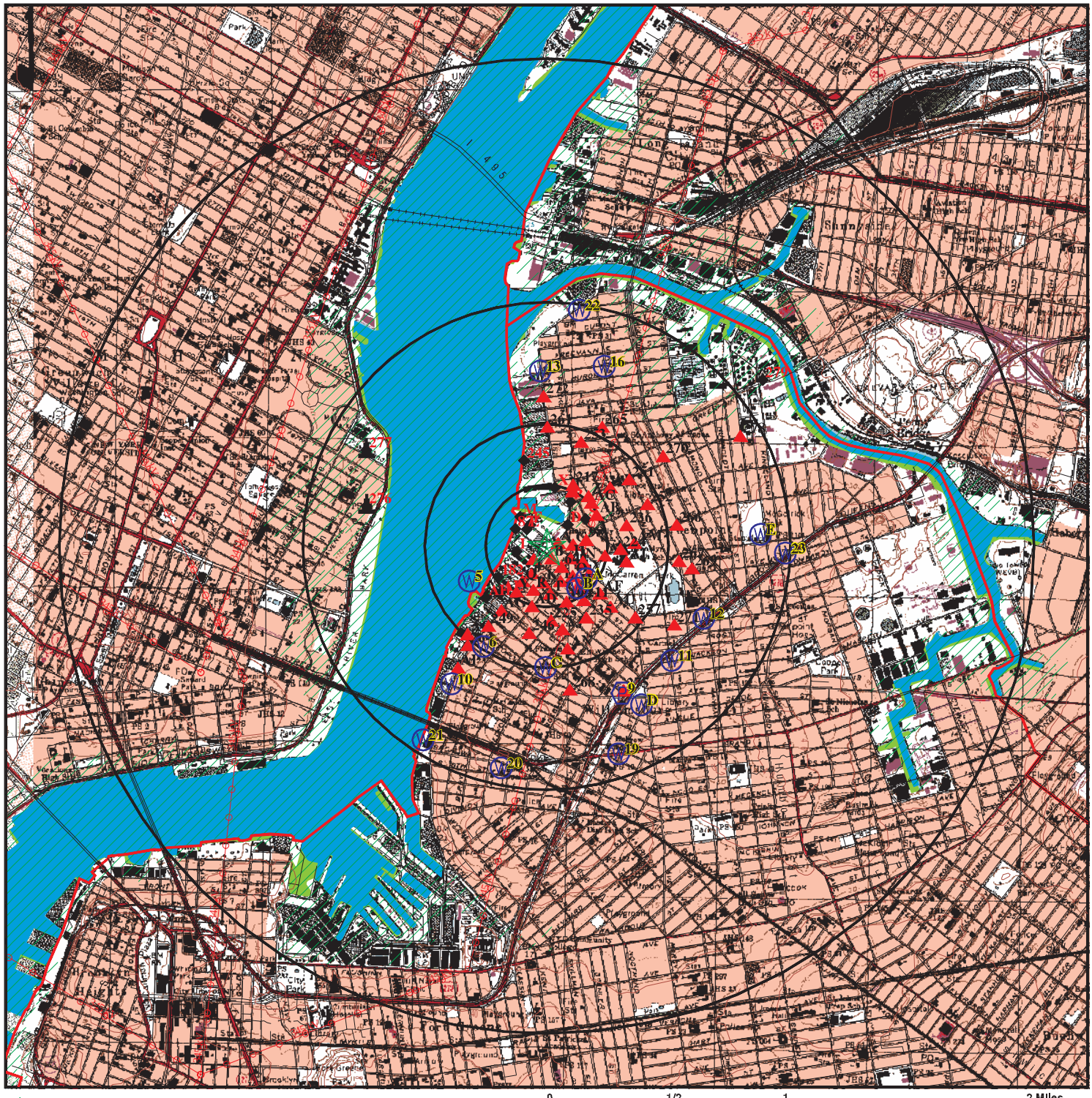
Lower Elevation	Address	Dist / Dir	Map ID	Page
CON EDISON - EAST 11TH ST. WOR	EAST 11TH - EAST 13TH S	1/2 - 1 WNW	276	1032
CON EDISON - EAST 14TH ST. WOR	EAST 14TH - EAST 16TH S	1/2 - 1 WNW	277	1032

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
QUANTA RESOURCES	SHWS, MOSF
SCHENECTADY CHEMICAL CORP	FTTS
SCHENECTADY CHEMICAL, INC	FTTS
SCHENECTADY CHEMICAL CORP	HIST FTTS
SCHENECTADY CHEMICAL, INC	HIST FTTS
CON EDISON- #7 FUEL OIL PIPELINE REMOVAL	RCRA-LQG, NY MANIFEST
CON ED - MH 71378	NY MANIFEST, RCRA-NonGen
432 DRIGGS AVENUE CORP	NY MANIFEST
CON ED - MH 64824	NY MANIFEST, RCRA-NonGen
MH64829	NY MANIFEST, RCRA-NonGen
K - EQUITY WORKS	SHWS
BKLYN UNION GAS /WILLIAMSBURGH WORKS	CERC-NFRAP
BKLYN UNION GAS /PEOPLES WORKS	CERC-NFRAP
W.H. CHRISTIAN & SONS	DRYCLEANERS
LOT 5,TAXBLOCK 2317	E DESIGNATION
LOT 8,TAXBLOCK 2317	E DESIGNATION
LOT 25,TAXBLOCK 2128	E DESIGNATION
LOT 250,TAXBLOCK 2134	E DESIGNATION
LOT 3,TAXBLOCK 2317	E DESIGNATION
BJR REALTY CORP.	SWF/LF, SWRCY
MAGNUM BODY SHOP INC	SWF/LF
MS POWER INC	SWF/LF
N. Y. PAVING CO.	SWF/LF
ORSANO CARTING CO.	SWF/LF
ORSANO CARTING	SWF/LF
WASTE MANAGEMENT OF NY;LLC (75 THOMAS ST	SWF/LF, SWRCY
F N W MECHANICAL	LTANKS
NYCDEP - BORDEN AVE VENTURI FLOW CHAMBER	RCRA-NonGen
VERIZON	RCRA-NonGen
VERIZON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
169-175 NORTH 10TH STREET	NY Spills
COMMERCIAL PROPERTY	NY Spills
CONSTRUCITON SITE	NY Spills
CONSTRUCTION SITE	NY Spills
DUMPSTER	NY Spills
BERRY STREET HOUSING PROJECT	HSWDS
BUG, PEOPLES WORKS	HSWDS
NORTH AMERICAN RECYCLING; INC	SWRCY

OVERVIEW MAP - 2119865.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/2 1 2 Miles

- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Williamsburg MGP ADDRESS: Kent Ave Williamsburg NY 11211 LAT/LONG: 40.7230 / 73.9594	CLIENT: GEI Consultants Inc. CONTACT: Melissa Felter INQUIRY #: 2119865.2s DATE: January 15, 2008 8:34 am

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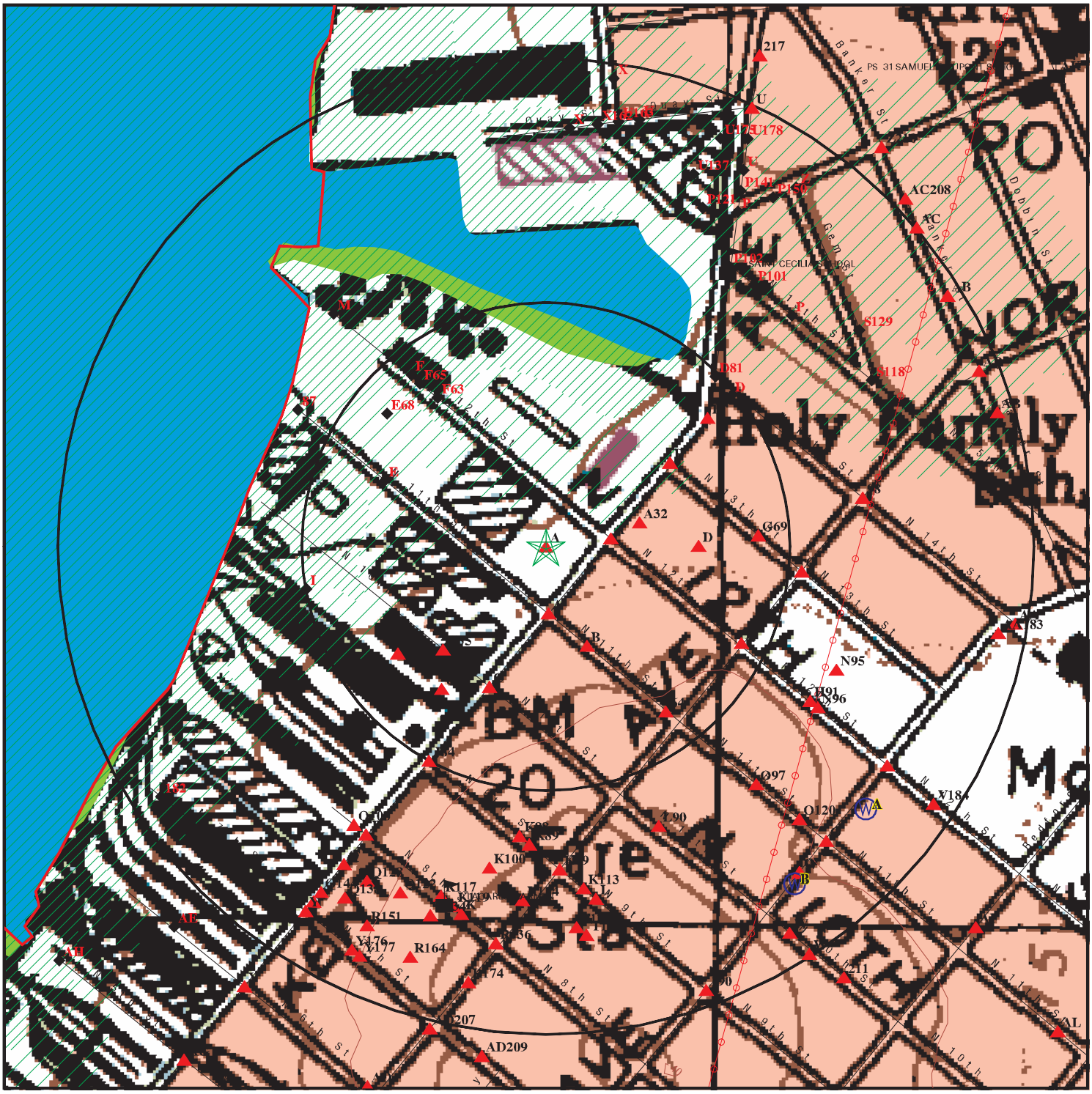
DETAIL MAP - 2119865.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.125	0	0	0	0	0	0
Proposed NPL		1.125	0	0	0	0	0	0
Delisted NPL		1.125	0	0	0	0	0	0
NPL LIENS		0.125	0	NR	NR	NR	NR	0
CERCLIS		0.625	0	0	0	0	NR	0
CERC-NFRAP		0.625	0	0	1	0	NR	1
LIENS 2		0.125	0	NR	NR	NR	NR	0
CORRACTS		1.125	0	0	0	1	0	1
RCRA-TSDF		0.625	0	0	0	1	NR	1
RCRA-LQG		0.375	0	3	2	NR	NR	5
RCRA-SQG		0.375	0	2	1	NR	NR	3
RCRA-CESQG		0.375	0	3	2	NR	NR	5
RCRA-NonGen		0.250	10	15	NR	NR	NR	25
US ENG CONTROLS		0.625	0	0	0	0	NR	0
US INST CONTROL		0.625	0	0	0	0	NR	0
ERNS		0.125	5	NR	NR	NR	NR	5
HMIRS		0.125	0	NR	NR	NR	NR	0
DOT OPS		0.125	0	NR	NR	NR	NR	0
CDL		0.125	0	NR	NR	NR	NR	0
US BROWNFIELDS		0.625	0	0	0	0	NR	0
DOD		1.125	0	0	0	0	0	0
FUDS		1.125	0	0	0	0	0	0
LUCIS		0.625	0	0	0	0	NR	0
CONSENT		1.125	0	0	0	0	0	0
ROD		1.125	0	0	0	0	0	0
UMTRA		0.625	0	0	0	0	NR	0
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.625	0	0	0	0	NR	0
MINES		0.375	0	0	0	NR	NR	0
TRIS		0.125	0	NR	NR	NR	NR	0
TSCA		0.125	0	NR	NR	NR	NR	0
FTTS		0.125	1	NR	NR	NR	NR	1
HIST FTTS		0.125	1	NR	NR	NR	NR	1
SSTS		0.125	0	NR	NR	NR	NR	0
ICIS		0.125	0	NR	NR	NR	NR	0
PADS		0.125	0	NR	NR	NR	NR	0
MLTS		0.125	0	NR	NR	NR	NR	0
RADINFO		0.125	0	NR	NR	NR	NR	0
FINDS		0.125	13	NR	NR	NR	NR	13
RAATS		0.125	0	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
HSWDS		0.625	1	0	0	0	NR	1
State Haz. Waste		1.125	0	0	0	1	0	1
DEL SHWS		1.125	0	0	0	1	1	2
State Landfill		0.625	1	4	3	0	NR	8
SWTIRE		0.625	0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SWRCY		0.625	0	0	2	0	NR	2
LTANKS		0.625	3	8	15	11	NR	37
HIST LTANKS		0.625	2	6	9	8	NR	25
UST		0.375	3	16	12	NR	NR	31
CBS UST		0.375	1	1	0	NR	NR	2
MOSF UST		0.625	0	1	1	0	NR	2
HIST UST		0.375	3	15	11	NR	NR	29
AST		0.375	3	6	11	NR	NR	20
HIST AST		0.125	2	NR	NR	NR	NR	2
CBS AST		0.375	0	2	1	NR	NR	3
MOSF AST		0.625	0	1	1	0	NR	2
MANIFEST		0.375	8	21	13	NR	NR	42
NY Spills		0.250	41	33	NR	NR	NR	74
NY Hist Spills		0.250	32	23	NR	NR	NR	55
ENG CONTROLS		0.625	0	0	0	0	NR	0
INST CONTROL		0.625	0	0	0	0	NR	0
VCP		0.625	0	1	1	1	NR	3
DRYCLEANERS		0.375	0	0	0	NR	NR	0
BROWNFIELDS		0.625	0	0	0	0	NR	0
SPDES		0.125	0	NR	NR	NR	NR	0
AIRS		0.125	0	NR	NR	NR	NR	0
MOSF		0.625	0	1	2	0	NR	3
RES DECL		0.305	0	0	0	NR	NR	0
CBS		0.375	1	2	1	NR	NR	4
E DESIGNATION		0.250	8	27	NR	NR	NR	35
TRIBAL RECORDS								
INDIAN RESERV		1.125	0	0	0	0	0	0
INDIAN LUST		0.625	0	0	0	0	NR	0
INDIAN UST		0.375	0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.125	0	1	0	2	0	3

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
< 1/8
2 ft.

Relative:
Equal

Actual:
10 ft.

KENT AVENUE/N.9TH ST.
KENT AVE / N 9TH ST
BROOKLYN, NY

Site 1 of 32 in cluster A

NY Spills **S102142252**
NY Hist Spills **N/A**

NY Spills:

Site ID:	282088
Facility Addr2:	Not reported
Facility ID:	8704050
Spill Number:	8704050
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	08/15/87
Reported to Dept:	08/15/87
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Major Facility > 400,000 gal
Spill Notifier:	Fire Department
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	08/20/87
Spill Record Last Update:	06/09/06
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	8704050
DER Facility ID:	228997
Site ID:	282088
Operable Unit ID:	910616
Operable Unit:	01
Material ID:	466696
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 8704050 OIL IS IN UNDERGROUND CONDUIT - 20" FUEL LINE TO

KENT AVENUE/N.9TH ST. (Continued) **S102142252**

RAVENSWOOD STATION RUPTURED. END CallerRemark - 8704050
Remarks: Start DECRemark - 8704050 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" FIRE DEPT. HAZ/MAT TEAM ON THE SCENE. SPILL DIKED OFF. DEC (TOMASELLO) RESPONDED. TOMASELLO SUPERVISED CLEANUP. WILL FOLLOW UP WITH CON EDISON. APPENDIX B SITE NO. 25/45. TRANSFERRED FROM ENGELHARDT TO O'CONNELL. Update 6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) END DECRemark - 8704050

NY Hist Spills:

Region of Spill:	2
Spill Number:	8704050
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	08/15/1987 12:45
Reported to Dept Date/Time:	08/15/87 13:50
SWIS:	61
Spiller Name:	CON EDISON
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	08/20/87
Date Spill Entered In Computer Data File:	Not reported
Update Date:	11/17/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	5000

KENT AVENUE/N.9TH ST. (Continued) **S102142252**

Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	FIRE DEPT. HAZ/MAT TEAM ON THE SCENE. SPILL DIKED OFF. DEC TOMASELLO) RESPONDED. TOMASELLO SUPERVISED CLEANUP. WILL FOLLOW UP WITH CON EDISON.
Remark:	OIL IS IN UNDERGROUND CONDUIT - 20 FUEL LINE TO RAVEN WOOD STATION RUPTURED.

A2
< 1/8
2 ft.
Relative: Equal
Actual: 10 ft.

MANHOLE 4354 **NY Spills** **S103575449**
KENT AV / 14TH ST **NY Hist Spills** **N/A**
BROOKLYN, NY

Site 2 of 32 in cluster A

NY Spills:

Site ID:	83685
Facility Addr2:	Not reported
Facility ID:	9811564
Spill Number:	9811564
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	12/15/98
Reported to Dept:	12/15/98
CID:	365
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/19/03
Remediation Phase:	0
Date Entered In Computer:	12/15/98
Spill Record Last Update:	02/19/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	MR POZERELLI
Contact Phone:	(718) 246-6610
DEC Region:	2
Program Number:	9811564
DER Facility ID:	76986

MANHOLE 4354 (Continued) **S103575449**

Site ID: 83685
Operable Unit ID: 1068886
Operable Unit: 01
Material ID: 311855
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 4.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9811564 3-4 GALLONS OF AN UNKNOWN OIL FOUND IN MANHOLE - CLEAN UP PENDING TEST RESULTS - CON ED REF #121949 END CallerRemark - 9811564
Remarks: Start DECRemark - 9811564 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" E2MIS 121949 12/15/98-02:45HRS.G. MOORE-#18872-SEN. FIELD OPERATOR-MARKING PHASES- FD APPROX 3-4 GAL OF UNKNOWN OIL ON 100 GALS OF WATER IN MH4354-CONTAINED AND NO SEWERS OR WATERWAYS AFFECTED-NO SUMPS IN MH-AND NO JOINT REGULATOR -TOOK SAMPLE WITH 4-6 HR PRIORITY-PLACED ENV STOP TAG#13578. CONTACTED CIG-S. ROMERO @ 03:28HRS. 12/15/98-08:47hrs-LAB RESULTS REC'D-LAB SEQ#98-13916-RESULTS 15 PPM UPDATE: 12/16/98 - 1400 N. SAVOCA - 17932 - ENV. OPS., REPORTS 15 PPM CLEANUP COMPLETE WITH SLIX AND TAG #13578 REMOVED. INCIDENT IS CLOSED. Detailed Description: END DECRemark - 9811564

NY Hist Spills:
Region of Spill: 2
Spill Number: 9811564
Investigator: ENGELHARDT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 12/15/1998 02:45
Reported to Dept Date/Time: 12/15/98 03:35
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Contact: MR POZERELLI
Spiller Phone: (718) 246-6610
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /

MANHOLE 4354 (Continued) **S103575449**

Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 12/15/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 01/06/99
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 4
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: 3-4 GALLONS OF AN UNKNOWN OIL FOUND IN MANHOLE - CLEAN UP PENDING TEST RESULTS - CON ED REF 121949

A3 **MANHOLE 62550** **NY Spills S104789831**
KENT AV/NORTH 11 ST **NY Hist Spills N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 3 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:
Site ID: 129997
Facility Addr2: Not reported
Facility ID: 0007344
Spill Number: 0007344
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 09/22/00
Reported to Dept: 09/22/00
CID: 211
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Std: False

MANHOLE 62550 (Continued) **S104789831**

Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/26/00
Remediation Phase:	0
Date Entered In Computer:	09/22/00
Spill Record Last Update:	01/16/01
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	CHARLIE MCCARTHY
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0007344
DER Facility ID:	112029
Site ID:	129997
Operable Unit ID:	828203
Operable Unit:	01
Material ID:	544887
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0007344 3 OZ'S PRODUCT ON 500 GALS WATER CONFINED TO MANHOLE - SAMPLE TAKEN CLEAN UP PENDING RESULTS - CON ED 133542 END CallerRemark - 0007344
Remarks:	Start DECRemark - 0007344 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" e2MIS Notes: 3oz. unknown oil on 550 gallons of water in MH-62550. 1 sample taken for PCB and tag #27922 placed. Chem lab #00-09153 returned as <1ppm PCB. Update 9/23/00: Cleanup complete and sump cemented. Tag removed. END DECRemark - 0007344

NY Hist Spills:

Region of Spill:	2
Spill Number:	0007344
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	09/22/2000 13:00
Reported to Dept Date/Time:	09/22/00 14:16
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported

MANHOLE 62550 (Continued) **S104789831**

Spiller Phone:	Not reported
Spiller Contact:	CHARLIE MCCARTHY
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/26/00
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	09/22/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	01/16/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	e2MIS Notes: 3o . unknown oil on 550 gallons of water in MH-62550. 1 sample taken for PCB and tag 27922 placed. Chem lab 00-09153 returned as <1ppm PCB. Update 9/23/00: Cleanup complete and sump cemented. Tag removed.
Remark:	3 OZ S PRODUCT ON 500 GALS WATER CONFINED TO MANHOLE - SAMPLE TAKEN CLEAN UP PENDING RESULTS - CON ED 133542

A4
< 1/8
2 ft.

Relative:
Equal

Actual:
10 ft.

TWO PTS OIL IN MANHOLE #4352
KENT AVENUE / NORTH 11 STREET
BROOKLYN, NY

Site 4 of 32 in cluster A

NY Spills **S108763138**
N/A

NY Spills:

Site ID:	385075
Facility Addr2:	Not reported
Facility ID:	0704852
Spill Number:	0704852
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	gdbreen
Referred To:	Not reported
Spill Date:	07/30/07
Reported to Dept:	07/30/07
CID:	444
Spill Cause:	Other
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	07/30/07
Spill Record Last Update:	07/31/07
Spiller Name:	ERTSDESK
Spiller Company:	CON EDISON MH #4352
Spiller Address:	KENT AVE& NORTH 11 TH
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	999
Spiller Phone:	(212) 580-8383
Contact Name:	ERTSDESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0704852
DER Facility ID:	334469
Site ID:	385075
Operable Unit ID:	1142357
Operable Unit:	01
Material ID:	2132587
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0704852 2 PINTS ON 100 GALLONS OF WATER: CONED # 207272

TWO PTS OIL IN MANHOLE #4352 (Continued) **S108763138**

END CallerRemark - 0704852
Remarks: Start DECRemark - 0704852 207272. see eDocs END DECRemark - 0704852

A5 **VS3477** **NY Spills** **S106018704**
KENT AV / N 12TH ST **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 5 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:

Site ID:	133527
Facility Addr2:	Not reported
Facility ID:	0307020
Spill Number:	0307020
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	10/02/03
Reported to Dept:	10/03/03
CID:	365
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/29/05
Remediation Phase:	0
Date Entered In Computer:	10/03/03
Spill Record Last Update:	06/29/05
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0307020
DER Facility ID:	114747
Site ID:	133527
Operable Unit ID:	873569
Operable Unit:	01
Material ID:	500610
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons

VS3477 (Continued) **S106018704**

Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0307020 2 pints on 500 gal water - clean up pending - lab results of 9 ppm - can't be cleaned up w/i 24 hr diminimous program - ref #150565 END CallerRemark - 0307020
Remarks: Start DECRemark - 0307020 Prior to Sept, 2004 data translation this spill Lead DEC Field was "FOLEY" Con Ed e2mis #150565: 10/2/03-1015HRS PRICE #3477 FOD REPORTS WHILE MAKING INSPECTION IN VS-3477 FEEDER 6B57.FOUND APPROX 2-PINTS OF UNKNOWNOIL ON 500 GALLONS OF WATER. RECORDS SHOW 9PPM DATED 10/13/94. NETW WILL BE NOTIFIED TO PRESSURE TEST UNIT. update @ 11am feeder not ready for work at this time, network will be dispatched at 1500hrs to pressure test transformer. UPDATE: 10/2/03 - 1730 W. THORNGREN - 14916 - B.Q.E., REPORTS TRANSFORMER PRESSURE TESTED AND HELD PRESSURE. OIL LEVEL IS GOOD. LAB RESULT RECEIVED 10/2/03 - 2038. 03-08195. 9 PPM. UPDATE @ 0950 HRS 9/3 REMOVE LOCATION FROM 24HR PROGRAM DUE TO AMOUNT OF WORK INVOLVED IN CLEANUP. 1/14/04 05:10HRS F. SCOTT (ENV OPS) REPORTS, TANKER TOOK DOWN ALL THE WATER THAT THE STRUCTURE MAKES, AND DOUBLE WSHED USING BIO GEN 760. SUMP WAS FOUND SEALED AND JOB IS 100 COMPLETED. END DECRemark - 0307020

A6 **MANHOLE #4353** **NY Spills** **S107788100**
KENT AVENUE / N. 10 STREET **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 6 of 32 in cluster A

Relative:
Equal

Actual:
10 ft.

NY Spills:
Site ID: 363861
Facility Addr2: Not reported
Facility ID: 0601588
Spill Number: 0601588
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: GDBREEN
Referred To: Not reported
Spill Date: 05/11/06
Reported to Dept: 05/11/06
CID: 406
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: 05/11/06
Spill Record Last Update: 05/15/06
Spiller Name: ERT DESK
Spiller Company: CON EDISON
Spiller Address: 4 IRVING PLACE

MANHOLE #4353 (Continued) **S107788100**

Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	999
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK'
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0601588
DER Facility ID:	314054
Site ID:	363861
Operable Unit ID:	1121915
Operable Unit:	01
Material ID:	2111396
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	3.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0601588 No to the five questions. Unknown cause of the spill. Clean up is pending test results. ConEd#164204 END CallerRemark - 0601588
Remarks:	Start DECRemark - 0601588 164204. 5/11/06 - 1820hrs - Damien Youngblood #15199 Splicer, UG, reports while on location for splicing on fdr 6B41 using account #20190 found 3 gallons unknown oil coming thru duct in MH4353on floor, walls and cable in structure. No water involved. No fire/smoke involved. No sewers or waterways affected. No private property affected. There is a previous incident 164158 cleaned and closed out on 5/9/06 - <1ppm. There is also an incidenton MH4352 #164182 dated 5/10/06 - pcb results <1pm - sample taken for oil id this date. This MH4352 turned into EH&S for remediation. Sample taken marked E priority for oil id and pcb and flashpoint chain of custody EE17036. Env stop tag # 38237 placed. As per T. Fernandez OS Env. Ops, reported to D. Hearns that this incident along with other will be turned over to Ann Ip EH&S for remediation due to the reoccurences of same. Clean up pending. cn#19661 END DECRemark - 0601588

A7 **BUG, WILLIAMSBURG WORKS** **HSWDS** **S102872858**
KENT AVENUE, NORTH 12TH STREET **N/A**
< 1/8 **BROOKLYN, NY 11211**
2 ft.

Site 7 of 32 in cluster A

Relative:
Equal

Actual:
10 ft.

HSWDS:

Facility ID:	HS2017
Region:	2
Facility Status:	Unknown
Owner Type:	U
Owner:	(formerly) Brooklyn Union Gas
Owner Address:	195 Montague Street
Owner Phone:	(718)403-3053
Operator Type:	Same
Operator:	Unknown
Operator:	Unknown
Operator Phone:	Unknown
EPA ID:	NYD980532030
Registry:	Not on NYS Registry of Inactive Haz Waste Disposal Sites
Registry Site ID:	Unknown

BUG, WILLIAMSBURG WORKS (Continued) **S102872858**

RCRA Permitted:	Unknown
Site Code:	2A
Owner City State:	Brooklyn
Operator City State:	Not reported
Quadrange:	Unknown
Latitude:	40 43 25 N
Longitude:	73 57 30 W
Acres:	0.00
Operator Date:	1850
Close Date:	1936
Completed:	PA
Active:	No
PCB's Disposed:	No
Pesticides Disposed:	No
Metals Disposed:	No
Asbestos Disposed:	No
Volatile Organic Compounds Disposed:	No
Semi Volatile Organic Compounds Disposed:	No
Analytical Info Exists for Air:	Not reported
Analytical Info Exists for Ground:	None
Analytical Info Exists for Surface:	Not reported
Analytical Info Exists for Sediments:	Not reported
Analytical Info Exists for Surface:	Not reported
Analytical Info Exists for Substance:	Not reported
Analytical Info Exists for Waste:	Not reported
Analytical Info Exists for Leachate:	Not reported
Analytical Info Exists for EP Toxicity:	Not reported
Analytical Info Exists for TCLP:	Not reported
Threat to Environment/Public Health:	Environmental
Surface Water Contamination:	Unknown
Surface Water Body Class:	Unknown
Groundwater Contamination:	Unknown
Groundwater Classification:	Unknown
Drinking Water Contamination:	Unknown
Drinking Water Supply is Active:	Unknown
Any Known Fish or Wildlife:	Unknown
Hazardous Exposure:	Unknown
Site Has Controlled Acess:	Unknown
Ambient Air Contamination:	Unknown
Direct Contact:	Unknown
EPA Hazardous Ranking System Score:	Unknown
Inventory:	Not reported
Nefrap:	Not reported
Mailing:	Not reported
Tax Map No:	Not reported
Qualify:	Not reported
Next Action:	Not reported
Agencies:	Not reported
Air:	Not reported
Building:	Not reported
Site Desc:	Not reported
Drink:	Not reported
Eptox:	Not reported
Fish:	Not reported
Ground:	Not reported
Ground Desc:	Not reported
Hazardous Threat:	Not reported

BUG, WILLIAMSBURG WORKS (Continued) **S102872858**

Haz Threat Desc:	Not reported
Leachate:	Not reported
Preparer:	Not reported
Sediment:	Not reported
Soil:	Not reported
Surface:	Not reported
Status:	Not reported
Surface Soil:	Not reported
Surface:	Not reported
TCLP:	Not reported
Waste:	Not reported

A8
< 1/8
2 ft.

Relative: Equal

Actual: 10 ft.

MANHOLE # 4352 **NY Spills** **S107788044**
KENT AVE / NORTH 11 STREET **N/A**
BROOKLYN, NY

Site 8 of 32 in cluster A

NY Spills:

Site ID:	363762
Facility Addr2:	Not reported
Facility ID:	0601507
Spill Number:	0601507
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	jhoconne
Referred To:	Not reported
Spill Date:	05/10/06
Reported to Dept:	05/10/06
CID:	444
Spill Cause:	Other
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	05/10/06
Spill Record Last Update:	07/19/07
Spiller Name:	ERT DESK
Spiller Company:	CON EDISON MH #4352
Spiller Address:	KENT AVE/NORTH 11 TH STRE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	999
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK’
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0601507
DER Facility ID:	313942
Site ID:	363762

MANHOLE # 4352 (Continued) **S107788044**

Operable Unit ID:	1121821
Operable Unit:	01
Material ID:	2111300
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0601507 5 GALLONS IN MANHOLE AND 1/2 GALLON IN STREET AND STREET IS BEING CLEANED UP: CONED # 164182 END CallerRemark - 0601507
Remarks:	Start DECRemark - 0601507 7/19/07: for some reason the spill was assigned to and closed by Sangesland on 1/4/07. Spill re-opened and assigned to O'Connell. (JHO) END DECRemark - 0601507

A9 **MANHOLE # 264, NYNEX** **NY Spills** **S102149102**
KENT AVE / N. 12TH STREET **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 9 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:

Site ID:	107479
Facility Addr2:	Not reported
Facility ID:	9411708
Spill Number:	9411708
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	MCTIBBE
Referred To:	Not reported
Spill Date:	12/02/94
Reported to Dept:	12/02/94
CID:	Not reported
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/06/95
Remediation Phase:	0
Date Entered In Computer:	01/11/95
Spill Record Last Update:	08/13/97
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported

MANHOLE # 264, NYNEX (Continued) **S102149102**

Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9411708
DER Facility ID:	94541
Site ID:	107479
Operable Unit ID:	1009580
Operable Unit:	01
Material ID:	374048
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30.00
Units:	Gallons
Recovered:	30.00
Resource Affected:	Surface Water
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9411708 FOUND IN NYNEX MANHOLE. END CallerRemark - 9411708
Remarks:	Start DECRemark - 9411708 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIBBE" OIL FOUND IN MANHOLE; NOT A SURFACE WATER SPILL. CLEANED BY NYNEX. END DECRemark - 9411708

NY Hist Spills:

Region of Spill:	2
Spill Number:	9411708
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	12/02/1994 09:00
Reported to Dept Date/Time:	12/02/94 11:22
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	Surface Water
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.

MANHOLE # 264, NYNEX (Continued) **S102149102**

Spill Closed Dt:	03/06/95
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	01/11/95
Date Spill Entered In Computer Data File:	Not reported
Update Date:	08/13/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	30
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	30
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	OIL FOUND IN MANHOLE; NOT A SURFACE WATER SPILL. CLEANED BY NYNEX.
Remark:	FOUND IN NYNEX MANHOLE.

A10 **MANHOLE 4354** **NY Spills** **S103573095**
KENT AVE/N 14TH ST **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 10 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:

Site ID:	166013
Facility Addr2:	Not reported
Facility ID:	9808915
Spill Number:	9808915
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	10/18/98
Reported to Dept:	10/18/98
CID:	207
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/29/02

MANHOLE 4354 (Continued) **S103573095**

Remediation Phase: 0
Date Entered In Computer: 10/18/98
Spill Record Last Update: 10/29/02
Spiller Name: Not reported
Spiller Company: CON ED
Spiller Address: Not reported
Spiller City,St,Zip: ZZ
Spiller Company: 999
Spiller Phone: Not reported
Contact Name: LISA PRIMEGGIA
Contact Phone: (212) 580-6763
DEC Region: 2
Program Number: 9808915
DER Facility ID: 139906
Site ID: 166013
Operable Unit ID: 1066268
Operable Unit: 01
Material ID: 316396
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 1.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9808915 con ed # 120585 samples taken - cleanup pending lab results END CallerRemark - 9808915
Remarks: Start DECRemark - 9808915 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" Con Ed e2mis #120586: 00:48 10/18/98 G.RICHIE #21683 O.S. #9 REPORTED FINDING 1 QT. UNKNOWN OIL ON TOP OF 200 GAL WATER. IN MH4354 N/E/C KENT AVE AND NO. 14 ST.FOUND WHILE GOING TO WORK ON FEEDER. NO SEWERS OR WATERWAYS ARE AFFECTED .A SAMPLE WAS TAKEN PUT IN FOR 4-6 HRS. PRIORITY . WILL CLEAN HOLE WHEN SAMPLE RESULTS ARE RECEIVED. INSTALLED E.S. TAG #04375 THIS HOLE WAS CLEANED OF OILON 10/17/98. IT IS A WATER HOLE NEW SAMPLE WAS CALLED FOR AS R.COSENTINO EPA C.E. LAB RESULT RECEIVED 10/18/98 - 1125. 98-11214. 4 PPM. UPDATE: 10/19/98 - 1100 K. QUEST - 55475 - ENV. OPS., REPORTS 4 PPM CLEANUP COMPLETE WITH SLIX AND TAG #04375 REMOVED. END DECRemark - 9808915

NY Hist Spills:
Region of Spill: 2
Spill Number: 9808915
Investigator: ENGELHARDT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 10/18/1998 00:43
Reported to Dept Date/Time: 10/18/98 01:29
SWIS: 61
Spiller Name: CON ED
Spiller Contact: Not reported
Spiller Phone: Not reported

MANHOLE 4354 (Continued) **S103573095**

Spiller Contact:	LISA PRIMEGGIA
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	10/18/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	10/19/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	con ed 120585 samples taken - cleanup pending lab results

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A11
< 1/8
2 ft.

Relative:
Equal

Actual:
10 ft.

KENT AV/NORTH 14TH STREET **NY Spills** **S104648026**
BROOKLYN, NY **NY Hist Spills** **N/A**

Site 11 of 32 in cluster A

NY Spills:

Site ID:	202604
Facility Addr2:	Not reported
Facility ID:	9808899
Spill Number:	9808899

(Continued) **S104648026**

Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	10/17/98
Reported to Dept:	10/17/98
CID:	201
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/18/02
Remediation Phase:	0
Date Entered In Computer:	10/17/98
Spill Record Last Update:	10/29/02
Spiller Name:	Not reported
Spiller Company:	UNK
Spiller Address:	Not reported
Spiller City,St,Zip:	***UPDATE***, ZZ
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9808899
DER Facility ID:	168535
Site ID:	202604
Operable Unit ID:	1070072
Operable Unit:	01
Material ID:	316380
Material Code:	0064A
Material Name:	UNKNOWN MATERIAL
Case No.:	Not reported
Material FA:	Other
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9808899 MAN HOLE #4354/WORKERS DESCOVERED UNK TYPE OF OIL IN MAN HOLE/CONTAINED AND SAMPLE TAKEN FOR TEST/CON ED REF #120581 END CallerRemark - 9808899
Remarks:	Start DECRemark - 9808899 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" Con Ed e2mis #120581: 00:56 R.RICHIE #21683 O.S. #9 REPORTED FINDING 1 GAL.UNKNOWN OIL ON TOP OF 200 GAL WATER IN MH4354 N/E/C KENT AVE & N.14 ST. WHILE GOING TO L.E.C. FDR. 6B57. NO SEWERS OR WATERWAYS ARE AFFECTED. A SAMPLE WAS TAKEN PUT IN 4-6 HRS. PRIORITY. INSTALLED E.S.TAG #07551 THERE WAS A JOINT REGULATOR IN THE HOLE CONNECTED TO 1 JT. COULD FIND NO LEAK. UPDATE** 10-17-9810:00HRS LAB SAMPLE 15PPM 98-11207. UPDATE 10/17/98

(Continued) **S104648026**

- OIL CLEAN UP COMPLETED WITH SLIX AT 17:45. END DECRemark - 9808899

NY Hist Spills:

Region of Spill:	2
Spill Number:	9808899
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/17/1998 00:56
Reported to Dept Date/Time:	10/17/98 01:26
SWIS:	61
Spiller Name:	UNK
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Contact:	CALLER
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	10/17/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	10/19/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Raw Sewage
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	UNKNOWN MATERIAL

(Continued) **S104648026**

Class Type: UNKNOWN MATERIAL
Times Material Entry In File: 9140
CAS Number: Not reported
Last Date: 19941109
DEC Remarks: Not reported
Remark: MAN HOLE 4354/WORKERS DESCOVERED UNK TYPE OF OIL IN MAN HOLE/CONTAINED AND SAMPLE TAKEN FOR TEST/CON ED REF 120581

A12 **VAULT 3223** **NY Spills** **S104789826**
KENT AVE/ N 11TH ST **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 12 of 32 in cluster A

Relative:
Equal

Actual:
10 ft.

NY Spills:
Site ID: 180311
Facility Addr2: Not reported
Facility ID: 0007337
Spill Number: 0007337
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 09/22/00
Reported to Dept: 09/22/00
CID: 389
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/28/01
Remediation Phase: 0
Date Entered In Computer: 09/22/00
Spill Record Last Update: 11/28/01
Spiller Name: UNKNOWN
Spiller Company: UNKNOWN
Spiller Address: UNKNOWN
Spiller City,St,Zip: UNKNOWN, ZZ
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: CALLER
Contact Phone: Not reported
DEC Region: 2
Program Number: 0007337
DER Facility ID: 151243
Site ID: 180311
Operable Unit ID: 828195
Operable Unit: 01
Material ID: 544882
Material Code: 0066A

VAULT 3223 (Continued) **S104789826**

Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 2.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0007337 CALLER REPOTING A S[ILL OF UNK SOURCE CONED#133540 SAMPLES TAKEN CLEAN UP PENDING LAB RESULTS NO CALLBACK NECESSARY END CallerRemark - 0007337
Remarks: Start DECRemark - 0007337 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" Con Ed e2mis #133540 Notes: 9-22-00 2oz unknown oil on 636gal water in manhole. Sample returned <1ppm PCB. Pressure tested OK. Cleanup completed by double washing with slix. Liquids removed by tanker, solids by vactor. No leaking equipment. Sump cemented. END DECRemark - 0007337

NY Hist Spills:
Region of Spill: 2
Spill Number: 0007337
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 09/22/2000 12:35
Reported to Dept Date/Time: 09/22/00 13:18
SWIS: 61
Spiller Name: UNK
Spiller Contact: UNK
Spiller Phone: (000) 000-0000
Spiller Contact: CALLER
Spiller Phone: ( ) -
Spiller Address: UNK
Spiller City,St,Zip: UNK
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/28/01
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 09/22/00

VAULT 3223 (Continued) **S104789826**

Date Spill Entered In Computer Data File: Not reported
Update Date: 11/28/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 2
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Con Ed e2mis 133540 Notes: 9-22-00 2o unknown oil on 636gal water in manhole. Sample returned <1ppm PCB. Pressure tested OK. Cleanup completed by double washing with slix. Liquids removed by tanker, solids by vactor. No leaking equipment.Sump cemented.
Remark: CALLER REPOTING A S ILL OF UNK SOURCE CONED 133540 SAMPLES TAKEN CLEAN UP PENDING LAB RESULTS NO CALLBACK NECESSARY

A13 **MANHOLE#4353** **NY Spills** **S106968528**
KENT AVE./ N. 10TH ST. **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 13 of 32 in cluster A

Relative:
Equal

NY Spills:
Site ID: 347197
Actual: Facility Addr2: Not reported
10 ft. Facility ID: 0502765
Spill Number: 0502765
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: SKARAKHA
Referred To: Not reported
Spill Date: 06/06/05
Reported to Dept: 06/07/05
CID: 406
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /

MANHOLE#4353 (Continued) **S106968528**

Remediation Phase:	1
Date Entered In Computer:	06/07/05
Spill Record Last Update:	06/08/05
Spiller Name:	UNKNOWN NAME
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	ERT DESK MIKE DAUGHTERY
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0502765
DER Facility ID:	293505
Site ID:	347197
Operable Unit ID:	1104937
Operable Unit:	01
Material ID:	1262263
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 0502765 one pint of unknown oil on 20gal of water in a manhole. This is coming off of the 24hr. diminimus program. Location is at the northwest corner of Kent Ave. when they went to the scene to clean they found light oil seeping through the walls. Will apply agent to clean walls and them they need to find the source of the oil because it will be continuous. ConEd#158995 END CallerRemark - 0502765

Remarks: Start DECRemark - 0502765 e2mis no 158995 P. STANFORD, REPORTS FINDING APPX 1 PT OF UNK OIL ON APPX 20 GALS OF WATER IN THE STRUCTURE. NO SEWERS, WATERWAYS AFFECTED, SPILL APPEARS TO BE CONTAINED TO THE STRUCTURE. WATER IS STANDING STILL THERE ISNO VISUAL MOVEMENT, THERE IS NO SUMP IN THE STRUCTURE AND HE CANNOT VERIFY ANY SEWER CONNECTIONS AT THIS TIME. HE ALSO REPORTS VACTOR No. 60624 HAS TAKEN UP OIL AND IS CONTAMINATED. VACTOR WILL REMAIN ON LOCATION PENDING TEST RESULTS. ENVIRONMENTALTAG NO. 43726 WAS PLACED IN THE STRUCTURE, SAMPLE TAKEN FOR PCB'S. THIS CLEANUP WILL BE TREATED AS > 50PPM, TO ALLOW ACCESS INTO THE STRUCTURE FOR THE EMERG. NO. 9 CREWS ON LOCATION. UPDATE 6/7/05 02:35 HRS ENV SUPV R. QUIJIJE REPORTS HE HE TOOK ANOTHER SAMPLE FOR A FLASH POINT TEST ON CHAIN OF CUSTODY# DD11069. THERE ARE NOW THREE SAMPLES PENDING, OIL ID, PCB, AND FLASHPOINT. Lab Sequence Number: 05-05404-001 - Flash Point, PMCC > 176 deg F QC ID: 01-200506032040 - PCBs < 1 ppm LAB RESULT RECEIVED 6/7/05 - 1049. 05-05408. OIL I.D. INDICATES A LIGHT FUEL OIL & ASPHALT. UPDATE: 6/7/05 - 1735 A. WALKER - O.S. - ENV. OPS., REPORTS A LIGHT FUEL OIL SEEPING THROUGH THE WALLS INTO THE STRUCTURE. THIS HAS CAUSED A THICK BUILD UP THAT WILL BE SOAKED WITH BIO GEN 715 TO LOOSEN IT UP. END DECRemark - 0502765

A14
< 1/8
2 ft.

Relative:
Equal

Actual:
10 ft.

MANHOLE 4352
KENT AV / N 11TH ST
BROOKLYN, NY

Site 14 of 32 in cluster A

NY Spills **S104651662**
NY Hist Spills **N/A**

NY Spills:

Site ID:	171951
Facility Addr2:	Not reported
Facility ID:	0000333
Spill Number:	0000333
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/08/00
Reported to Dept:	04/08/00
CID:	365
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	08/17/06
Remediation Phase:	0
Date Entered In Computer:	04/08/00
Spill Record Last Update:	08/17/06
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0000333
DER Facility ID:	144722
Site ID:	171951
Operable Unit ID:	822045
Operable Unit:	01
Material ID:	288585
Material Code:	0064A
Material Name:	UNKNOWN MATERIAL
Case No.:	Not reported
Material FA:	Other
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0000333 1/5 GALLON UNK HEAVY SOLID IN THE MAHOLE - DRY

MANHOLE 4352 (Continued) **S104651662**

CONCRETE FLOOR - CLEAN UP PENDING TEST RESULTS - REF # 130814 END CallerRemark - 0000333

Remarks: Start DECRemark - 0000333 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" See also spill # 0000352. Also, Con Ed incident numbers 112-523 and 114-664 (no DEC numbers associated with these). 8/17/06: spill closed based on final remedial action report contained in eDocs - Con Ed App. B Site 25. (JHO) e2mis no. 130-814: 4-8-00: 1/2 gal of unknown heavy substance coming from duct on dry concrete floor in a small area 1 x 1. This job was just cleaned under incident # 130664 4-5-00 with results similar to fuel oil and lab seq # 00-03075 <1.0 ppm. Spill was discovered while doing sch work on 6b57. The only sample that can be taken will be a solid sample can not get any oil off of sludge. Update****** 11:15hrs lab seq# 00-03427 2. ppm Update: 4/10/00 - 1345 cleanup completed by double washing structure with slix. Liquid waste removed by tanker. Solid waste removed by vactor. No leaking equip. No sump. END DECRemark - 0000333

NY Hist Spills:

Region of Spill:	2
Spill Number:	0000333
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/08/2000 10:50
Reported to Dept Date/Time:	04/08/00 12:13
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/08/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	04/10/00

MANHOLE 4352 (Continued) **S104651662**

Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Raw Sewage
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN MATERIAL
Class Type:	UNKNOWN MATERIAL
Times Material Entry In File:	9140
CAS Number:	Not reported
Last Date:	19941109
DEC Remarks:	Not reported
Remark:	1/5 GALLON UNK HEAVY SOLID IN THE MAHOLE - DRY CONCRETE FLOOR - CLEAN UP PENDING TEST RESULTS - REF 130814

A15 **MANHOLE 4353** **NY Spills** **S104510275**
KENT AV / 10TH ST **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 15 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:

Site ID:	145983
Facility Addr2:	Not reported
Facility ID:	0000352
Spill Number:	0000352
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/09/00
Reported to Dept:	04/09/00
CID:	382
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	04/09/00
Spill Record Last Update:	06/09/06
Spiller Name:	Not reported
Spiller Company:	UNKNOWN

MANHOLE 4353 (Continued) **S104510275**

Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	RICHARD ROACH
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0000352
DER Facility ID:	124331
Site ID:	145983
Operable Unit ID:	822067
Operable Unit:	01
Material ID:	288602
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	2.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0000352 2 GALS IN THE BOTTOM OF MANHOLE. CLEAN UP PENDING. CON ED 130-821 END CallerRemark - 0000352
Remarks:	Start DECRemark - 0000352 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" See also spill #s 9913425, 0000208, 0000333. Also CoN Ed incident numbers 112-523, 114-664 (no corresponding DEC spill numbers). e2mis no. 130-821: 4-9-00 11:30 hrs found 2 gal of thick heavy unknown oil on dry concrete floor. At this time product has no movement and there is no other oil filled equipment in structure. There is no sump in hole and no sewerconnections and no sewers or waterways were affected. Spill was discovered while pulling cable for 6b57. One liquid sample taken. Update********** 13:20hrs This job is a on going problem in this hole, refer to incidents 112523, 114664,130148, 130766. 1915HRS--lab results returned <1.ppm Update: 4/11/00 - 2200 C. Fernandez - O.S. - Env. Ops., reports structure cleaned by Clean Harbors to best of their ability. Thick tar like oil still oozing from northerly ducts. UPDATE: 4/12/00 - 1500 W. Tudy - 74933 - Env. Ops., reports <1.0 ppm cleanup completed by double washing structure with slix. Update 6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA)END DECRemark - 0000352

Site ID:	282651
Facility Addr2:	Not reported
Facility ID:	0000208
Spill Number:	0000208
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/05/00
Reported to Dept:	04/05/00
CID:	211
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown

MANHOLE 4353 (Continued) **S104510275**

Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/05/00
Remediation Phase:	0
Date Entered In Computer:	04/05/00
Spill Record Last Update:	06/05/00
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	MIKE CESARE
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0000208
DER Facility ID:	229467
Site ID:	282651
Operable Unit ID:	821923
Operable Unit:	01
Material ID:	288468
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	2.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 0000208 SOLID OILY SUBSTANCE ON WALL OF MANHOLE - SAMPLE TAKEN CLEAN UP PENDING RESULTS - CON ED 130766 END CallerRemark - 0000208

Remarks: Start DECRemark - 0000208 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" Con Ed e2MIS notes: Approx. 2 gallons of an unknown solid oily substance on walls of MH-4353. No water in manhole. Spill appears to be contained. Two liquid samples (PBD & ID) taken. 4/5/00, 2255 hrs: Analysis indicates presence of a substance similar to a heavy fuel oil. 54 ppm PCBs. 4/7/00, 2230 hrs: drain is cemented. Barrels were picked up. Clean up completed by double washing structure with biogen 760. Liquid waste removed by tanker. Solid waste placed into 2 barrels and picked up by Astoria transp. for disposal. No sump. No leaking equipment. Over 50 ppm clean up paperwork retained with Env. Ops. END DECRemark - 0000208

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:

Region of Spill:	2
Spill Number:	0000352
Investigator:	O'CONNELL
Caller Name:	Not reported

MANHOLE 4353 (Continued) **S104510275**

Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/09/2000 11:15
Reported to Dept Date/Time:	04/09/00 12:08
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Contact:	RICHARD ROACH
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/09/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	04/10/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	2
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	2 GALS IN THE BOTTOM OF MANHOLE. CLEAN UP PENDING. CON ED 130-821

MANHOLE 4353 (Continued) **S104510275**

Region of Spill:	2
Spill Number:	0000208
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/05/2000 14:00
Reported to Dept Date/Time:	04/05/00 14:48
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	MIKE CESARE
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/05/00
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/05/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	06/05/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	2
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414

MANHOLE 4353 (Continued) **S104510275**

CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Con Ed e2MIS notes: Approx. 2 gallons of an unknown solid oily substance on walls of MH-4353. No water in manhole. Spill appears to be contained. Two liquid samples PBD ID) taken. 4/5/00, 2255 hrs: Analysis indicates presence of a substance similar to a heavy fuel oil. 54 ppm PCBs. 4/7/00, 2230 hrs: drain is cemented. Barrels were picked up. Clean up completed by double washing structure with biogen 760. Liquid waste removed by tanker. Solid waste placed into 2 barrels and picked up byAstoria transp. for disposal. No sump. No leaking equipment. Over 50 ppm clean up paperwork retained with Env. Ops.
Remark: SOLID OILY SUBSTANCE ON WALL OF MANHOLE - SAMPLE TAKEN CLEAN UP PENDING RESULTS - CON ED 130766

Region of Spill: 2
Spill Number: 9913425
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 02/27/2000 18:00
Reported to Dept Date/Time: 02/27/00 18:42
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/27/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/28/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported

MANHOLE 4353 (Continued) **S104510275**

Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: 1 GALLON UNK OIL ON 100 GALLONS OF WATER - CLEAN UP PENDING LAB RESULTS - REF 130148

A16 **MANHOLE #4352** **NY Spills** **S104511402**
KENT AVE / NORTH 11TH ST **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 16 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:
Site ID: 65131
Facility Addr2: Not reported
Facility ID: 9914827
Spill Number: 9914827
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 03/31/00
Reported to Dept: 03/31/00
CID: 252
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 03/27/02
Remediation Phase: 0
Date Entered In Computer: 03/31/00
Spill Record Last Update: 03/27/02
Spiller Name: UNKNOWN
Spiller Company: UNKNOWN
Spiller Address: UNKNOWN
Spiller City,St,Zip: UNKNOWN, ZZ
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: TONY LOPEZ

MANHOLE #4352 (Continued) **S104511402**

Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9914827
DER Facility ID:	62613
Site ID:	65131
Operable Unit ID:	1089333
Operable Unit:	01
Material ID:	566218
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9914827 APPROX 2 QUARTS OF UNK OIL FOUND IN MANHOLE-HAS NOT AFFECTED ANY SEWERS OR WATERWAYS-SAMPLES TAKEN-CLEANUP PENDING. CON ED#130664 END CallerRemark - 9914827
Remarks:	Start DECRemark - 9914827 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 9914827

NY Hist Spills:

Region of Spill:	2
Spill Number:	9914827
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	03/31/2000 13:50
Reported to Dept Date/Time:	03/31/00 15:06
SWIS:	61
Spiller Name:	UNK
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Contact:	TONY LOPEZ
Spiller Phone:	(212) 580-6763
Spiller Address:	UNK
Spiller City,St,Zip:	UNK
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False

MANHOLE #4352 (Continued) **S104511402**

Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 03/31/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 04/04/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: APPROX 2 QUARTS OF UNK OIL FOUND IN MANHOLE-HAS NOT AFFECTED ANY SEWERS OR WATERWAYS-SAMPLES TAKEN-CLEANUP PENDING. CON ED 130664

A17 **MANHOLE 4352** **NY Spills S104788771**
KENT AVE/N. 11TH AVE **NY Hist Spills N/A**
< 1/8 **BROOKLYN, NY**
2 ft.

Site 17 of 32 in cluster A

Relative: Equal

Actual: 10 ft.

NY Spills:
Site ID: 327574
Facility Addr2: Not reported
Facility ID: 0006192
Spill Number: 0006192
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 08/24/00
Reported to Dept: 08/24/00
CID: 389
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False

MANHOLE 4352 (Continued) **S104788771**

Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/18/01
Remediation Phase:	0
Date Entered In Computer:	08/24/00
Spill Record Last Update:	12/18/01
Spiller Name:	UNKNOWN
Spiller Company:	UNKNOWN
Spiller Address:	UNKNOWN
Spiller City,St,Zip:	UNKNOWN, ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0006192
DER Facility ID:	263700
Site ID:	327574
Operable Unit ID:	827094
Operable Unit:	01
Material ID:	547315
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0006192 CALLER REPORTING A SPILL OF UNK SOURCE CONED#133027 SAMPLES TAKEN CLEAN UP PENDING LAB RESULTS NO CALLBACK NECESSARY ON 1000 GAL OF WATER END CallerRemark - 0006192
Remarks:	Start DECRemark - 0006192 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 0006192

NY Hist Spills:

Region of Spill:	2
Spill Number:	0006192
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	08/24/2000 12:15
Reported to Dept Date/Time:	08/24/00 13:16
SWIS:	61
Spiller Name:	UNK
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Contact:	CALLER
Spiller Phone:	( ) -
Spiller Address:	UNK
Spiller City,St,Zip:	UNK
Spill Cause:	Unknown

MANHOLE 4352 (Continued) **S104788771**

Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/18/01
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 08/24/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 12/18/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: CALLER REPORTING A SPILL OF UNK SOURCE CONED 133027 SAMPLES TAKEN CLEAN UP PENDING LAB RESULTS NO CALLBACK NECESSARY ON 1000 GAL OF WATER

A18 **N 12TH ST & KENT AVE/BKLY** **NY Spills** **S102145412**
East **NORTH 12TH ST / KENT AVE** **NY Hist Spills** **N/A**
< 1/8 **NEW YORK CITY, NY**
160 ft.

Site 18 of 32 in cluster A

Relative: Higher

Actual: 11 ft.

NY Spills:
Site ID: 247157
Facility Addr2: Not reported
Facility ID: 8903958
Spill Number: 8903958
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: SIGONA

N 12TH ST & KENT AVE/BKLY (Continued) **S102145412**

Referred To:	Not reported
Spill Date:	07/21/89
Reported to Dept:	07/21/89
CID:	Not reported
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	07/21/89
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported
Spill Closed Dt:	07/21/89
Remediation Phase:	0
Date Entered In Computer:	07/27/89
Spill Record Last Update:	09/30/04
Spiller Name:	Not reported
Spiller Company:	STANDARD WHITE METALS COR
Spiller Address:	121 NORTH STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(718) 963-2200
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	8903958
DER Facility ID:	202939
Site ID:	247157
Operable Unit ID:	929365
Operable Unit:	01
Material ID:	448027
Material Code:	0418A
Material Name:	ZINC OXIDE
Case No.:	01314132
Material FA:	Other
Quantity:	500.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 8903958 CHEMICAL FIRE IN PROGRESS, FIRE CAUSED BUILDING TO BE COVERED WITH ZINC OXIDE POWDER DUST. END CallerRemark - 8903958
Remarks:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	8903958
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/21/1989 06:35

N 12TH ST & KENT AVE/BKLY (Continued) **S102145412**

Reported to Dept Date/Time:	07/21/89 07:00
SWIS:	61
Spiller Name:	STANDARD WHITE METALS COR
Spiller Contact:	Not reported
Spiller Phone:	(718) 963-2200
Spiller Address:	121 NORTH STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	07/21/89
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	07/21/89
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/27/89
Date Spill Entered In Computer Data File:	Not reported
Update Date:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Hazardous Material
Quantity Spilled:	500
Unkonwn Quantity Spilled:	False
Units:	Pounds
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	ZINC OXIDE
Class Type:	ZINC OXIDE
Times Material Entry In File:	2
CAS Number:	01314132
Last Date:	19950815
DEC Remarks:	07/21/89: 20 SQUARE BLOCKS EVACUATED, FIRE DEPT HAZMAT ON SCENE, EPA NOTIFIED,CLEAN UP MEASURES GIVEN BY EPA STANDARDS, HEALTH DEPT OSHA COLLABORATED WITH EPA.
Remark:	CHEMICAL FIRE IN PROGRESS, FIRE CAUSED BUILDING TO BE COVERED WITH ZINC OXIDE POWDER DUST.

A19
East
< 1/8
178 ft.

Relative:
Higher

Actual:
11 ft.

NORTH 12TH ST / KENT AV
BROOKLYN, NY

Site 19 of 32 in cluster A

NY Spills **S104647182**
NY Hist Spills **N/A**

NY Spills:

Site ID:	289491
Facility Addr2:	Not reported
Facility ID:	9804116
Spill Number:	9804116
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	TOMASELLO
Referred To:	Not reported
Spill Date:	07/01/98
Reported to Dept:	07/01/98
CID:	266
Spill Cause:	Human Error
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. No DEC Response. No corrective action required.
Spill Closed Dt:	03/03/03
Remediation Phase:	0
Date Entered In Computer:	07/01/98
Spill Record Last Update:	03/03/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9804116
DER Facility ID:	234424
Site ID:	289491
Operable Unit ID:	1064989
Operable Unit:	01
Material ID:	318837
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9804116 ANONYMOUS CITIZEN REPORTED THAT AN UNKNOWN

(Continued) **S104647182**

CONTRACTOR STUCK AN UNKNOWN TYPE OIL LINE WHILE WORKING IN THE STREET. INDUSTRIAL WASTE AND POSSIBLY HAZ-MAT ENROUTE. END CallerRemark - 9804116
Remarks: Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9804116
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/01/1998 11:15
Reported to Dept Date/Time:	07/01/98 11:22
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Human Error
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. No DEC Response. No corrective action required.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/01/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	07/07/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True

(Continued) **S104647182**

Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: ANONYMOUS CITIZEN REPORTED THAT AN UNKNOWN CONTRACTOR STUCK AN UNKNOWN TYPE OIL LINE WHILE WORKING IN THE STREET. INDUSTRIAL WASTE AND POSSIBLY HAZ-MAT ENROUTE.

A20 **MANHOLE #63427 VS/3477** **NY Spills** **S106005388**
East **NORTH 12TH ST/KENT AVE** **N/A**
< 1/8 **BROOKLYN, NY**
178 ft.

Site 20 of 32 in cluster A

Relative: Higher

Actual: 11 ft.

NY Spills:
Site ID: 104165
Facility Addr2: Not reported
Facility ID: 0203699
Spill Number: 0203699
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 07/08/02
Reported to Dept: 07/08/02
CID: 281
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: 07/08/02
Spill Record Last Update: 12/07/06
Spiller Name: Not reported
Spiller Company: UNKNOWN
Spiller Address: Not reported
Spiller City,St,Zip: ZZ -
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: MARK SCHLAGEL
Contact Phone: (212) 580-6763
DEC Region: 2
Program Number: 0203699
DER Facility ID: 92084
Site ID: 104165
Operable Unit ID: 856584
Operable Unit: 01

MANHOLE #63427 VS/3477 (Continued) **S106005388**

Material ID: 521519
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 402.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0203699 400 gallons of unknown oil ontop of 100 gallons of water in manhole and 2 gallons on top of 100 gallons of water in vs. 3 samples to be taken and cleanup is pending vendor. material is possibly #6 oil. con ed # 143845. END CallerRemark - 0203699
Remarks: Start DECRemark - 0203699 Con Ed e2mis #143845: 7-8-02 1710 HRS IN MH63427 S/S NORTH 12 ST 230' W/O KENT AVE HE FOUND APPROX 400 GALLONS OIL ON 100 GALLONS WATER AT THE SAME LOCATION 20' W/O HE FOUND IN VS3477 S/S NO.12 ST 250' W/O KENT ST 2 GALLONS UNKNOWN OIL ON 100 GALLONS WATER. STATES THAT THE OIL WENT FROM MH63427 THRU THE PRIMARY DUCT INTO VS3477. HE ALSO STATES THAT THIS LOOKS LIKE #6 FUEL OIL THAT COULD HAVE COME FROM PIPELINE THAT IS IN THE VICINITY. HE PRESSURE TESTED TRANSF ANDPRESSURE TESTED GOOD. HE DOES NOT SEE A SUMP OR SEWER CONNECTION AT THIS TIME. LIQUID SEEMS CONTAINED TO THESE TWO LOCATION. HE TOOK 3 SAMPLES PCB, OIL ID AND FLASH POINT AND REQUESTED EMERG PRIORITY FOR PCB OIL ID & FLASH POINT RESULTS. WILL CALL CONTRACTOR (CLEAN HARBORS) TO START CLEANUP. UPDATE 7-8-02 1815 HRS EPA # NYP 004100269 7/8/02 2150 hrs - Orange marking on sidewalk indicating a possible chance that a MOSF line may run next to the mh. Further investigation pending. As for now will remain as Third Party spill. LAB RESULT RECEIVED 7/8/02 - 2154 02-06294 FLASH POINT >140 DEG F. LAB RESULT RECEIVED 7/8/02 - 2252 02-06292 <1 ppm PCB. LAB SEQ 02-06293-001 - THE SAMPLE IS TO DEGRADED TO DETERMINE THE SOURCE. HOWEVER THEREARE CARACTERISTICS WHICH ARE SIMILAR TO A HEAVY FUEL. 7/9/02 @ 1430 D.E.C K.FOLEY ARRIVED ON LOCATION INSPECTED JOB & REQUESTED WE REINSPECT STRUCTURE A FEW DAYS AFTER CLEANUP COMPLETED FOR SOURCE OF OIL SEEPAGE. UPDATE 7/9/02 - 2300 VS3477 AND MH 63427 STEAM CLEANED & DOUBLE WASHED BY CLEAN HARBORS. IN MH 63427 OIL OOZING FROM SEAM BETWEEN WALLS & CEILING & DUCTS. SUMP FOUND CEMENTED. TAG REMAINS IN PLACE PENDING INSPECTION OF BOTH STRUCTURES IN A FEW DAYS AS PER DEC. Update 7/12/02 1100 hrs - C. Fernandez reports that when he inspected MH 63427, he found oil on water an on the walls. Another inspection will be done on Monday 7/15/02. Update 7/23/02 1330 hrs - R. Cosentino reports he found 3 unidentified monitoring wells in the area of the involved company structures. R. Cosentino reported this information to Jane O'Connell of the DEC. DEC will follow up with an investigation to whom the wells belong to. UPDATE 8/6/02 - 0940 STRUCTURE INSPECTED. MR. WALKER FOUNDAPPROX 1 GAL OF OIL ON APPROX 300 GALS OF WATER. FOLLOW UP INSPECTION BY D.E.C. IS SCHEDULED FOR TOMORROW (8/7/02). UPDATE 01-AUG-2002 11:48 HRS WHILE ON LOCATION TO MEET WITH DEC REP. & EH&S R.JAMES DISCOVERED APPROX. 1 QT OF UNKNOWN & 200 OF WATER IN VS-3477. 3 LIQ. SAMPLES TAKEN FROM SPILL 1 FOR PCB, 1 FOR ID AND 1 FOR SULPHUR CONTENT. ALSO FOUND IN M-63427 APPROX. 1 QT OF UNKNOWN OIL ON 100 GALS OF WATER. 3 LIQ. SAMPLESTAKEN FROM SPILL 1 FOR PCB, 1 FOR ID AND 1 FOR SULPHUR CONTENT. Update 8/7/02: Ron James met with DEC Rep Jane O'Connell at the spill vaults, to determine the source of the reoccurring oil in these structures. Ms. O'Connell visited the nearby Bayside Fuel Oil plant. She felt that it was unlikely that they werethe source of the oil in the structures. She felt if was probably residual #6 fuel oil from a Con Edison Fuel line spill in 1992. At her sugggestion, after the next cleanup we will inspect the duct lines coming from the direction of Kent Ave for residual #6 fuel oil. Wednesday, August 07, 2002 8:26 PM Lab Sequence Number:

MANHOLE #63427 VS/3477 (Continued) **S106005388**

02-07395-001 STRUCTURE: MANHOLE 63427 - analysis indicates the presence of a substance similar to a degraded mixture of a light and a heavy fuel oil. 2/28/03: At therequest of M. Sicherman, Responsible Operation was changed from Networks to EHS - Remediation. DEC inspector's notes: 7/8/02, 10:15 AM - According to Mike Kessler (ERT), Transmission Ops did investigate. Pipeline No.7 drained/capped in 1999. There is a fill line for nearby building near manhole. Crew still on-site performing clean up. Did no know when manhole was last opened. Trans Ops claims there would be oil in more manholes if related to pipeline no. 7. (KMF) 7/9/02: met at site with Tino Fernandez (Env. Ops.). Located on dead-end street across from Bayside Fuel Oil company. Approx. 400 gallons #6 oil in MH63427 & VS3477. MH and VS are located approx. halfway down N. 12th St. to west of Kent Ave. Pipeline No. 7 runs along Kent Ave (drianed/capped 1999). Clean Harbors supervisor Jeb Cook is on-site with crew. Once they clean MH and VS, Con Ed can determine where oil is seeping from. (KMF). 8/7/02: Met with Ron James (B/Q EH&S). Heavy oil found in manhole and transformer vault on south side of N. 12th Street. After reviewing file for DEC #9202230 (5/23/92), we agree that these structures were initially impacted be leak from Pipeline #7 at corner of N. 12th St/Kent Ave. The oil ID fromthe structure is "heavy fuel oil" According to e2mis report, the vault was "steam cleaned" last week, but there is still #6 oil visible on sides of transformer. There are a number of groundwater monitoring wells in the vicinity of the vault. Thevault lies across the street from the Bayside oil terminal. I interviewed the site manager and the on-site consultant (TRC) - both indicated that their wells are confined to within the property boundaries, and that there was little impact on southside of their property. Vault is also adjacent to a NYD Sanitation garage. I spoke with Jake Krimgold (DDC monitor) - he indicated that off-site wells are probably his, but that there was no free product. I will look at boring logs for well installations and see if there is any evidence of #6 oil contmaination (as opposed to diesel, which was the focus of their investigation). (JHO) Update 6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) 11/7/06 - spill reopened based on phone call from Matthew Madsen (Con Ed remediation). Manhole was inspected yesterday and was apparently never cleaned out. i requested a revised e@mis report, and requested that adjacent and adjoining structures be inspected for evidence of additional oil. (JHO) END DECRemark - 0203699

A21 **REGULATOR B9 TRIPS OUT!** **NY Spills** **S102143915**
East **N.12TH ST. / KENT AVE.** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
178 ft.

Site 21 of 32 in cluster A

Relative:
Higher

Actual:
11 ft.

NY Spills:

Site ID:	182601
Facility Addr2:	Not reported
Facility ID:	8600609
Spill Number:	8600609
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	UNASSIGNED
Referred To:	Not reported
Spill Date:	04/24/86
Reported to Dept:	04/24/86
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	EAST RIVER

REGULATOR B9 TRIPS OUT! (Continued) **S102143915**

Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	04/29/86
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported
Spill Closed Dt:	04/29/86
Remediation Phase:	0
Date Entered In Computer:	05/15/86
Spill Record Last Update:	06/23/86
Spiller Name:	Not reported
Spiller Company:	NYC
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	8600609
DER Facility ID:	152996
Site ID:	Not reported
Operable Unit ID:	Not reported
Operable Unit:	Not reported
Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	Not reported
DEC Memo:	Start CallerRemark - 8600609 ACT. SPILL-12MGD-REGULATOR CREW TO INVESTIGATE END CallerRemark - 8600609
Remarks:	Start DECRemark - 8600609 Prior to Sept, 2004 data translation this spill Lead DEC Field was " " 10/10/95: This is additional information about material spilled from the translation of the old spill file: WASTE WATER END DECRemark - 8600609

NY Hist Spills:

Region of Spill:	2
Spill Number:	8600609
Investigator:	Not reported
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/24/1986 12:30
Reported to Dept Date/Time:	04/24/86 16:38
SWIS:	61
Spiller Name:	NYC

REGULATOR B9 TRIPS OUT! (Continued) **S102143915**

Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	Surface Water
Water Affected:	EAST RIVER
Spill Source:	01
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	04/29/86
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	04/29/86
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	05/15/86
Date Spill Entered In Computer Data File:	Not reported
Update Date:	06/23/86
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Not reported
Quantity Spilled:	Not reported
Unkonwn Quantity Spilled:	Not reported
Units:	Not reported
Quantity Recovered:	Not reported
Unkonwn Quantity Recovered:	Not reported
Material:	Not reported
Class Type:	Not reported
Times Material Entry In File:	Not reported
CAS Number:	Not reported
Last Date:	Not reported
DEC Remarks:	10/10/95: This is additional information about material spilled from the translation of the old spill file: WASTE WATER
Remark:	ACT. SPILL-12MGD-REGULATOR CREW TO INVESTIGATE

A22 **N 12TH ST & KENT AVE** **NY Spills** **S102142914**
East **N 12TH ST / KENT AVE** **NY Hist Spills** **N/A**
< 1/8 **BKLYN, NY**
178 ft.

Site 22 of 32 in cluster A

Relative: Higher

Actual: 11 ft.

NY Spills:

Site ID:	285573
Facility Addr2:	Not reported
Facility ID:	9202230
Spill Number:	9202230

N 12TH ST & KENT AVE (Continued) **S102142914**

Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	05/23/92
Reported to Dept:	05/23/92
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Major Facility > 400,000 gal
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	05/29/92
Spill Record Last Update:	06/09/06
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9202230
DER Facility ID:	231569
Site ID:	285573
Operable Unit ID:	966321
Operable Unit:	01
Material ID:	413497
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	9000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9202230 AT RAVENSWOOD GS OIL 20" PIPELINE LEAK; FD, SANITATION, DEP HAZ MAT & IWCS NOTIFIED. AAA POLLUTION ON SCENE. END CallerRemark - 9202230
Remarks:	Start DECRemark - 9202230 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" 5/23/92, 11:45 AM: Sigona arrived on site. NYCDEP (Stan Siedenberg) already on-site. Depth to line approx. 6.5 feet, 20" line. Time of discovery - FDNY called Con Ed at 0445 hrs. Con Ed John Mitchell (Supt. of Fuel Oil pipelines) arrived at 0650 hrs. Confirmed leak with CIG at 0759 hrs. Observed oil into top of sewer manhole, oil in catch basins, oil in NY Telephone service box (NYTel notified by CIG). 3,000 gallons removed thus

N 12TH ST & KENT AVE (Continued) **S102142914**

far by AAA Polution Control. Also, AAA removed 2 large piles of contaminated soil (approx. 10-15 cu. yds. each). Excavation for pipeline is currently approx. 14' long by 5' wide along east side of center line of roadway (Kent Ave.). 3 Con Ed workers are shoveling oil saturated dirt from bottom of trench as AAA is pumping free product. According to John Mitchell (Con Ed), they are purging back to N. 1st Street terminal at 10 psi pressure.Valves at either end of leak area are closed (11t St. and Oak Ave.). There is an offset in the pipeline so that it can go around a sewer line. Oil is surging from hole in line observed at 13:20 hrs as the line is exposed (leak is on upper west side surface of pipeline). Oil is flowing freely into the trench as soil is removed. Hole is filled with between 100-300 gallons oil oil as it is being pumped. NYCDEP IWCS (Sagar Chatergee) arrived at 2:00 PM. He will get maps of sewers and investigate any sewer contamination. At 4:05 PM he informed Sigona that catch basins lead to 156" twin storm drains. Notified USCG (Lt. Mark Maser) at 4:15 PM of possible release from storm sewers to East River. By 5 PM, 3 vac trucks hadbeen filled (approx. 8,000 gallons) and taken off-site by AAA. At 6:20 PM, observed sheen on East River with Coast Guard and DEP. At 7:30 PM, while walking along N. 12th St. from Kent Ave to River, observed oil in two manholes (open gratingon transformer manhole). (AJS) 6/17/92, 12:25 PM: Observed new collar on pipeline, examined pipeline repair. Met with Harry Coates, Carmine Sabatasso (Con Ed). Area is clean - OK to backfill. Observed a few drops of oil in the telephone conduit about 50 feet west of the leak however these conduits will be pressure washed. (AJS) 11/23/94: REASSIGNED FROM SIGONA TO ENGELHARDT ON 11/23/94. APPENDIX B SITE NO. 25/45. TRANSFERRED FROM ENGELHARDT TO O'CONNELL. Update 6/9/06Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) END DECRemark - 9202230

NY Hist Spills:

Region of Spill:	2
Spill Number:	9202230
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	05/23/1992 06:07
Reported to Dept Date/Time:	05/23/92 09:55
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	NEW YORK, NY
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	03
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /

N 12TH ST & KENT AVE (Continued) **S102142914**

Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 05/29/92
Date Spill Entered In Computer Data File: Not reported
Update Date: 08/09/95
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 9000
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: 11/23/94: REASSIGNED FROM SIGONA TO ENGELHARDT ON 11/23/94.
Remark: AT RAVENSWOOD GS OIL 20 PIPELINE LEAK; FD, SANITATION, DEP HAZ MAT NOTIFIED. AAA POLLUTION ON SCENE. IWCS

A23 **VS4120** **NY Spills** **S106970790**
East **N 12 ST AT KENT AVE** **N/A**
< 1/8 **BROOKLYN, NY**
179 ft.

Site 23 of 32 in cluster A

Relative: Higher

Actual: 11 ft.

NY Spills:
Site ID: 349547
Facility Addr2: Not reported
Facility ID: 0504719
Spill Number: 0504719
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: SKARAKHA
Referred To: Not reported
Spill Date: 07/19/05
Reported to Dept: 07/20/05
CID: 74
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Std: False

VS4120 (Continued) **S106970790**

Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/23/05
Remediation Phase:	0
Date Entered In Computer:	07/20/05
Spill Record Last Update:	09/23/05
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	40 ELDRIDGE AV
Spiller City,St,Zip:	STATEN ISLAND, NY
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0504719
DER Facility ID:	295986
Site ID:	349547
Operable Unit ID:	1107139
Operable Unit:	01
Material ID:	2097032
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0504719 1 GALLON UNKNOWN OIL ON 400 GALLONS OF WATER CLEANUP PENDING CREW AVAILABILITY LAB RESULTS - LESS THAN 1PPM COMING OFF THE CLOCK - NO CREW AVAILABLE REF. 159827 END CallerRemark - 0504719
Remarks:	Start DECRemark - 0504719 e2mis no 159827 G. HICKEY REPORTS FINDING APPROX 1 GAL OF UNKNOWN OIL ON APPROX 400 GALS OF WATER IN VS4120. NO SEWERS, WATERWAYS, OR PRIVATE PROPERTY AFFECTED. THE SOURCE AND CAUSE OF THE SPILL IS UNKNOWN. THE STANDINGWATER IN THE STRUCTURE HAD NO MOVEMENT, AND THERE DID NOT APPEAR TO BE ANY SEWER CONNECTIONS. WAREHOUSE HISTORICAL RECORDS DATED 8/23/2002 INDICATE PCB AS 6 PPM LAB SEQ# 02-07779-001. MR HICKEY WILL PRESSURE TEST THE UNIT AND REPORT BACK TO THE DESK. ENV STOP TAG# 36653 WAS PLACED AND ONE LIQUID SAMPLE TAKEN. UPDATE 7/19/05 11:38 HRS G. HICKEY REPORTS THAT THE UNIT HELD PRESSURE. 7/20/05 0009HRS LAB RESULT RETURNED < 1 PPM LSN-05-07385-001. 7/20/05 1843HRS N FRUSTICI REPORTS UNIT WASREMOVED. G DONATONE 7/20/05 1910HRS D.BANKHEAD REPORTS CLEANUP COMPLETED DOULBED WASHED STRUCTURE USING BIO-GEN 760. FOUND SUMP SEALED.REMOVED ENVIR TAG#36653. G DONATONE Closed. 9-23-05. GB END DECRemark - 0504719

A24 **50 KENT AVENUE** **NY Spills** **S102148163**
South **50 KENT AVENUE** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN,NEW YORK, NY**
181 ft.

Site 24 of 32 in cluster A

Relative:
Higher

Actual:
14 ft.

NY Spills:

Site ID:	290162
Facility Addr2:	Not reported
Facility ID:	9607376
Spill Number:	9607376
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JAKOLLEE
Referred To:	Not reported
Spill Date:	09/11/96
Reported to Dept:	09/11/96
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/10/04
Remediation Phase:	0
Date Entered In Computer:	09/11/96
Spill Record Last Update:	01/27/05
Spiller Name:	Not reported
Spiller Company:	NYC SANITATION GARAGE
Spiller Address:	50 KENT AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(718) 387-5426
Contact Name:	Not reported
Contact Phone:	(718) 387-5426
DEC Region:	2
Program Number:	9607376
DER Facility ID:	20058
Site ID:	290162
Operable Unit ID:	1035330
Operable Unit:	01
Material ID:	346644
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9607376 PROBABLE CAUSE IS LEAKING UNDERGROUND PIPING -

50 KENT AVENUE (Continued) **S102148163**

Remarks: FOUND PRODUCT IN MONITORING WELL END CallerRemark - 9607376 Start DECRemark - 9607376 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KOLLEENY" The Site is currently under remediation by LiRo. The site has another previous open spill # 9600011. As such, this spill is closed today keeping the older one open.- II (12/10/04). END DECRemark - 9607376

Site ID:	177869
Facility Addr2:	Not reported
Facility ID:	9401167
Spill Number:	9401167
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JMKRIMGO
Referred To:	Not reported
Spill Date:	04/25/94
Reported to Dept:	04/25/94
CID:	14
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/31/03
Remediation Phase:	0
Date Entered In Computer:	04/29/94
Spill Record Last Update:	07/07/05
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9401167
DER Facility ID:	20058
Site ID:	177869
Operable Unit ID:	995005
Operable Unit:	01
Material ID:	384934
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

50 KENT AVENUE (Continued) **S102148163**

DEC Memo: Start CallerRemark - 9401167 WILL PUMP OUT TANK. END CallerRemark - 9401167
Remarks: Start DECRemark - 9401167 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" Insufficient information to follow up. Ref. to spill # 9600011. END DECRemark - 9401167

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:

Region of Spill:	2
Spill Number:	9607376
Investigator:	KOLLEENY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	09/11/1996 11:00
Reported to Dept Date/Time:	09/11/96 11:45
SWIS:	61
Spiller Name:	NYC SANITATION GARAGE
Spiller Contact:	Not reported
Spiller Phone:	(718) 387-5426
Spiller Phone:	(718) 387-5426
Spiller Address:	50 KENT AV
Spiller City,St,Zip:	BROOKLYN, NY
Spill Cause:	Equipment Failure
Reported to Dept:	Groundwater
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	09/11/96
Date Spill Entered In Computer Data File:	Not reported
Update Date:	10/14/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum

50 KENT AVENUE (Continued) **S102148163**

Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Remark: PROBABLE CAUSE IS LEAKING UNDERGROUND PIPING - FOUND PRODUCT IN MONITORING WELL

Region of Spill: 2
Spill Number: 9401167
Investigator: KRIMGOLD
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 04/25/1994 11:00
Reported to Dept Date/Time: 04/25/94 11:08
SWIS: 61
Spiller Name: Not reported
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Housekeeping
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Tank Tester
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 04/29/94
Date Spill Entered In Computer Data File: Not reported
Update Date: 01/30/96
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported

50 KENT AVENUE (Continued) **S102148163**

Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Remark:	WILL PUMP OUT TANK.

A25 **STREET** **NY Spills** **S104952706**
South **NORTH 11 STREET/KENT AVE** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
183 ft.

Site 25 of 32 in cluster A

Relative:
Higher

Actual:
14 ft.

NY Spills:

Site ID:	143972
Facility Addr2:	Not reported
Facility ID:	0012098
Spill Number:	0012098
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	TJDEMEO
Referred To:	Not reported
Spill Date:	02/09/01
Reported to Dept:	02/09/01
CID:	398
Spill Cause:	Traffic Accident
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Citizen
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/13/03
Remediation Phase:	0
Date Entered In Computer:	02/09/01
Spill Record Last Update:	02/13/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	SYLVIA GRAHAM
Contact Phone:	(718) 388-0663

STREET (Continued) **S104952706**

DEC Region: 2
Program Number: 0012098
DER Facility ID: 122748
Site ID: 143972
Operable Unit ID: 833988
Operable Unit: 01
Material ID: 542384
Material Code: 0055A
Material Name: PAINT
Case No.: Not reported
Material FA: Other
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0012098 CALLER STATES THAT A TRUCK CAME AROUND THE CORNER AND DUMPED A LARGE AMOUNT OF WHITE PAINT ONTO THE ROADWAY. END CallerRemark - 0012098
Remarks: Start DECRemark - 0012098 Prior to Sept, 2004 data translation this spill Lead DEC Field was "DEMEO" 2/13/2003 - Closed Due To The Nature / Extent Of The Spill Report END DECRemark - 0012098

NY Hist Spills:
Region of Spill: 2
Spill Number: 0012098
Investigator: DEMEO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 02/09/2001 17:00
Reported to Dept Date/Time: 02/09/01 17:23
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Contact: SYLVIA GRAHAM
Spiller Phone: (718) 388-0663
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Traffic Accident
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 07
Spill Notifier: Citizen
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False

STREET (Continued) **S104952706**

Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/09/01
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/12/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Hazardous Material
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: PAINT
Class Type: PAINT
Times Material Entry In File: 431
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: CALLER STATES THAT A TRUCK CAME AROUND THE CORNER AND DUMPED A LARGE AMOUNT OF WHITE PAINT ONTO THE ROADWAY.

A26 **BROOKLYN NORTH 1 (BROOKLYN GARAGE)** **AST U003074882**
South **50 KENT AVENUE** **HIST AST N/A**
< 1/8 **BROOKLYN, NY 11211** **HIST UST**
183 ft.

Site 26 of 32 in cluster A

Relative: Higher

AST:

Actual: 14 ft.

AST:
Region: STATE
Facility Id: 2-456098
UTM X: 587916.57629
UTM Y: 4508454.76457
Expiration Date: 05/17/10
Renewal Date: / /
Total Capacity: 11750
Facility Type: Not reported
Site Type Name: Other
Site Type Status: Active
Mailing Company: NYC DEPT. OF SANITATION
Mailing Title: Not reported
Mailing Contact: FACILITIES OFFICE
Mailing Address: 125 WORTH STREET
Mailing Address 2: ROOM 823
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip Code: 10013
Mailing Phone No: (646) 885-4874

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Mailing Email:	Not reported
Owner Title:	D/C
Owner Name:	GERRY CARANNANTE
Owner Address:	125 WORTH STREET RM 823
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10013
Owner Phone:	(646) 885-4874
Owner Company:	NYC DEPT. OF SANITATION
Emergency Contact:	OPERATIONS DESK
Emergency Phone:	(646) 885-4860
Operator:	GARAGE SUPERVISOR
Operator Phone:	(718) 387-5426
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	1
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	06/01/97
Capacity Gallons:	4000
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Fiberglass
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	2
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Temporarily Out of Service
Tank Model:	Not reported
Pipe Model:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Active Status:	Active
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Kerosene
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	3
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	4
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	5
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Pipe Location Name:	Aboveground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	6
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	7

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	8
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	9
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-456098
SWIS Code:	6101
Operator:	NYC DEPT. OF SANITATION, BCC
Facility Phone:	(718) 387-5426
Facility Addr2:	50 KENT AVENUE
Facility Type:	OTHER
Emergency:	BUREAU OF CLEANING &COLLECTION
Emergency Tel:	(212) 788-4074
Old PBSNO:	Not reported
Date Inspected:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	50 KENT AVENUE ASSOC. L.P. C/O ED KIRTMAN
Owner Address:	605 THIRD AVENUE, 33RD FLOOR
Owner City,St,Zip:	NEW YORK, NY 10158
Federal ID:	Not reported
Owner Tel:	(212) 490-2727
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	CHIEF OF FAC. OPERT. LEG.
Mailing Name:	NYC DEPT. OF SANITATION
Mailing Address:	125 WORTH STREET
Mailing Address 2:	ROOM # 823B
Mailing City,St,Zip:	NEW YORK, NY 10013
Mailing Telephone:	(212) 788-4074
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/23/1999
Expiration:	06/07/2005
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	14925
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2

Tank ID:	004
Tank Location:	ABOVEGROUND
Tank Status:	Temporarily Out Of Service
Install Date:	Not reported
Capacity (Gal):	550
Product Stored:	KEROSENE
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	0
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	005
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	550
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	0
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	006
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	550
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	0
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	007
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	0
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	008
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	0
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	009
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19970601
Capacity (Gal):	4000
Product Stored:	DIESEL
Tank Type:	Fiberglass coated steel
Tank Internal:	0
Tank External:	41
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Vault (w/access)
Leak Detection:	1
Overfill Protection:	2
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

HIST UST:

PBS Number:	2-456098
SPDES Number:	Not reported
Emergency Contact:	BUREAU OF CLEANING &COLLECTION
Emergency Telephone:	(212) 788-4074
Operator:	NYC DEPT. OF SANITATION, BCC
Operator Telephone:	(718) 387-5426
Owner Name:	50 KENT AVENUE ASSOC. L.P. C/O ED KIRTMAN
Owner Address:	605 THIRD AVENUE, 33RD FLOOR
Owner City,St,Zip:	NEW YORK, NY 10158
Owner Telephone:	(212) 490-2727
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	NYC DEPT. OF SANITATION
Mailing Address:	125 WORTH STREET
Mailing Address 2:	ROOM # 823B
Mailing City,St,Zip:	NEW YORK, NY 10013
Mailing Contact:	CHIEF OF FAC. OPERT. LEG.
Mailing Telephone:	(212) 788-4074
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	50 KENT AVENUE
SWIS ID:	6101

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	03/23/1999
Expiration Date:	06/07/2005
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	14925
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel

BROOKLYN NORTH 1 (BROOKLYN GARAGE) (Continued) **U003074882**

Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	02/01/1995
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

A27
South
< 1/8
183 ft.

Relative: Higher

Actual: 14 ft.

MH 4352
NORTH 11TH / KENT AVE
BROOKLYN, NY

Site 27 of 32 in cluster A

NY Spills **S103936489**
NY Hist Spills **N/A**

NY Spills:

Site ID:	216043
Facility Addr2:	Not reported
Facility ID:	9900819
Spill Number:	9900819
Facility Type:	ER

MH 4352 (Continued) **S103936489**

SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/21/99
Reported to Dept:	04/21/99
CID:	270
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/11/02
Remediation Phase:	0
Date Entered In Computer:	04/21/99
Spill Record Last Update:	04/02/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9900819
DER Facility ID:	178881
Site ID:	216043
Operable Unit ID:	1079574
Operable Unit:	01
Material ID:	307936
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	4.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9900819 4 GALS ON 1000 GALS WATER SAMPLES TAKEN CLEAN UP PENDING RESULTS CON ED 124369 END CallerRemark - 9900819
Remarks:	Start DECRemark - 9900819 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" DEC INSPECTOR NOTES No fingerprint, may be related to past pipeline spills. 5-13-99 E-mailed ERTs for copy of E2MIS report. Con Ed e2mis #124369: 4/21/99 1754HRS - CARMINE SABATASSO #11905 CONST. SUPVR - TRANS OPS REPORTS WHILE RETIRING FUEL OIL PIPELINE #7 FOUND 4 GALS UNKNOWN OIL ON 1000 GALLONS OF WATER. SAMPLE IS BEING TAKEN BY JOHN DEKANCHUK - OS, ENV. OPS - MARKED 4 - 6HR PRIORITY - ENV. STOP TAG INSTALLED # 2852 BY SABATASSO. SPILL IS CONTAINED TO HOLE. REPORTS PRIMARY CABLE IN THIS MH. MH4352 IS LOCATED IN INTERSECTION OF STREET. CLEAN UP PENDING SAMPLE RESULTS.

MH 4352 (Continued) **S103936489**

REPORTED TO CIG - J. DEVOTI @ 18:25 UPDATE 4/22/99 01:25HRS-LAB SEQ 99-04099 RESULTS <1.00PPM UPDATE: 4/26/99 - 1615 A. WALKER - 55495 - ENV. OPS., REPORTS <1.0 PPM CLEANUP COMPLETE AND TAG #2852 REMOVED. END DECRemark - 9900819

NY Hist Spills:

Region of Spill:	2
Spill Number:	9900819
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/21/1999 17:44
Reported to Dept Date/Time:	04/21/99 18:33
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Contact:	CALLER
Spiller Phone:	( ) -
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/21/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	07/31/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	4
Unkonwn Quantity Spilled:	False

MH 4352 (Continued) **S103936489**

Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	DEC INSPECTOR NOTES No fingerprint, may be related to past pipeline spills. 5-13-99 E-mailed ERTs for copy of E2MIS report.
Remark:	4 GALS ON 1000 GALS WATER SAMPLES TAKEN CLEAN UP PENDING RESULTS CON ED 124369

A28 **DSNY BROOKLYN DISTRICT 1 GARAGE** **UST** **U004077815**
South **50 KENT AVENUE** **N/A**
< 1/8 **BROOKLYN, NY 11211**
183 ft.

Site 28 of 32 in cluster A

Relative: Higher

Actual: 14 ft.

UST:

UST:

Facility Id:	2-456098
Region:	STATE
Expiration Date:	05/17/10
Renewal Date:	/ /
Total Capacity:	11750
Facility Type:	Not reported
Mailing Company:	NYC DEPT. OF SANITATION
Mailing Title:	Not reported
Mailing Contact:	FACILITIES OFFICE
Mailing Address:	125 WORTH STREET
Mailing Address 2:	ROOM 823
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10013
Mailing Phone No:	(646) 885-4874
Mailing Email:	Not reported
Owner Title:	D/C
Owner Name:	GERRY CARANNANTE
Owner Address:	125 WORTH STREET RM 823
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10013
Owner Phone:	(646) 885-4874
Owner Company:	NYC DEPT. OF SANITATION
Emergency Contact:	OPERATIONS DESK
Emergency Phone:	(646) 885-4860
Operator:	GARAGE SUPERVISOR
Operator Phone:	(718) 387-5426
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	587916.57629
UTM Y:	4508454.76457
Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS

DSNY BROOKLYN DISTRICT 1 GARAGE (Continued) **U004077815**

Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	02/01/97

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

DSNY BROOKLYN DISTRICT 1 GARAGE (Continued) **U004077815**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	02/01/97

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	02/01/95

A29 **MANHOLE 4352** **NY Spills** **S104510272**
South **11TH ST / KENT AVE** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
183 ft.

Site 29 of 32 in cluster A

Relative: Higher

Actual: 14 ft.

NY Spills:

Site ID:	137226
Facility Addr2:	Not reported
Facility ID:	9913421
Spill Number:	9913421

MANHOLE 4352 (Continued) **S104510272**

Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	02/27/00
Reported to Dept:	02/27/00
CID:	322
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/28/02
Remediation Phase:	0
Date Entered In Computer:	02/27/00
Spill Record Last Update:	02/28/02
Spiller Name:	UNKNOWN
Spiller Company:	UNKNOWN
Spiller Address:	UNKNOWN
Spiller City,St,Zip:	UNKNOWN, ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9913421
DER Facility ID:	117400
Site ID:	137226
Operable Unit ID:	1092012
Operable Unit:	01
Material ID:	295271
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9913421 1 gal of unk oil on 100 gal of water in manhole - spill contained and samples taken and clean up pending results - con ed #130147 END CallerRemark - 9913421
Remarks:	Start DECRemark - 9913421 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 9913421

NY Hist Spills:

Region of Spill:	2
Spill Number:	9913421
Investigator:	O'CONNELL

MANHOLE 4352 (Continued) **S104510272**

Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/27/2000 16:50
Reported to Dept Date/Time:	02/27/00 17:46
SWIS:	61
Spiller Name:	UNK
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Address:	UNK
Spiller City,St,Zip:	UNK, UN
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	02/27/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	02/28/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	1 gal of unk oil on 100 gal of water in manhole - spill contained and samples taken and clean up pending results - con ed 130147

A30
South
< 1/8
183 ft.

Relative:
Higher

Actual:
14 ft.

BROOKLYN NORTH ONE
50 KENT AVE
BROOKLYN, NY

LTANKS **S104501484**
NY Hist Spills **N/A**

Site 30 of 32 in cluster A

LTANKS:

Site ID:	290161
Spill Date:	04/01/96
Facility Addr2:	Not reported
Facility ID:	9600011
Program Number:	9600011
SWIS:	2401
Region of Spill:	2
Investigator:	AIIslam
Referred To:	Not reported
Reported to Dept:	04/01/96
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	DEC
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/31/05
Remediation Phase:	0
Date Entered In Computer:	04/01/96
Spill Record Last Update:	05/31/05
Spille Namer:	Not reported
Spiller Company:	NYC DOS
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	50 KENT AVENUE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	DAN WEISMANN
Spiller Phone:	(718) 482-4933
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9600011
DER Facility ID:	20058
Site ID:	290161
Operable Unit ID:	1027742
Operable Unit:	01
Material ID:	353405
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

BROOKLYN NORTH ONE (Continued) **S104501484**

Site ID:	290161
Operable Unit ID:	1027742
Operable Unit:	01
Material ID:	353404
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9600011 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ZHITOMIRSKY" TRANSFERRED FROM Y.KRIMGOLD. Also, refer to spill # 9607376 & 9401167. 12/14/04-Spill Case is trnsferred to I. Islam. The site is under remediation by LiRo Engineers. - II 4/22/05- Reviewed the quarterly monitoring report (Nov./04 - Jan./05). The monitoring data show persistently high level of both soil and groundwater contamination. LiRo claims that the long history of the site foroperation as a manufactured gas plant (MGP) may be the cause of this. However, a letter has been issued in order for LiRo to consider alternative measure(s) to remediate the site. The monitoring report has been installed in the eDoc Folder. - II5/13/05- Afsar Samani of DDC raised the MGP issue of this site in the meeting with DEC on 5/4/05 as LiRo has written them either to increase the cost for remediation of the MGP related contaminants at the site or get the Key Span and/or other responsible agency handle the MGP site through DEC. Koon Tang is exploring with the Central office as to the finding of responsible agency to handle the former MGP site remediation.- II. 5/31/03- Joe Moloughney of Central Office confirmed via email that this site would be remediated under the KeySpan Consent Order for MGP sites. This site has been assigned with # 224055 as the MGP site. Therefore, the spill is closed.- II END DECRemark - 9600011
Remarks:	Start CallerRemark - 9600011 also ground water affected - reprts says that site is contaminated with petro and heavy metals. Also see spill # 9401167. END CallerRemark - 9600011

NY Hist Spills:

Region of Spill:	2
Spill Number:	9600011
Investigator:	KRIMGOLD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/01/1996 10:30

BROOKLYN NORTH ONE (Continued) **S104501484**

Reported to Dept Date/Time:	04/01/96 10:44	
SWIS:	61	
Spiller Name:	NYC DOS	
Spiller Contact:	Not reported	
Spiller Phone:	Not reported	
Spiller Contact:	DAN WEISMANN	
Spiller Phone:	(718) 482-4933	
Spiller Address:	50 KENT AVENUE	
Spiller City,St,Zip:	BROOKLYN, NY	
Spill Cause:	Unknown	
Reported to Dept:	On Land	
Water Affected:	Not reported	
Spill Source:	01	
Spill Notifier:	DEC	
PBS Number:	Not reported	
Cleanup Ceased:	/ /	
Cleanup Meets Std:	False	
Last Inspection:	/ /	
Recommended Penalty:	Penalty Not Recommended	
Spiller Cleanup Dt:	/ /	
Enforcement Date:	/ /	
Invstgn Complete:	/ /	
UST Involvement:	False	
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.	
Spill Closed Dt:	/ /	
Corrective Action Plan Submitted:	/ /	
Date Region Sent Summary to Central Office:	/ /	
Date Spill Entered In Computer Data File:	04/01/96	
Date Spill Entered In Computer Data File:	Not reported	
Update Date:	04/16/96	
Is Updated:	False	
PBS Number:	Not reported	
Tank Number:	Not reported	
Tank Size:	Not reported	
Test Method:	Not reported	
Leak Rate Failed Tank:	Not reported	
Gross Leak Rate:	Not reported	
Material Class Type:	Petroleum	
Quantity Spilled:	0	
Unkonwn Quantity Spilled:	True	
Units:	Gallons	
Quantity Recovered:	0	
Unkonwn Quantity Recovered:	False	
Material:	DIESEL	
Class Type:	DIESEL	
Times Material Entry In File:	10625	
CAS Number:	Not reported	
Last Date:	19940728	
Material Class Type:	Petroleum	
Quantity Spilled:	0	
Unkonwn Quantity Spilled:	True	
Units:	Gallons	
Quantity Recovered:	0	
Unkonwn Quantity Recovered:	False	
Material:	GASOLINE	
Class Type:	GASOLINE	

BROOKLYN NORTH ONE (Continued) **S104501484**

Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: also ground waster affected - reprts says that site is contaminated with petro and heavy metals

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A31 **NYC DEPT OF SANITATION BROOKLYN NORTH 1** **FINDS** **1000141021**
South **50 KENT AVENUE** **NY MANIFEST** **NYD986872265**
< 1/8 **BROOKLYN, NY 11211** **RCRA-NonGen**
183 ft. **CT MANIFEST**

Site 31 of 32 in cluster A

Relative: Higher

Actual: 14 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:
Document ID: NJA2578798
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: S5811
Trans2 State ID: Not reported
Generator Ship Date: 970508
Trans1 Recv Date: 970508
Trans2 Recv Date: Not reported
TSD Site Recv Date: 970508
Part A Recv Date: 970515
Part B Recv Date: 970610
Generator EPA ID: NYD986872265
Trans1 EPA ID: NJ0000027193
Trans2 EPA ID: Not reported
TSDF ID: NJD002200046
Waste Code: D018 - BENZENE 0.5 MG/L TCLP
Quantity: 06600
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 012
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 97
Manifest Tracking Num: Not reported
Import Ind: Not reported
Export Ind: Not reported
Discr Quantity Ind: Not reported
Discr Type Ind: Not reported
Discr Residue Ind: Not reported
Discr Partial Reject Ind: Not reported
Discr Full Reject Ind: Not reported
Manifest Ref Num: Not reported
Alt Fac RCRA Id: Not reported

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986872265
Facility Name:	NEW YORK CITY- DOS GARAGE
Facility Address:	50 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NEW YORK CITY- DOS GARAGE
Mailing Contact:	MARK MARAIA
Mailing Address:	24-16 BRIDGE PLAZA S. ST 502
Mailing Address 2:	Not reported
Mailing City:	YONKERS
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-937-3286

Document ID:	NJA2758043
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	S5811
Trans2 State ID:	Not reported
Generator Ship Date:	970606
Trans1 Recv Date:	970606
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970606
Part A Recv Date:	970703
Part B Recv Date:	970718
Generator EPA ID:	NYD986872265
Trans1 EPA ID:	NJ0000027193
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986872265
Facility Name:	NEW YORK CITY- DOS GARAGE
Facility Address:	50 KENT AVE

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NEW YORK CITY- DOS GARAGE
Mailing Contact:	MARK MARAIA
Mailing Address:	24-16 BRIDGE PLAZA S. ST 502
Mailing Address 2:	Not reported
Mailing City:	YONKERS
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-937-3286
Document ID:	NYB6917337
Manifest Status:	Completed copy
Trans1 State ID:	10210PNY
Trans2 State ID:	Not reported
Generator Ship Date:	950327
Trans1 Recv Date:	950327
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950329
Part A Recv Date:	950405
Part B Recv Date:	950414
Generator EPA ID:	NYD986872265
Trans1 EPA ID:	NYD980769947
Trans2 EPA ID:	Not reported
TSDF ID:	NYD057770109
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00450
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986872265
Facility Name:	NEW YORK CITY- DOS GARAGE
Facility Address:	50 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NEW YORK CITY- DOS GARAGE

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

Mailing Contact:	MARK MARAIA
Mailing Address:	24-16 BRIDGE PLAZA S. ST 502
Mailing Address 2:	Not reported
Mailing City:	YONKERS
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-937-3286
Document ID:	CTF0430826
Manifest Status:	Completed copy
Trans1 State ID:	8408ACT
Trans2 State ID:	Not reported
Generator Ship Date:	950216
Trans1 Recv Date:	950216
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950216
Part A Recv Date:	950314
Part B Recv Date:	950308
Generator EPA ID:	NYD986872265
Trans1 EPA ID:	CTD016424210
Trans2 EPA ID:	Not reported
TSDF ID:	CTD021816889
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00882
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986872265
Facility Name:	NEW YORK CITY- DOS GARAGE
Facility Address:	50 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NEW YORK CITY- DOS GARAGE
Mailing Contact:	MARK MARAIA
Mailing Address:	24-16 BRIDGE PLAZA S. ST 502
Mailing Address 2:	Not reported
Mailing City:	YONKERS
Mailing State:	NY

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-937-3286
Document ID:	NYB7931925
Manifest Status:	Completed copy
Trans1 State ID:	11338NY
Trans2 State ID:	Not reported
Generator Ship Date:	950803
Trans1 Recv Date:	950803
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950804
Part A Recv Date:	950811
Part B Recv Date:	950822
Generator EPA ID:	NYD986872265
Trans1 EPA ID:	NYD980769947
Trans2 EPA ID:	Not reported
TSDF ID:	NYD057770109
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00325
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986872265
Facility Name:	NEW YORK CITY- DOS GARAGE
Facility Address:	50 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NEW YORK CITY- DOS GARAGE
Mailing Contact:	MARK MARAIA
Mailing Address:	24-16 BRIDGE PLAZA S. ST 502
Mailing Address 2:	Not reported
Mailing City:	YONKERS
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-937-3286

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

RCRA-NonGen:
Date form received by agency: 01/01/2006
Facility name: NYC DEPT OF SANITATION - J SCHIVAONE
Facility address: 50 KENT AVE BK-N-1
BROOKLYN, NY 112111927
EPA ID: NYD986872265
Mailing address: 58TH ST ROOM 404
WOODSIDE, NY 11377
Contact: -
Contact address: 58TH ST ROOM 404
WOODSIDE, NY 11377
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: NYC DEPT OF SANITATION - J SCHIVAONE
Classification: Not a generator, verified

Date form received by agency: 01/08/1998
Facility name: NYC DEPT OF SANITATION - J SCHIVAONE
Site name: NYC DEPT OF SANITATION BROOKLYN NORTH 1
Classification: Large Quantity Generator

Date form received by agency: 04/02/1996
Facility name: NYC DEPT OF SANITATION - J SCHIVAONE
Site name: NYC DEPT OF SANITATION BROOKLYN GARAGE
Classification: Large Quantity Generator

Date form received by agency: 07/13/1988
Facility name: NYC DEPT OF SANITATION - J SCHIVAONE
Classification: Large Quantity Generator

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 07/08/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

CT MANIFEST:
Manifest No: Not reported
Waste Occurence: Not reported
UNNA: Not reported
Hazard Class: Not reported
US Dot Description: Not reported
No of Containers: Not reported
Container Type: Not reported
Quantity: Not reported
Weight/Volume: Not reported
Additional Description: Not reported
Handling Code: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Manifest No: Not reported
Waste Occurence: Not reported
EPA Waste Code: Not reported
Recycled Waste?: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Year: 1995
Manifest ID: CTF0430826
TSDF EPA ID: CTD021816889
TSDF Name: UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
TSDF Address: 136 GRACEY AVE.
TSDF City,St,Zip: MERIDEN, CT 06451
TSDF Country: USA
TSDF Telephone: Not reported
Transport Date: 02/16/95
Transporter EPA ID: CTD016424210
Transporter Name: TRI-S, INCORPORATED
Transporter Country: USA
Transporter Phone: Not reported
Trans 2 Date: / /
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
Trans 2 Address: Not reported
Trans 2 City,St,Zip: CT
Trans 2 Country: USA
Trans 2 Phone: Not reported
Generator EPA ID: NYD986872265
Gererator Phone: Not reported
Generator Address: Not reported
Generator City,State,Zip: Not reported
Generator Country: Not reported
Special Handling: Not reported
Discrepancies: No
Date Shipped: 02/16/95

NYC DEPT OF SANITATION BROOKLYN NORTH 1 (Continued) **1000141021**

Date Received: 02/16/95
Last modified date: 04/26/04
Last modified by: IG
Comments: Not reported

A32 **NORTH 12TH AND KENT** **ERNS** **92267118**
ENE **NORTH 12TH AND KENT** **N/A**
< 1/8 **BROOKLYN, NY**
263 ft.

Site 32 of 32 in cluster A

Relative: Higher

Actual: 11 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

B33 **HEMISPHERE STEEL PRODUCTS CO** **FINDS** **1010217730**
SSE **54 N 11TH ST** **110029305366**
< 1/8 **BROOKLYN, NY 11211**
291 ft.

Site 1 of 2 in cluster B

Relative: Higher

Actual: 16 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

B34 **54 NORTH 11TH ST BUILDING** **FINDS** **1000263277**
SSE **54 NORTH 11TH STREET** **NY MANIFEST** **NYD002408102**
< 1/8 **BROOKLYN, NY 11211** **RCRA-NonGen**
291 ft.

Site 2 of 2 in cluster B

Relative: Higher

Actual: 16 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:
Document ID: NJA1216561
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 920501
Trans1 Recv Date: 920501
Trans2 Recv Date: Not reported
TSD Site Recv Date: 920506
Part A Recv Date: 920522

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Part B Recv Date:	920929
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F003 - UNKNOWN
Quantity:	01905
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA1427999
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920513
Trans1 Recv Date:	920513
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920520
Part A Recv Date:	Not reported
Part B Recv Date:	920609
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Waste Code:	F005 - UNKNOWN
Quantity:	00815
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NYC1480926
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	716827720
Generator Ship Date:	920408
Trans1 Recv Date:	920408
Trans2 Recv Date:	920413
TSD Site Recv Date:	920414
Part A Recv Date:	920415
Part B Recv Date:	920430
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	NYD980769947
TSDF ID:	KYD053348108
Waste Code:	F003 - UNKNOWN
Quantity:	00476
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA0802316
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	900530
Trans1 Recv Date:	900530
Trans2 Recv Date:	900530
TSD Site Recv Date:	900531
Part A Recv Date:	900731
Part B Recv Date:	900723
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00408
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA9628366
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS086
Generator Ship Date:	900131
Trans1 Recv Date:	900131
Trans2 Recv Date:	900201
TSD Site Recv Date:	900201
Part A Recv Date:	900806
Part B Recv Date:	900611
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F003 - UNKNOWN
Quantity:	00408
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA0818624
Manifest Status:	Completed copy
Trans1 State ID:	000000000
Trans2 State ID:	000000000
Generator Ship Date:	900327
Trans1 Recv Date:	900327
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	900329
Part A Recv Date:	900419
Part B Recv Date:	900411
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00408
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA0922095
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	000000000
Trans2 State ID:	000000000
Generator Ship Date:	900801
Trans1 Recv Date:	900801
Trans2 Recv Date:	900801
TSD Site Recv Date:	900802
Part A Recv Date:	900906
Part B Recv Date:	900820
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00408
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA1142993
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	910418
Trans1 Recv Date:	910418
Trans2 Recv Date:	910424
TSD Site Recv Date:	910424
Part A Recv Date:	910603
Part B Recv Date:	910513
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA1091213
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	901102
Trans1 Recv Date:	901102
Trans2 Recv Date:	901106
TSD Site Recv Date:	901106
Part A Recv Date:	901204
Part B Recv Date:	901213
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA0913941
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	900912
Trans1 Recv Date:	900912
Trans2 Recv Date:	900913
TSD Site Recv Date:	900913
Part A Recv Date:	901003
Part B Recv Date:	901001
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00408
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA0985689
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Trans1 State ID:	S8690
Trans2 State ID:	S8690
Generator Ship Date:	910131
Trans1 Recv Date:	910131
Trans2 Recv Date:	910204
TSD Site Recv Date:	910205
Part A Recv Date:	910206
Part B Recv Date:	910228
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA1143042
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910618
Trans1 Recv Date:	910618
Trans2 Recv Date:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

TSD Site Recv Date:	910625
Part A Recv Date:	910627
Part B Recv Date:	910722
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA0802656
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910118
Trans1 Recv Date:	910118
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910123
Part A Recv Date:	910205
Part B Recv Date:	910212
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704
Document ID:	NJA1128168
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910716
Trans1 Recv Date:	910716
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910717
Part A Recv Date:	910723
Part B Recv Date:	910802
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA1143259
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	911003
Trans1 Recv Date:	911003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	911009
Part A Recv Date:	911010
Part B Recv Date:	911101
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

Document ID:	NJA1320405
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920311
Trans1 Recv Date:	920311
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920319
Part A Recv Date:	920318
Part B Recv Date:	920406
Generator EPA ID:	NYD002408102
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002408102
Facility Name:	HEMISPHERE STEEL PRODUCTS
Facility Address:	54 NORTH 11TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HEMISPHERE STEEL PRODUCTS
Mailing Contact:	HEMISPHERE STEEL PRODUCTS
Mailing Address:	54 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-5704

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	HEMISPHERE STEEL PRODUCTS CORP
Facility address:	54 N 11TH ST BROOKLYN, NY 112111993
EPA ID:	NYD002408102
Mailing address:	N 11TH ST BROOKLYN, NY 11211
Contact:	-
Contact address:	N 11TH ST BROOKLYN, NY 11211
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No

54 NORTH 11TH ST BUILDING (Continued) **1000263277**

Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: HEMISPHERE STEEL PRODUCTS CORP
Classification: Not a generator, verified

Date form received by agency: 12/12/1989
Facility name: HEMISPHERE STEEL PRODUCTS CORP
Classification: Small Quantity Generator

Violation Status: No violations found

C35 **LOT 5,TAXBLOCK 2294** **E DESIGNATION** **S108469844**
SW **33 NORTH 10 STREET** **N/A**
< 1/8 **BROOKLYN, NY 11211**
393 ft.

Site 1 of 15 in cluster C

Relative: Higher

Actual: 12 ft.

E DESIGNATION:
Tax Lot(s): 5
E-No: E-138
Effective Date: 5/11/2005
Satisfaction Date: Not reported
Ceqr Number: 04DCP003K
Ulurp Number: 050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No: 12c, 12d, 13a, 13b
Description: Underground Gasoline Storage Tanks* Testing Protocol
Description 2: Not reported
Borough Code: BK
Community District: 301
Census Tract: 577
Census Block: 2002
School District: 14
City Council District: 33
Fire Company: L106
Health Area: 30
Police Precinct: 094
Zone District 1: M3-1
Zone District 2: Not reported
Commercial Overlay1: Not reported
Commercial Overlay2: Not reported
Special Purpose District1: Not reported
Special Purpose District2: Not reported
All Components1: M3-1
All Components2: Not reported
Split Boundary Indicator: N
Building Class: E4
Land Use Category: 06
Number of Easements: 0
Owner, Type of Code: P
Owner Name: 10TH STREET LLC
Lot Area: 000042300

LOT 5,TAXBLOCK 2294 (Continued) **S108469844**

Total Building Floor Area:	00000050000
Commercial Floor Area:	00000050000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000050000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00006
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0123.00
Lot Depth:	0400.00
Building Frontage:	0100.00
Building Depth:	0500.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000213750
Total Assessed Value:	00001300500
Land Exempt Value:	00000000000
Total Exempt Value:	00001086750
Year Built:	2001
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.18
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3022940005
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995300
Y Coordinate:	0202463
Zoning Map:	12C
Sanborn Map:	304 003
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

D36
NE
< 1/8
405 ft.

Relative:
Equal

Actual:
10 ft.

NORTH 13TH ST & KENT AVE
NORTH 13TH ST / KENT AVE
BROOKLYN, NY

NY Spills **S103936380**
NY Hist Spills **N/A**

Site 1 of 17 in cluster D

NY Spills:

Site ID:	94901
Facility Addr2:	Not reported
Facility ID:	9900693
Spill Number:	9900693
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/19/99
Reported to Dept:	04/19/99
CID:	205
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	04/19/99
Spill Record Last Update:	06/09/06
Spiller Name:	JOE DEVOTI
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	001
Spiller Phone:	(212) 580-6763
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9900693
DER Facility ID:	84940
Site ID:	94901
Operable Unit ID:	1079467
Operable Unit:	01
Material ID:	307816
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	250.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9900693 fire dept manhole - pipeline leaked. clean up in

NORTH 13TH ST & KENT AVE (Continued) **S103936380**

progress. con ed # 124322 END CallerRemark - 9900693

Remarks: Start DECRemark - 9900693 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" 4/19/99: On scene Dan Shah (ERT), Bernard Hennelly (Eng. Specialist), Ray Turkin, Barry Korman, John Mitchell. Crews were pulling manholes as precursor to re-starting pigging operation in No. 7 pipeline. Found unknown quantity of unknown oil in manhole marked "FDNY" Looks like aged #6 oil. All service boxes and manholes in area were checked and are clean. Con Ed contacted FDNY maintenancecommunications. Manhole had been paved over - Con Ed crew had to break up asphaly on top of manhole to open it. In addtion to No. 7 pipeline, Bayside Fuel terminal located across the street (on west side of Kent Ave). Chem Lab on-site to take samples for oil ID and PCBs. Con Ed was to resume pigging operation today, but will wait until clean up is complete. FDNY on-site @ 1215 hrs, off site at 1220 hrs. NYCDEP (Keith Williams) on-site at 1220 hrs. (JHO) 1410 hrs: John Mitchell,Con Ed, spoke with FDNY Bob Shields. Manhole is for fire alarm conduits. Con Ed checked other FDNY manholes in every direction from this one - all clean. All State power vac is cleaning the manhole. They will check for sources once manhole is cleaned (seepage through manhole walls, oil in conduits, etc.). Oil ID is due back this afternoon. (JHO) 5/5/99: Manhole is to be monitored for additional oil accumulation. (JHO) e2mis no. 124-322: On April 19, 1999, C. Sabatasso of Transmission Operations reported approx.2.5 gallons of a oily substance between the outer cover and inner pan of a Fire Department Manhole. This is part of the job at Fuel Oil Line #7 pulling manhole covers before start pigging operations. Chem Lab has been notified to come take samples. UPDATE: spoke with C. Sabatasso via phone and was informed that manhole cover had been pull and the amount of the substance had to be changed from 2.5 gallons to 250 gallons of an oily substance. LARGE OIL SPILL CLEANUP CHECKLIST - Material spilled/discovered: Oil FUEL OIL #6. - Sample submitted for analysis? Yes Sample ID No.99-03967 & 03965. - Amount spilled/discovered: 100 GALLONS. - Removed/recovered liquid/solids. - Removed visible traces of oil. - Washed stained areas. - Name of contractor: ALL STATE POWER VAC. - Cleanup completed on Date: 4/19/99 Time: 20:15. Update 6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) END DECRemark - 9900693

NY Hist Spills:

Region of Spill:	2
Spill Number:	9900693
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/19/1999 09:50
Reported to Dept Date/Time:	04/19/99 10:59
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	JOE DEVOTI
Spiller Phone:	(212) 580-6763
Spiller Contact:	CALLER
Spiller Phone:	( ) -
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003-
Spill Cause:	Equipment Failure
Reported to Dept:	In Sewer

NORTH 13TH ST & KENT AVE (Continued) **S103936380**

Water Affected: Not reported
Spill Source: 01
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 04/19/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 04/26/99
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 250
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Remark: Not reported

C37 **EATON ALLEN CORP** **HIST FTTS** **1008179211**
SSW **67 KENT AVE** **N/A**
< 1/8 **BROOKLYN, NY 11211**
409 ft.

Site 2 of 15 in cluster C

Relative:
Higher

HIST FTTS INSP:
Inspection Number: 198504251488 1
Actual: Region: 02
15 ft. Inspection Date: Not reported
Inspector: A.J. MULLIN, FF
Violation occurred: No
Investigation Type: Section 6 PCB Federal Conducted
Investigation Reason: Neutral Scheme, Region
Legislation Code: TSCA
Facility Function: User

C38
SSW
< 1/8
409 ft.

Relative:
Higher

Actual:
15 ft.

N 10TH ST/KENT AVE
N 10TH ST/KENT AVE
BROOKLYN, NY

Site 3 of 15 in cluster C

NY Spills **S103272943**
NY Hist Spills **N/A**

NY Spills:

Site ID:	297954
Facility Addr2:	Not reported
Facility ID:	9612453
Spill Number:	9612453
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	01/17/97
Reported to Dept:	01/17/97
CID:	282
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	01/20/97
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	01/17/97
Spill Record Last Update:	06/09/06
Spiller Name:	JOHN MITCHELL
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	001
Spiller Phone:	(718) 204-4485
Contact Name:	SAME
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9612453
DER Facility ID:	241056
Site ID:	297954
Operable Unit ID:	1043970
Operable Unit:	01
Material ID:	341096
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9612453 THEY HAVE A LEAK GOING INTO A MANHOLE.THEY

N 10TH ST/KENT AVE (Continued) **S103272943**

Remarks: EXCAVATING TO DETERMINE THE EXTENT OF THE LEAK END CallerRemark - 9612453
Start DECRemark - 9612453 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" 1/17/97 mmm:CALLED BACK JOHN MITCHELL FROM CON ED. #7 PIPELINE UNDER PRESSURE AND CON ED EMPLOYEE FOUND OIL IN ADJACENT ELECTRIC MANHOLE AT INTERSECTION OF KENT AVENUE & N. 10TH STREET. PIPELINE IS BEING TAKEN OUT OF SERVICE AND LOW POUR BEING INTRODUCED. EXCAVATION CREW MOBILIZED TO E.I. & R. 1/18/97:09:00 HRS- UPDATE-STILL DIGGING. NO LEAK FOUND 1/18/97:18:45 HRS- STILLDIGGING, NO LEAK FOUND YET 1/19/97:12:30 HRS - CALL FROM PAUL CARBONE FROM CON ED, STILL EXCAVATIONG ALONG KENT AVENUE. FOUND SMALL AMOUNT OF OIL IN TRENCH BUT NO LEAK ALONG PIPELINE (-20 WINDCHILLS). 1/20/97: MULQUEEN DOES SITE INSPECTION AND DISCUSSES SPILL WITH JOHN MITCHELL. TWO (2) TWENTY YARD ROLLOFFS FILLED WITH PETROLEUM CONTAMINATED SAND. TWO (2) MEG & ONE (1) CLEAN HARBORS VAC TRUCK(S) STANDING BY. THIS PIPELINE SECTION IS OFFSET TO THE WEST TO GO AROUND CON ED ELECTRIC MANHOLE. CON ED DIGGING AND LOOKING AT THE WELDS. FREE PRODUCT NOTED ON WATER TABLE IN POCKETS ALONG PIPELINE. APPROXIMATELY 70 FEET OF PIPELINE EXPOSED AT THIS TIME. 13:30 HRS: RETURN PAGE FROM PAUL CARBONE FROM CON ED. ACCORDING TOPAUL, THE STEAM PLANT IN MANHATTAN IS NOT IN FULL OPERATION AND RAVENSWOOD HAS BEEN GENERATING STEAM TO COMPENSATE, ESPECIALY DURING THE COLD WEATHER. RAVENSWOOD IS RUNNING LOW ON FUEL AND CON ED IS REQUESTING THAT THE PIPELINE IS ALLOWED TO GO BACK IN SERVICE. HE CITED THAT THERE WAS NO PRESSURE DECAY DURING TESTING. I TOLD HIM THAT IT WAS PROBABLY A FALSE POSITVE, DUE TO EXTREME COLD WEATHER. SINCE THIS WAS AN EMERGENCY, I TOLD HIM THAT THEY COULD PUT THE LINE BACK IN SERVICE, PROVIDED THAT THE EXCAVTED AREA IS ROADPLATED AND MONITORED. IF THERE IS ANY OTHER SIGNS OF OIL, THEN THEY ARE REQUIRED TO LAY THE PIPELINE UP AND DO REPAIRS AND CLEANUP. 1/22/97 UPDATE GHK: 10:00 ACCORDING TO JOHN MITCHELL, U.T. THE LINE IS STILL PRESSURIZED. 10:05 MET KAREL KONRAD/CHRISTINE KOVARI ONSITE. HE INDICATED THE FOLLOWING: THE OIL IN THE MANHOLE AND TRENCH WAS SAMPLED AND ANALYZED FOR FINGERPRINT AND PCB'S. THE RESULTS FROM THE TRENCH REVEALED PCB CONCENTRATIONS OF 98 AND 142 PPM. ADDITIONAL SAMPLES WERE COLLECTED TODAY. THE OIL IN THE MANHOLE REVEALED 36 PPM PCB'S. THE FINGERPRINT REVEALED HEAVY FUEL OIL. ALL ANALYTICAL WAS PERFORMED BY CON ED'S ASTORIA CHEM LAB. CON ED WILL PERFORM A SITE CHARACTERIZATION AND INSTALL TWO TO THREE 6" RECOVERY WELLS WITHIN THE EXISTING EXCAVATION (APPROXIMATELY 10 FEET INTO GROUNDWATER) AND INSTALL AT LEAST ONE UPGRADIENT AND ONE DOWNGRADIENT MONITORING WELL. CHRISTINE KOVARI WILL BE THE CON ED PROJECT MANAGER. 2/11/97:GHK update from C. Kovari (Con Ed Remediation) - no oil in recovery wells. 2/13/97: GHK at site with John Mitchell and Christine Kovari. Will return next week to see if any oil enters wells. If it does they will dample for oil ID, if not willanalyze ground water for VOCs and SVOCs via 8021 and 8270 in Friday Feb. 21.
e2mis no. 103-173: 18-JAN-1997 15:15 HRS FUEL OIL LEAK ON 20 INCH FUEL PIPELINE #7 MH# 4353 AT INTERSECTION OF NORTH 10 ST. AND KENT AVE. BKLYN. ABOUT 1000 GAL. OF #6 FUEL OIL CONTAINED IN MH AND ADJOINING EXCAVTION SITE. CLEAN UP IN PROGRESS. 19-JAN-1997 15:43 HRS U.T. STILL EXCAVTING HAVE NOT LOCATED LEAK AS THIS TIME.GRAB SAMPLE TAKEN OF OIL AND WATER IN TRENCH, CHEM LAB #97-00660 98 PPM PCB. Update 6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) END DECRemark - 9612453

NY Hist Spills:

Region of Spill:	2
Spill Number:	9612453
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported

N 10TH ST/KENT AVE (Continued) **S103272943**

Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	01/17/1997 19:20
Reported to Dept Date/Time:	01/17/97 20:03
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	JOHN MITCHELL
Spiller Phone:	(718) 204-4485
Spiller Contact:	SAME
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003-
Spill Cause:	Equipment Failure
Reported to Dept:	Groundwater
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	01/20/97
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	01/17/97
Date Spill Entered In Computer Data File:	Not reported
Update Date:	06/05/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728

DEC Remarks: 1/17/97 mmm:CALLED BACK JOHN MITCHELL FROM CON ED. 7 PIPELINE UNDER PRESSURE AND CON ED EMPLOYEE FOUND OIL IN ADJACENT ELECTRIC MANHOLE AT INTERSECTION OF KENT AVENUE N. 10TH STREET. PIPELINE IS BEING TAKEN OUT OF SERVICE AND LOW POUR BEING INTRODUCED. EXCAVATION CREW MOBILIZED TO E.I. R. 1/18/97:09:00 HRS- UPDATE-STILL DIGGING. NO LEAK FOUND 1/18/97:18:45 HRS- STILL DIGGING, NO

N 10TH ST/KENT AVE (Continued) **S103272943**

LEAK FOUND YET 1/19/97:12:30 HRS - CALL FROM PAUL CARBONE FROM CON ED, STILL EXCAVATIONG ALONG KENT AVENUE. FOUND SMALL AMOUNT OF OIL IN TRENCH BUT NO LEAK ALONG PIPELINE -20 WINDCHILLS). 1/20/97: MULQUEEN DOES SITE INSPECTION AND DISCUSSES SPILL WITH JOHN MITCHELL. TWO 2) TWENTY YARD ROLLOFFS FILLED WITH PETROLEUM CONTAMINATED SAND. TWO 2) MEGONE 1) CLEAN HARBORS VAC TRUCK S) STANDING BY. THIS PIPELINE SECTION IS OFFSET TO THE WEST TO GO AROUND CON ED ELECTRIC MANHOLE. CON ED DIGGING AND LOOKING AT THE WELDS. FREE PRODUCT NOTED ON WATER TABLE IN POCKETS ALONG PIPELINE. APPROXIMATELY70 FEET OF PIPELINE EXPOSED AT THIS TIME. 13:30 HRS: RETURN PAGE FROM PAUL CARBONE FROM CON ED. ACCORDING TO PAUL, THE STEAM PLANT IN MANHATTAN IS NOT IN FULL OPERATION AND RAVENSWOOD HAS BEEN GENERATING STEAM TO COMPENSATE, ESPECIALY DURING THE COLD WEATHER. RAVENSWOOD IS RUNNING LOW ON FUEL AND CON ED IS REQUESTING THAT THE PIPELINE IS ALLOWED TO GO BACK IN SERVICE. HE CITED THAT THERE WAS NO PRESSURE DECAY DURING TESTING. I TOLD HIM THAT IT WAS PROBABLY A FALSE POSITVE, DUE TO EXTREMECOLD WEATHER. SINCE THIS WAS AN EMERGENCY, I TOLD HIM THAT THEY COULD PUT THE LINE BACK IN SERVICE, PROVIDED THAT THE EXCAVTED AREA IS ROADPLATED AND MONITORED. IF THERE IS ANY OTHER SIGNS OF OIL, THEN THEY ARE REQUIRED TO LAY THE PIPELINE UP ANDDO REPAIRS AND CLEANUP. 1/22/97 UPDATE GHK: 10:00 ACCORDING TO JOHN MITCHELL, U.T. THE LINE IS STILL PRESSURIZED. 10:05 MET KAREL KONRAD/CHRISTINE KOVARI ONSITE. HE INDICATED THE FOLLOWING: THE OIL IN THE MANHOLE AND TRENCH WAS SAMPLED AND ANALYZED FOR FINGERPRINT AND PCB S. THE RESULTS FROM THE TRENCH REVEALED PCB CONCENTRATIONS OF 98 AND 142 PPM. ADDITIONAL SAMPLES WERE COLLECTED TODAY. THE OIL IN THE MANHOLE REVEALED 36 PPM PCB S. THE FINGERPRINT REVEALED HEAVY FUEL OIL. ALL ANALYTICAL WAS PERFORMED BY CON ED S ASTORIA CHEM LAB. CON ED WILL PERFORM A SITE CHARACTERIZATION AND INSTALL TWO TO THREE 6 RECOVERY WELLS WITHIN THE EXISTING EXCAVATION APPROXIMATELY 10 FEET INTO GROUNDWATER) AND INSTALL AT LEAST ONE UPGRADIENT AND ONE DOWNGRADIENT MONITORING WELL. CHRISTINE KOVARI WILL BE THE CON ED PROJECT MANAGER.

Remark: THEY HAVE A LEAK GOING INTO A MANHOLE.THEY EXCAVATING TO DETERMINE THE EXTENT OF THE LEAK

C39 **CON ED - MH 4353** **NY MANIFEST 1007206115**
SSW **N 10 ST & KENT AVE** **RCRA-NonGen NYP004003844**
< 1/8 **BROOKLYN, NY 11211**
409 ft.

Site 4 of 15 in cluster C

Relative: Higher

Actual: 15 ft.

NY MANIFEST:

Document ID:	NYB7162731
Manifest Status:	Completed copy
Trans1 State ID:	T4X985NJ
Trans2 State ID:	JA334
Generator Ship Date:	970203
Trans1 Recv Date:	970203
Trans2 Recv Date:	970206
TSD Site Recv Date:	970207
Part A Recv Date:	970225
Part B Recv Date:	970220
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	NJD986607380
Trans2 EPA ID:	NJD986607380
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	12946
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs

CON ED - MH 4353 (Continued) **1007206115**

Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYB6954318
Manifest Status:	Completed copy
Trans1 State ID:	T4X985NJ
Trans2 State ID:	JA334
Generator Ship Date:	970128
Trans1 Recv Date:	970128
Trans2 Recv Date:	970205
TSD Site Recv Date:	970206
Part A Recv Date:	970212
Part B Recv Date:	970220
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	NJD986607380
Trans2 EPA ID:	NJD986607380
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	08519
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

CON ED - MH 4353 (Continued) **1007206115**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	MAJ5628270
Manifest Status:	Completed copy
Trans1 State ID:	29407MA
Trans2 State ID:	Not reported
Generator Ship Date:	970124
Trans1 Recv Date:	970124
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970124
Part A Recv Date:	Not reported
Part B Recv Date:	970212
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	Not reported
TSDF ID:	MAD053452637
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	06900
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

CON ED - MH 4353 (Continued) **1007206115**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

Document ID:	NYB7162794
Manifest Status:	Completed copy
Trans1 State ID:	614235ME
Trans2 State ID:	614235ME
Generator Ship Date:	970131
Trans1 Recv Date:	970131
Trans2 Recv Date:	970203
TSD Site Recv Date:	970204
Part A Recv Date:	970219
Part B Recv Date:	970214
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	MAD039322250
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	16339
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

CON ED - MH 4353 (Continued) **1007206115**

EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

Document ID:	MAJ5629750
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	614171ME
Trans2 State ID:	614171ME
Generator Ship Date:	970124
Trans1 Recv Date:	970124
Trans2 Recv Date:	970124
TSD Site Recv Date:	970127
Part A Recv Date:	Not reported
Part B Recv Date:	970506
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	MAD039322250
TSDF ID:	MAD053452637
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	09090
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported

CON ED - MH 4353 (Continued) **1007206115**

Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYB7162704
Manifest Status:	Completed copy
Trans1 State ID:	SA334
Trans2 State ID:	Not reported
Generator Ship Date:	970203
Trans1 Recv Date:	970203
Trans2 Recv Date:	970209
TSD Site Recv Date:	970210
Part A Recv Date:	970224
Part B Recv Date:	970220
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	NJD986607380
Trans2 EPA ID:	NJD986607380
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	14143
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828

CON ED - MH 4353 (Continued) **1007206115**

Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYB7162713
Manifest Status:	Completed copy
Trans1 State ID:	ME614238
Trans2 State ID:	Not reported
Generator Ship Date:	970128
Trans1 Recv Date:	970128
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970130
Part A Recv Date:	970212
Part B Recv Date:	970210
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	15068
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

CON ED - MH 4353 (Continued) **1007206115**

Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYB7162722
Manifest Status:	Completed copy
Trans1 State ID:	614235ME
Trans2 State ID:	Not reported
Generator Ship Date:	970128
Trans1 Recv Date:	970128
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970129
Part A Recv Date:	970212
Part B Recv Date:	970210
Generator EPA ID:	NYP004003844
Trans1 EPA ID:	MAD039322250
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	08509
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004003844
Facility Name:	CONSOLIDATED EDISON
Facility Address:	31-01 20TH AVE - BLDG 154
Facility City:	LONG ISLAND CITY
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

RCRA-NonGen:
Date form received by agency: 02/27/1998

CON ED - MH 4353 (Continued) **1007206115**

Facility name: CON ED - MH 4353
Facility address: N 10 ST & KENT AVE
BROOKLYN, NY 112110000
EPA ID: NYP004003844
Mailing address: CONSOLIDATED EDISON INC
4 IRVING PL RM 310
NEW YORK, NY 100030000
Contact: ANTHONY - DRUMMINGS
Contact address: CONSOLIDATED EDISON INC
NEW YORK, NY 100030000
Contact country: US
Contact telephone: (212) 460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: Unknown
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: Unknown
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: Unknown
Used oil processor: Unknown
User oil refiner: Unknown
Used oil fuel marketer to burner: Unknown
Used oil Specification marketer: Unknown
Used oil transfer facility: Unknown
Used oil transporter: Unknown
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 02/26/1998
Facility name: CON ED - MH 4353
Classification: Large Quantity Generator

Violation Status: No violations found

C40 **BAROUH EATON CORP** **LTANKS** **S104278324**
SSW **67 KENT AVENUE** **HIST LTANKS** **N/A**
< 1/8 **BROOKLYN, NY**
409 ft.

Site 5 of 15 in cluster C

Relative: Higher

Actual: 15 ft.

LTANKS:
Site ID: 305030
Spill Date: 10/04/99
Facility Addr2: Not reported
Facility ID: 9908120
Program Number: 9908120
SWIS: 2401
Region of Spill: 2
Investigator: SIGONA

BAROUH EATON CORP (Continued) **S104278324**

Referred To:	Not reported
Reported to Dept:	10/04/99
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Fire Department
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	05/06/03
Remediation Phase:	0
Date Entered In Computer:	10/04/99
Spill Record Last Update:	05/06/03
Spille Namer:	KATHLEN CICCHETTI
Spiller Company:	BAROUH EATON ALLEN CORP
Spiller Phone:	(718) 782-2601
Spiller Extention:	Not reported
Spiller Address:	67 KENT AVENUE
Spiller City,St,Zip:	BROOKLYN, NY 11211-
Spiller County:	001
Spiller Contact:	RICARDO RODRIGO
Spiller Phone:	(718) 782-2601
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9908120
DER Facility ID:	246397
Site ID:	305030
Operable Unit ID:	1082409
Operable Unit:	01
Material ID:	300802
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	5.00
Resource Affected:	Sewer
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9908120 OIL MIXED WITH WATER ON THE STREET. FD ON SCENE. APPROX. 5-10 GALLONS IN THE SEWER. END CallerRemark - 9908120

BAROUH EATON CORP (Continued) **S104278324**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9908120
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	10/04/1999
Spill Time:	15:30
Reported to Department Date:	10/04/99
Reported to Department Time:	15:46
SWIS:	61
Spiller Contact:	RICARDO RODRIGO
Spiller Phone:	(718) 782-2601
Spiller Extention:	Not reported
Spiller Name:	BAROUH EATON ALLEN CORP
Spiller Address:	67 KENT AVENUE
Spiller City,St,Zip:	BROOKLYN, NY 11211-
Facility Contact:	KATHLEN CICCHETTI
Facility Phone:	(718) 782-2601
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gallons
Spill Notifier:	Fire Department
PBS Number:	2-361763
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/04/99
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	10/28/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	10

BAROUH EATON CORP (Continued) **S104278324**

Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 5
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: DEC SIGONA CALLED BATT 45- CHIEF GARRISH ON 10/5/99. SAGAR CHATTERGY DEP) reposponded on 11/4/99. The spill was cleaned up. According to FD, the facility was converting from oil to gas. The PBS registration does not confirm this report. Follow-up necessary for PBS data.
Spill Cause: OIL MIXED WITH WATER ON THE STREET. FD ON SCENE. APPROX. 5-10 GALLONS IN THE SEWER.

C41 **CON ED - MH 4353** **FINDS** **1005630446**
SSW **N 10 ST & KENT AVE** **110017249020**
< 1/8 **BROOKLYN, NY 11211**
409 ft.

Site 6 of 15 in cluster C

Relative: Higher

Actual: 15 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C42 **EATON ALLEN** **FINDS** **1004569256**
SSW **67 KENT AVENUE** **110001571022**
< 1/8 **BROOKLYN, NY 11211**
409 ft.

Site 7 of 15 in cluster C

Relative: Higher

Actual: 15 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

C43
SSW
< 1/8
409 ft.

Relative:
Higher

Actual:
15 ft.

EATON ALLEN CORP
67 KENT AVE
BROOKLYN, NY 11211

Site 8 of 15 in cluster C

FTTS **1010003539**
N/A

FTTS INSP:

Inspection Number:	198504251488 1
Region:	02
Inspection Date:	04/25/1985
Inspector:	A.J. MULLIN, FF
Violation occurred:	No
Investigation Type:	Section 6 PCB Federal Conducted
Investigation Reason:	Neutral Scheme, Region
Legislation Code:	TSCA
Facility Function:	User

C44
SSW
< 1/8
409 ft.

Relative:
Higher

Actual:
15 ft.

BAROUH EATON ALLEN CORP
67 KENT AVE
BKLYN, NY 11211

Site 9 of 15 in cluster C

HIST AST **U003391720**
N/A

HIST AST:

PBS Number:	2-361763
SWIS Code:	6101
Operator:	BAROUH EATON ALLEN CORP
Facility Phone:	(718) 782-2601
Facility Addr2:	67 KENT AVE
Facility Type:	MANUFACTURING
Emergency:	RICARDO RODRIGO
Emergency Tel:	(718) 384-0094
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	BAROUH EATON ALLEN CORP
Owner Address:	67 KENT AVE
Owner City,St,Zip:	BKLYN, NY 11211
Federal ID:	Not reported
Owner Tel:	(718) 782-2601
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	KATHLEEN CICCHETTI
Mailing Name:	BAROUH EATON ALLEN CORP
Mailing Address:	67 KENT AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BKLYN, NY 11211
Mailing Telephone:	(718) 782-2601
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/10/1997
Expiration:	10/06/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000

BAROUH EATON ALLEN CORP (Continued) **U003391720**

FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	2-000013
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19771001
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

C45 **V5137** **FINDS** **1007252876**
SSW **44-84 N 10TH STREET** **110017256789**
< 1/8 **NEW YORK CITY, NY 11235**
409 ft.

Site 10 of 15 in cluster C

Relative:
Higher

FINDS:
Other Pertinent Environmental Activity Identified at Site

Actual:
15 ft.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C46
SSW
< 1/8
409 ft.

Relative:
Higher

Actual:
15 ft.

V5137
44-84 N 10TH STREET
NEW YORK CITY, NY 11235

Site 11 of 15 in cluster C

NY MANIFEST
RCRA-NonGen

1007206826
NYP004031548

NY MANIFEST:

Document ID:	NYE0255802
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	03/02/1999
Trans1 Recv Date:	03/02/1999
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/03/1999
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004031548
Trans1 EPA ID:	NYD980593636
Trans2 EPA ID:	Not reported
TSDF ID:	20855AD
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	01291
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	99
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004031548
Facility Name:	CONSOLIDATED EDISON
Facility Address:	V5137-WYTHE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

V5137 (Continued) **1007206826**

RCRA-NonGen:
Date form received by agency: 01/02/2001
Facility name: V5137
Facility address: 44-84 N 10TH STREET
NEW YORK CITY, NY 11235
EPA ID: NYP004031548
Mailing address: CONSOLIDATED EDISON INC.
4 IRVING PLACE -- ROOM 300
NEW YORK, NY 10003
Contact: ANTHONY - DRUMMINGS
Contact address: CONSOLIDATED EDISON INC.
NEW YORK, NY 10003
Contact country: US
Contact telephone: (212) 460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: Unknown
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: Unknown
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: Unknown
Used oil processor: Unknown
User oil refiner: Unknown
Used oil fuel marketer to burner: Unknown
Used oil Specification marketer: Unknown
Used oil transfer facility: Unknown
Used oil transporter: Unknown
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2001
Facility name: V5137
Classification: Large Quantity Generator

Violation Status: No violations found

C47 **BAROUH EATON ALLEN CORP.** **CBS UST** **S102640937**
SSW **67 KENT AVE.** **AST** **N/A**
< 1/8 **BROOKLYN, NY 11211** **CBS**
409 ft.

Site 12 of 15 in cluster C

Relative:
Higher

Actual:
15 ft.

CBS UST:
UST_CBS Number: 2-000013
Region: STATE
ICS No: 2-500025
PBS No: 2-361763
MOSF No: Not reported

BAROUH EATON ALLEN CORP. (Continued) **S102640937**

Facility Tel:	(718) 782-2601
Town:	NEW YORK CITY
Operator:	RICARDO RODRIGO
Emergency Contact:	CHRISTOPHER MCGARRY
Emergency Contact Phone:	(516) 997-4292
Certification Date:	/ /
Expiration Date:	02/10/1997
Owner Name:	BAROUH EATON ALLEN CORP.
Owner Address:	67 KENT AVE.
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Tele:	(718) 782-2601
Owner Type:	Corporate/Commercial
Total Tanks:	0
Facility Type:	MANUFACTURING
Mail To Name:	BAROUH EATON ALLEN CORP.
Mail To Contact:	BAROUH EATON ALLEN CORP.
Mail To Address:	67 KENT AVE.
Mail To Address 2:	Not reported
Mail To City,St,Zip:	BROOKLYN, NY 11211
Facility Status:	TANK CONVERTED TO NON-REGULATED USE
Mail To Telephone:	(718) 782-2601
SPDES No:	Not reported
Owner Subtype:	Not reported

Tank Number:	00001
Date Entered:	02/10/1989
Capacity:	1080
Chemical:	Methylene chloride
Tank Closed:	04/98
Tank Status:	Temporarily Out Of Service
Tank Type:	Steel/carbon steel
Install Date:	07/74
CAS No:	75092
Substance:	Single Hazardous Substance on DEC List
Tank Location:	UNDERGROUND
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Leak Detection:	None
2nd Containmt:	Vault (w/o access)
Overfill Protection:	None
Haz Percent:	100
Pipe Containment:	Vault (w/o access)
Tank Error Status:	No Missing Data
Tank Secret:	False
Date Entered:	08:30:17
Last Test:	Not reported
Due Date:	Not reported
SWIS Code:	6101
Pipe Type:	GALVANIZED STEEL
Cert Flag:	False
Is it There:	False
Is Updated:	False
Owners Mark:	First Owner
Lat/Long:	Not reported

BAROUH EATON ALLEN CORP. (Continued) **S102640937**

Renew Date:	11/02/92
Deliquent:	False
Total Capacity:	0
Date Expired:	02/10/95
Flag:	C
Case No:	Not reported
Federal Amt:	True
Pipe Flag:	False
Reserve Flag:	True

AST:

AST:

Region:	STATE
Facility Id:	2-361763
UTM X:	587865.10830
UTM Y:	4508392.72589
Expiration Date:	10/06/02
Renewal Date:	06/04/02
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Unregulated
Mailing Company:	BAROUH EATON ALLEN CORP
Mailing Title:	Not reported
Mailing Contact:	KATHLEEN CICCHETTI
Mailing Address:	67 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 782-2601
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	67 KENT AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 782-2601
Owner Company:	BAROUH EATON ALLEN CORP.
Emergency Contact:	RICARDO RODRIGO
Emergency Phone:	(718) 384-0094
Operator:	BAROUH EATON ALLEN CORP
Operator Phone:	(718) 782-2601
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	10/01/77
Capacity Gallons:	2000

BAROUH EATON ALLEN CORP. (Continued) **S102640937**

Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	05/18/98

CBS:

CBS Number:	2-000013
Program Type:	CBS
Dec Region:	2
Expiration Date:	N/A
UTMX:	0.0000
UTMY:	0.0000

C48 **KO-REC-TYPE CORP** **FINDS** **1007801058**
SSW **67 KENT AVE** **110019635803**
< 1/8 **BROOKLYN, NY 11211**
409 ft.

Site 13 of 15 in cluster C

Relative:
Higher

FINDS:

Other Pertinent Environmental Activity Identified at Site

Actual:
15 ft.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

D49
ENE
< 1/8
410 ft.

Relative:
Equal

Actual:
10 ft.

VAULT#4146
NORTH 13TH/ KENT AVE
BROOKLYN, NY

Site 2 of 17 in cluster D

NY Spills

S106736182
N/A

NY Spills:

Site ID:	335196
Facility Addr2:	Not reported
Facility ID:	0410252
Spill Number:	0410252
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	12/14/04
Reported to Dept:	12/15/04
CID:	444
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	04/22/05
Remediation Phase:	0
Date Entered In Computer:	12/15/04
Spill Record Last Update:	04/22/05
Spiller Name:	ERT DESK
Spiller Company:	VAULT#4146
Spiller Address:	NORTH 13TH/ KENT AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0410252
DER Facility ID:	270410
Site ID:	335196
Operable Unit ID:	1097277
Operable Unit:	01
Material ID:	577257
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0410252 1 OUNCE ON 20 GALLONS OF WATER: COMING OFF 24 HOUR

VAULT#4146 (Continued) **S106736182**

CLOCK, DUE TO TIME RESTRAINTS: NO TO 5 QUESTIONS: CONED # 156580 END CallerRemark - 0410252

Remarks: Start DECRemark - 0410252 156580 12/14/04 - 1220 R. CHARLES FOUND APPROX 1 OZ OF AN UNKNOWN OIL ON APPROX 20 GALS OF WATER IN THE CEMENT SUMP OF V4146 (FDR - 6B43). SPILL IS CONTAINED TO SUMP. NO SEWERS OR WATERWAYS AFFECTED. THERE IS A SEWER CONNECTION VIA AN UNPLUGGED, DEFECTIVE SUMP PUMP AND PIPING. THE TRAP OF THE PUMP WAS CHECKED AND NO TRACE OF OIL WAS FOUND. TRANSFORMER WAS PRESSURE TESTED AND HELD PRESSURE. TRANSFORMER INSTALLED 1/1/65. HISTORICAL PCB COUNT IS 2 PPM DTD 12/10/02. TAG # 34899 PLACED IN STRUCTURE. PCB SAMPLE TAKEN. CHAIN OF CUSTODY FORM # EE09683 FILLED OUT AN MARKED 'E' PRIORITY. CLEANUP PENDING LAB RESULT. Lab Sequence Number: 04-10382-001 - TOTAL PCB 64 ppm Update 12/15/04 @ 21:00 HRS. A. Walker reports, 75 Gal. liquid removed by ConEd over 50 tanker. 4 drums of solid waste removed and picked up by Astoria drum pickup. Double washed with BG760 and A1 HYDRO, sump found sealed, tag remains in place due to dirt under transformer. Update 1/8/2005 05:00hrs. O.S. B.Bamonte reports on location with Hufford, Eckstein and Glodowski. Structure was double washed with 5 gallons of safety clean detergent. Sump was found cemented. All solids were drummed. One drum was generated consisting of PCB solids, PPE and zone material. No lead. Drum was taken back to 3rd. Ave. yd. under the one trip rule. An >50 Astoria tanker removed 300 gallons of wash liquids from structure. Env. stop tag was removed. Job 100 complete. END DECRemark - 0410252

D50 **CON EDISON - VAULT 4146** **RCRA-NonGen** **1010325471**
ENE **13 ST & KENT AVE** **NYP004127684**
< 1/8 **BROOKLYN, NY 11211**
410 ft.

Site 3 of 17 in cluster D

Relative: Equal

Actual: 10 ft.

RCRA-NonGen:

Date form received by agency:	02/22/2006
Facility name:	CON EDISON - VAULT 4146
Facility address:	13 ST & KENT AVE BROOKLYN, NY 11211
EPA ID:	NYP004127684
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	FRANKLIN - MURRAY
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	(212) 460-2808
Contact email:	MURRAYFR@CONED.COM
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/14/2004
Owner/Op end date:	Not reported

CON EDISON - VAULT 4146 (Continued) **1010325471**

Owner/operator name: CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/14/2004
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Lamps
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Pesticides
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Thermostats
Accumulated waste on-site: No
Generated waste on-site: No

Historical Generators:
Date form received by agency: 02/21/2006
Facility name: CON EDISON - VAULT 4146
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: B002
Waste name: B002

CON EDISON - VAULT 4146 (Continued) **1010325471**

Violation Status: No violations found

D51
ENE
< 1/8
410 ft.

Relative:
Equal

Actual:
10 ft.

CON EDISON - VAULT 4146 **RCRA-NonGen** **1010325472**
13 ST & KENT AVE **NYP004127684**
BROOKLYN, NY 11211

Site 4 of 17 in cluster D

RCRA-NonGen:

Date form received by agency:	02/22/2006
Facility name:	CON EDISON - VAULT 4146
Facility address:	13 ST & KENT AVE BROOKLYN, NY 11211
EPA ID:	NYP004127684
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	FRANKLIN - MURRAY
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	(212) 460-2808
Contact email:	MURRAYFR@CONED.COM
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/14/2004
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	12/14/2004
Owner/Op end date:	Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No

CON EDISON - VAULT 4146 (Continued) **1010325472**

Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Lamps
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Pesticides
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Thermostats
Accumulated waste on-site: No
Generated waste on-site: No

Historical Generators:
Date form received by agency: 02/21/2006
Facility name: CON EDISON - VAULT 4146
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: B002
Waste name: B002

Violation Status: No violations found

D52 **NATIONS RENT** **UST** **U003153135**
East **91 NORTH 12TH STREET** **AST** **N/A**
< 1/8 **BROOKLYN, NY 11211** **HIST UST**
414 ft.

Site 5 of 17 in cluster D

Relative: Higher

UST:

Actual: 13 ft.

UST:
Facility Id: 2-091030
Region: STATE
Expiration Date: 03/24/02
Renewal Date: 11/13/01
Total Capacity: 0
Facility Type: Not reported
Mailing Company: NATIONS RENT
Mailing Title: Not reported
Mailing Contact: JOE GAGLIARDI
Mailing Address: 91 NORTH 12TH STREET
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY

NATIONS RENT (Continued) **U003153135**

Mailing Zip Code:	11211
Mailing Phone No:	(718) 387-4872
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	91 NORTH 12TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 387-4872
Owner Company:	NATIONS RENT
Emergency Contact:	JOE GAGLIARDI
Emergency Phone:	(718) 387-4872
Operator:	NATIONS RENT
Operator Phone:	(718) 387-4872
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588042.88099
UTM Y:	4508451.48618
Site Type Name:	Other Wholesale/Retail Sales
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

NATIONS RENT (Continued) **U003153135**

Date Tank Closed: 06/01/89

Tank Number: 002
Tank Location Name: Underground
Tank Status: Closed - In Place
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: / /
Capacity Gallons: 550
Material Name: Diesel
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: None
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: Not reported
Tank Leak Detection 1: None
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Not reported
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: None
Type Of Overfill Prevention 2: Not reported
Dispenser Method: Suction
Spill Prevention: Not reported
Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: / /

Tank Number: 003
Tank Location Name: Underground
Tank Status: Closed - In Place
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: / /
Capacity Gallons: 1100
Material Name: Gasoline
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: None
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None

NATIONS RENT (Continued) **U003153135**

Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	06/01/00
Capacity Gallons:	1500
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	07/01/00

Tank Number:	005
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive

NATIONS RENT (Continued) **U003153135**

Install Date:	12/01/98
Capacity Gallons:	1500
Material Name:	Lube Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	08/01/97
Next Test Date:	/ /
Date Tank Closed:	07/01/00

Tank Number:	006
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/98
Capacity Gallons:	1500
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction

NATIONS RENT (Continued) **U003153135**

Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	08/01/97
Next Test Date:	/ /
Date Tank Closed:	07/01/00

Tank Number:	007
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/98
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	08/01/97
Next Test Date:	/ /
Date Tank Closed:	08/01/98

Tank Number:	008
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/98
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

NATIONS RENT (Continued) **U003153135**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	08/01/97
Next Test Date:	/ /
Date Tank Closed:	08/01/98

Tank Number:	009
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/98
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	08/01/97
Next Test Date:	/ /
Date Tank Closed:	08/01/98

Tank Number:	010
Tank Location Name:	Underground

NATIONS RENT (Continued) **U003153135**

Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/98
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	08/01/97
Next Test Date:	/ /
Date Tank Closed:	08/01/98

AST:

AST:

Region:	STATE
Facility Id:	2-091030
UTM X:	588042.88099
UTM Y:	4508451.48618
Expiration Date:	03/24/02
Renewal Date:	11/13/01
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Other Wholesale/Retail Sales
Site Type Status:	Unregulated
Mailing Company:	NATIONS RENT
Mailing Title:	Not reported
Mailing Contact:	JOE GAGLIARDI
Mailing Address:	91 NORTH 12TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 387-4872
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported

NATIONS RENT (Continued) **U003153135**

Owner Address:	91 NORTH 12TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 387-4872
Owner Company:	NATIONS RENT
Emergency Contact:	JOE GAGLIARDI
Emergency Phone:	(718) 387-4872
Operator:	NATIONS RENT
Operator Phone:	(718) 387-4872
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	5
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	1000
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	04/24/02

HIST UST:

PBS Number:	2-091030
SPDES Number:	Not reported
Emergency Contact:	SYLVAN EQUIPMENT CORP
Emergency Telephone:	(718) 387-4872
Operator:	SYLVAN EQUIPMENT CORP
Operator Telephone:	(718) 387-4872
Owner Name:	SYLVAN EQUIPMENT CORPORATION
Owner Address:	91 NORTH 12TH STREET

NATIONS RENT (Continued) **U003153135**

Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 387-4872
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	SYLVAN EQUIPMENT CORPORATION
Mailing Address:	91 NORTH 12TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	ELLIOT PRIGOZON, PRESIDEN
Mailing Telephone:	(718) 387-4872
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	91 NORTH 12TH STREET
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	09/18/1997
Expiration Date:	03/24/2002
Renew Flag:	False
Renewal Date:	20011113
Total Capacity:	2200
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported

NATIONS RENT (Continued) **U003153135**

Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/1989
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	1100
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported

NATIONS RENT (Continued) **U003153135**

Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19981201
Capacity (gals):	1500
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	08/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	07/01/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19981201
Capacity (gals):	1500
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	08/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	07/01/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True

NATIONS RENT (Continued) **U003153135**

Lat/long: Not reported

Tank Id: 006
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: 19981201
Capacity (gals): 1500
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: None
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Suction
Date Tested: 08/01/1997
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 07/01/2000
Test Method: Horner EZ Check
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 007
Tank Location: UNDERGROUND
Tank Status: Temporarily Out Of Service
Install Date: 19981201
Capacity (gals): 550
Product Stored: DIESEL
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: None
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Suction
Date Tested: 08/01/1997
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Horner EZ Check
Deleted: False
Updated: True
Lat/long: Not reported

NATIONS RENT (Continued) **U003153135**

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	Temporarily Out Of Service
Install Date:	19981201
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	08/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	009
Tank Location:	UNDERGROUND
Tank Status:	Temporarily Out Of Service
Install Date:	19981201
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	08/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	010
Tank Location:	UNDERGROUND
Tank Status:	Temporarily Out Of Service

NATIONS RENT (Continued) **U003153135**

Install Date:	19981201
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	08/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

D53 **BLAST OFF SERVICES INC** **FINDS** **1001215605**
East **91 N 12TH ST 1ST FLOOR** **NY MANIFEST** **NYR000047779**
< 1/8 **BROOKLYN, NY 11211** **RCRA-NonGen**
414 ft. **CT MANIFEST**

Site 6 of 17 in cluster D

Relative: Higher

Actual: 13 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA2748319
Manifest Status:	Not reported
Trans1 State ID:	NYD046765574
Trans2 State ID:	Not reported
Generator Ship Date:	09/17/1998
Trans1 Recv Date:	09/17/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	09/23/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000047779
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	S8424
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00008

BLAST OFF SERVICES INC (Continued) **1001215605**

Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000047779
Facility Name:	BLAST OFF SERVICES INC
Facility Address:	91 NORTH 12TH STREET 1ST FLOOR
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	BLAST OFF SERVICES INC
Mailing Contact:	ELLIOT PRIGOZEN
Mailing Address:	880 MEEKER AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-4872
Document ID:	NYG0415242
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/29/1998
Trans1 Recv Date:	01/29/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/29/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000047779
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NYPD1010
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	05700
Units:	P - Pounds
Number of Containers:	019
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00

BLAST OFF SERVICES INC (Continued) **1001215605**

Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000047779
Facility Name:	BLAST OFF SERVICES INC
Facility Address:	91 NORTH 12TH STREET 1ST FLOOR
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	BLAST OFF SERVICES INC
Mailing Contact:	ELLIOT PRIGOZEN
Mailing Address:	880 MEEKER AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-4872

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	BLAST OFF SERVICES INC
Facility address:	91 N 12TH ST 1ST FLOOR BROOKLYN, NY 11211
EPA ID:	NYR000047779
Mailing address:	MEEKER AVE BROOKLYN, NY 11222
Contact:	-
Contact address:	MEEKER AVE BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste
Handler accessibilty indicator:	Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

BLAST OFF SERVICES INC (Continued) **1001215605**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/14/1999
Facility name: BLAST OFF SERVICES INC
Classification: Small Quantity Generator

Date form received by agency: 12/11/1997
Facility name: BLAST OFF SERVICES INC
Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 11/03/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

CT MANIFEST:
Manifest No: Not reported
Waste Occurence: Not reported
UNNA: Not reported
Hazard Class: Not reported
US Dot Description: Not reported
No of Containers: Not reported
Container Type: Not reported
Quantity: Not reported
Weight/Volume: Not reported
Additional Description: Not reported
Handling Code: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Manifest No: Not reported
Waste Occurence: Not reported
EPA Waste Code: Not reported
Recycled Waste?: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Year: 2000
Manifest ID: CTF0901038
TSDF EPA ID: CTD000604488
TSDF Name: CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address: 51 BRODERICK RD
TSDF City,St,Zip: BRISTOL, CT 06010

BLAST OFF SERVICES INC (Continued) **1001215605**

TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	05/25/00
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	05/31/00
Trans 2 EPA ID:	NJD986607380
Trans 2 Name:	MAUMEE EXPRESS INC
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYR000047779
Gererator Phone:	7183874872
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	05/25/00
Date Received:	06/06/00
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

D54 **NY Spills** **S106008366**
East **91 NORTH 12TH ST** **N/A**
< 1/8 **BROOKLYN, NY**
414 ft.

Site 7 of 17 in cluster D

Relative:
Higher

Actual:
13 ft.

NY Spills:

Site ID:	267813
Facility Addr2:	Not reported
Facility ID:	0207277
Spill Number:	0207277
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JBVOUGHT
Referred To:	Not reported
Spill Date:	10/14/02
Reported to Dept:	10/14/02
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/19/03

(Continued) **S106008366**

Remediation Phase:	0
Date Entered In Computer:	10/14/02
Spill Record Last Update:	12/24/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	NYC DEP/OPERATOR #483
Contact Phone:	(718) 595-6777
DEC Region:	2
Program Number:	0207277
DER Facility ID:	109591
Site ID:	267813
Operable Unit ID:	858901
Operable Unit:	01
Material ID:	517867
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0207277 CITIZEN REPORTED THAT CONSTRUCTION COMPANY IS WORKING AT ABOVE LOCATION AND AN UNKNOWN TYPE OIL APPEARS TO BE LEAKING ON SITE AND RUNNING OFF INTO A DRAIN IN AREA. DEP IS ENROUTE TO FURTHER INVWTIGATE THE PROBLEM. END CallerRemark - 0207277
Remarks:	Start DECRemark - 0207277 Prior to Sept, 2004 data translation this spill Lead DEC Field was "VOUGHT" DEC Sigona spoke to DEC Vought on 10/15/2002. PBS database indicates that there were underground tanks removed in 2000 no longer a regulated facility. 11/19/2003-Vought-Spill to drain and DEP notified. Spill closed by Vought. END DECRemark - 0207277

D55 **NATIONS RENT** **LTANKS** **S104621824**
East **91 N. 12TH ST** **HIST LTANKS** **N/A**
< 1/8 **BROOKLYN, NY**
414 ft.

Site 8 of 17 in cluster D

Relative:
Higher

Actual:
13 ft.

LTANKS:

Site ID:	304635
Spill Date:	06/19/00
Facility Addr2:	Not reported
Facility ID:	0003390
Program Number:	0003390
SWIS:	2401
Region of Spill:	2
Investigator:	SMSANGES
Referred To:	Not reported
Reported to Dept:	06/19/00
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial

NATIONS RENT (Continued) **S104621824**

Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/09/03
Remediation Phase:	0
Date Entered In Computer:	06/19/00
Spill Record Last Update:	12/09/03
Spille Namer:	UNKNOWN
Spiller Company:	UNKNOWN
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	UNKNOWN
Spiller City,St,Zip:	UNKNOWN, ZZ
Spiller County:	001
Spiller Contact:	CALLER
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0003390
DER Facility ID:	109591
Site ID:	304635
Operable Unit ID:	824755
Operable Unit:	01
Material ID:	551709
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	304635
Operable Unit ID:	824755
Operable Unit:	01
Material ID:	551710
Material Code:	0010A
Material Name:	HYDRAULIC OIL
Case No.:	Not reported
Material FA:	Other
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	304635
Operable Unit ID:	824755
Operable Unit:	01
Material ID:	551711
Material Code:	0015A
Material Name:	MOTOR OIL

NATIONS RENT (Continued) **S104621824**

Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	304635
Operable Unit ID:	824755
Operable Unit:	01
Material ID:	551712
Material Code:	0022
Material Name:	Waste Oil/Used Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0003390 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SANGESLAND" 6/20 SPOKE WITH TYREE..CLEANUP IN PROGRESS, WILL TAKE END POINT SAMPLES 3/15/01 HISTORICAL SITE CLEANUP MANAGED BY S. SANGESLAND This duplicate spill number is closed. Ref SPILL #9906462 END DECRemark - 0003390
Remarks:	Start CallerRemark - 0003390 caller reporting a spill of material from a leaky tank no clean up as of yet and no callback is necessary END CallerRemark - 0003390

HIST LTANKS:

Region of Spill:	2
Spill Number:	0003390
Investigator:	SANGESLAND
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/19/2000
Spill Time:	13:00
Reported to Department Date:	06/19/00
Reported to Department Time:	13:21
SWIS:	61
Spiller Contact:	CALLER

NATIONS RENT (Continued) **S104621824**

Spiller Phone:	( ) -
Spiller Extention:	Not reported
Spiller Name:	UNK
Spiller Address:	UNK
Spiller City,St,Zip:	UNK
Facility Contact:	UNK
Facility Phone:	(000) 000-0000
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	06/19/00
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	03/15/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	HYDRAULIC OIL
Class Type:	HYDRAULIC OIL
Times Material Entry In File:	1846

NATIONS RENT (Continued) **S104621824**

CAS Number:	Not reported
Last Date:	19940728
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	MOTOR OIL
Class Type:	MOTOR OIL
Times Material Entry In File:	508
CAS Number:	Not reported
Last Date:	19940728
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	WASTE OIL
Class Type:	WASTE OIL
Times Material Entry In File:	9509
CAS Number:	Not reported
Last Date:	19940927
DEC Remarks:	6/20 SPOKE WITH TYREE..CLEANUP IN PROGRESS, WILL TAKE END POINT SAMPLES 3/15/01 HISTORICAL SITE CLEANUP MANAGED BY S. SANGESLAND THE SITE HAS BEEN TRANSFERRED TO S.S. SPILL 9906362
Spill Cause:	caller reporting a spill of material from a leaky tank no clean up as of yet and no callback is necessary

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D56 **SYLVAN EQUIPTMENT** **NY Spills** **S104194529**
East **91 NORTH 12TH ST** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
414 ft.

Site 9 of 17 in cluster D

Relative: Higher

Actual: 13 ft.

NY Spills:

Site ID:	126861
Facility Addr2:	Not reported
Facility ID:	9906462
Spill Number:	9906462
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	HRPATEL
Referred To:	Not reported
Spill Date:	07/15/99
Reported to Dept:	08/31/99
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False

SYLVAN EQUIPTMENT (Continued) **S104194529**

Spill Class: Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: 08/31/99
Spill Record Last Update: 09/28/07
Spiller Name: UNKNOWN
Spiller Company: UNKNOWN
Spiller Address: UNKNOWN
Spiller City,St,Zip: UNKNOWN, ZZ
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: UNK
Contact Phone: (718) 387-4872
DEC Region: 2
Program Number: 9906462
DER Facility ID: 109591
Site ID: 126861
Operable Unit ID: 1084902
Operable Unit: 01
Material ID: 299189
Material Code: 0008
Material Name: Diesel
Case No.: Not reported
Material FA: Petroleum
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9906462 HISTORICAL SPILL-FLOATING PRODUCT ON GROUND WATER-SPILL WILL CONTINUE TO BE INVESTIGATED. END CallerRemark - 9906462
Remarks: Start DECRemark - 9906462 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ROMMEL" 9/3/99 - Environmental firm was hired by company which is buying the on site company and leasing the land. Environmental firm did a phase 1 & phase 2 assessment with several wells and borings. Found floating product and contamination. SS told them to delineate the site, submit a profile of what is there now and a proposal of what will be done to clean it up. They asked about DEC going after a former owner, SS said no, DEC holds present owner responsible. Envir. firm will submit such a report "soon" 2/18/2000 Sangesland called Mr. Pradhan at Malcolm Pirnie (614-888-4953). Left a voice mail to ask whatever happened to the report DEC asked for in Sept.99 Report should include: 1) Delineate the site 2) Outline what is on the property now and what will be built 3) Identify how the product will be remediated. ALSO SEE SPILL # 0003390 4/12/04-Vought-Spill transferred from Sangesland to Rommel as per Rommel. 1/11/2006 - Haggerty - Malcolm Pirnie did Phase I,II site assessments to determine if this property was a canidate for development. After discovering free-floating product on groundwater, the decision was made not to develop this property. As far as I know, no additional investigation or remediation was done on site. I have made every attempt to locate responsible party with no luck I am requesting a site visit Alternate addresses 70-72 Wythe Ave 91-101 N 12 St 82 N 13 St 58 Wythe Ave 92 N 13 St I believe this property is located at the intersection of North 13th and Wythe Ave Region 2 rep visited the site, but could not get inside to inspect. Site is rented to "Nations Rent" - Oscar Parker salesman - 718-387-4872 Posted sign showed two different property

SYLVAN EQUIPTMENT (Continued) **S104194529**

managers: Segal Realty Group LLC 718-388-9000 M.C. O'Brien Inc. 718-252-9191 Albany review (above) - jcgrathw 1/29/07 - Austin - Transferred from Albany assignment to Patel in R-2 office for further work - end 03/09/07-Hiralkumar Patel. left message for Bill Blaker (718-387-4872), tenant (Nations Rent) at site. 03/14/07-Hiralkumar Patel. spoke with Mr. Blaker. he gave Mr. Prigozen's number (718-366-7930). spoke with Sage Prigozen. he will ask his father, who is owner of property, to call. received message from Mr. Prigozen (Cell: 917-750-4112), property owner. 03/16/07-Hiralkumar Patel. spoke with Mr. Prigozen, property owner. currently he is living in Florida. as per him, they found this contamination during tank removal and has all paperwork in storage in NY. he will submit these paper once he comes to NY in June 07. Elliot Prigozen 3400 Pen American Drive Miami, Florida 33133 Ph. (917) 750-4112 (C) Fax (305) 860-6699 email: elliotp@bobcatzone.com 06/14/07-Hiralkumar Patel. tried cell number for Elliot, but no success. left message for Elliot's son. 06/15/07-Hiralkumar Patel. left message for Elliot's son. 06/18/07-Hiralkumar Patel. received call from Elliot Prigozen. he searched for records and found some reports on tank removals. asked him to send copy of those reports. Mr. Prigozen will be back in city after 10 days and will send copies at that time. PBS #: 2-091030. as per PBS record, site had following tanks: 1. two 1,500 gal Lube Oil UST, closed and removed in July 2000 2. one 1,500 gal gasoline UST, closed and removed in July 2000 3. four 550 gal diesel USTs, closed and removed in Dec. 1998 4. one 1,000 gal diesel AST, closed and removed in Apr. 2002 5. one 550 gal gasoline UST, closed-in-place in June 1989 6. one 550 gal diesel UST, closed-in-place 7. one 1,100 gal gasoline UST, closed-in-place total 11 tanks were on-site. sent letter to Mr. Prigozen requiring Phase I, soil and groundwater delineation. letter emailed to Mr. Prigozen. 07/02/07-Hiralkumar Patel. received message from Mr. Prigozen. left message for Sage Prigozen as Elliot's number was busy. 07/05/07-Hiralkumar Patel. received copy of three reports from Mr. Prigozen. 1. addendum to tank closure report (don't have original tank closure report) for four 550 gal USTs 2. geoprobe investigation report for soil investigation in area of previously removed four 550 gal USTs (four 550 gal USTs were located in parking lot along Kent Avenue) 3. closure report for four 1500 gal tanks, which were located near main entrance (on north side) along north 12th street, and were removed in June 2000. addendum to four 550 gal USTs closure includes a further review of sample analyticals for samples taken after tanks removed in Aug. 1998. during tank removal found heavy SVOC contamination in three endpoint samples out of four samples. geoprobe investigation in area of previously removed 550 gal USTs was done as found heavy SVOC contamination during endpoint analysis. abstract: - reporte prepared on Oct. 7, 1998 - four borings were installed (one on each side of excavation area of previous 550 gal UST location) - thee soil samples from the smear zone at approx. 7 ft bg, were chosen for analysis: S-1 (southeast of excavation),S-3 (northwest of excavation) and S-4 (northeast of excavation) - all three samples were analyzed for SVOCs only (as didn't found VOCs in previous sampling) - few SVOC contamination found in sample S-3 (which is along Kent ave) abstract of tank closure report for 1500 gal tanks: - removed four 1500 gal single wall, concrete-encased USTs. - from regional water table maps, groundwater occurs approx. 15 ft bg and flows in a northwesterly direction - tanks were located approx. 4 ft bg - tanks were in good condition with no corrosion. no visible holes or leaks were noted - sidewall samples were collected at 8 ft and bottom sample was collected at 12 ft bg - groundwater was not encountered at the site during excavation - approx. 79.16 tons of contaminated soil were removed - highest PID observed in west side wall sample (PID: 398.3 ppm) - due to observed staining, odors and documented PID readings, the DEC was notified (spill #: 0003390) - minor contamination found insoil endpoint samples spoke with Mr. Prigozen.

SYLVAN EQUIPTMENT (Continued) **S104194529**

explained him that spill was reported as found free product on groundwater during environmental investigation in 1999. and during tank removal activities, no groundwater sample was taken. asked him to delineate groundwater contamination. asked him to install monitoring wells atleast to previous tanks locations (one along kent ave and one along north 12th street). sent email to Mr. Prigozen with specific requirement of monitoring well locations. 07/09/07-Hiralkumar Patel. received call from Mr. Prigozen. he mentioned that he removed four 550 gal tanks from his site, which were located along Kent Avenuen and based on closure report addendum, there was no soil contamination. and he believes that groundwater contamination found in 1999 came from Texaco oil terminal along Kent Avenue. asked Mr. Prigozen to look for investigation report from Aug. 1999, based on which this case was reported. if monitoring wells, during that investigation, were installed along kent ave and found contaminated then based on groundwater flow direction data (if available in report), the department can ask upgradient property to do investigation, but if no site specific groundwater flow direction or previous monitoring well location available to the Deparment, then the department requires him to do groundwater delineation with site-specific groundwater flow direction. Mr. Prigozen will look for report. 07/09/07- Sangesland received a call froman Environmental consultant in Charlotte, North Carolina. He asked if the DEC required work to be done by a licenced New York State Prof. Engineer. Sangesland said no. The only requirement is the lab used for testing must be NYS Licenced and if any material is removed from the site it must be taken by a licenced hauler. 07/13/07-Hiralkumar Patel. received limited Phase II report from Mr. Prigozen. abstract: - an affidavit dated 06/13/1989 indicates that one 550 gal gasoline tank waspurged and filled with concrete slurry in the sourthern portion of the site - two soil borings and nine monitoring wells were installed - highest PID reading found in boring BK-6 (595 ppm) at 5 to 7 ft bg <-------- - groundwater sample was not obtained from boring location BK-6, which was installed closed to sediment trap area <---------- - based on site topography and nearby waterways, it is determined that the nearby groundwater flow direction is to the northwest - free product was measured in two monitoring wells (MW-10 with 1.5 inch and MW-7 with 0.05 inch of free product) <---------- - minor tetracholorethane was found in (assumed) upgradient groundwater samples (BK-1, BK-2 and BK-3) - MTBE contamination (236 ppb)found in groundwater samples MW-2 and MW-3 (area near abandoned gasoline tank) - highest contamination found in soil sample at BK-6 (near old sediment trap) ----------Xylene----Benzene BK-6 (1-3 ft)------8,730-----2,025 BK-6 (3-5 ft)------3,320-------327 //during Phase II, borings were installed to maximum depth of 17.5 ft bg, but report doesn't mentioned about groundwater depth.// 07/18/07-Hiralkumar Patel. after reviewing available reports found following: - no groundwater depth information - free product in wells MW-7 and MW-10 along Kent Avneue, but no groundwater flow direction - MTBE contamination in groundwater sample at BK3, which is close to previously abandoned gasoline tank location - benzene and xylene contamination in sample at BK-6, which is close to sediment trap. no groundwater sample taken from there. spoke with Mr. Prigozen. based on available data, asked Mr. Prigozen to do following: - soil and groundwater sampling at previous sampling location BK-6 (as found Benzene and Xylene in soil and had highest PID during Phase II investigation) - soil and groundwater sampling at previous sampling location BK-3, close to previously abandoned gasoline UST (as found MTBE in gw) - complete groundwater delineation (with atleast three permanent monitoring wells and site specific groundwater flow direction) in area of previous boring locations MW-7 and MW-10. asked Mr. Prigozen to check any previous wells exists on site. if nothe need to install new wells. based on available data and reports, asked Mr. Prigozen to disregard requirement of Phase I investigation, as mentioned in letter dated June 18,

SYLVAN EQUIPTMENT (Continued) **S104194529**

2007. 07/19/07-Hiralkumar Patel. sent letter to Mr. Prigozen requiringsoil/groundwater sampling at previous boring locations BK-3 and BK-6 and complete groundwater delineation in area of previous boring locations BK-7 and BK-10. letter emailed to Mr. Prigozen with map (from former phase II report) indicating locationswhere the Department requires further investigation. 09/06/07-Hiralkumar Patel. received email from Mr. Prigozen. he is contacting companies for price quote. 09/13/07-Hiralkumar Patel. left message for Mr. Prigozen. received call from Mr. Prigozen. he is reviewing quotes from companies and will fanalize next week. he will send company's name next week with scheduling and estimated date for report submission. 09/20/07-Hiralkumar Patel. received email from Mr. Prigozen. he has hired Hart & Hickman to do the investigative work. they will be on site in two to three weeks. Theron Grim Hart & Hickman, PC Ph. (704) 586-0007 Mr. Prigozen will call once get dates finalized for investigation work. 09/28/07-Hiralkumar Patel.received email from Mr. Prigozen. contractor will start work on Oct. 8th, 2007. END DECRemark - 9906462

NY Hist Spills:

Region of Spill:	2
Spill Number:	9906462
Investigator:	SANGESLAND
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/15/1999 12:00
Reported to Dept Date/Time:	08/31/99 10:51
SWIS:	61
Spiller Name:	UNK
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Contact:	UNK
Spiller Phone:	(718) 387-4872
Spiller Address:	UNK
Spiller City,St,Zip:	UNK, NY
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	08/31/99

SYLVAN EQUIPTMENT (Continued) **S104194529**

Date Spill Entered In Computer Data File: Not reported
Update Date: 03/15/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: 9/3/99 - Environmental firm was hired by company which is buying the on site company and leasing the land. Environmental firm did a phase 1 phase 2 assessment with several wells and borings. Found floating product and contamination. SS told them to delineate the site, submit a profile of what is there now and a proposal of what will be done to clean it up. They asked about DEC going after a former owner, SS said no, DEC holds present owner responsible. Envir. firm will submit such a report soon 2/18/2000 Sangesland called Mr. Pradhan at Malcolm Pirnie 614-888-4953). Left a voice mail to ask whatever happened to the report DEC asked for in Sept.99 Report should include: 1) Delineate the site 2) Outline what is on the property now and what will be built 3) Identify how the product will be remediated.
ALSO SEE SPILL 0003390
Remark: HISTORICAL SPILL-FLOATING PRODUCT ON GROUND WATER-SPILL WILL CONTINUE TO BE INVESTIGATED.

D57 **SYLVAN EQUIPMENT CORP** **FINDS** **1001128042**
East **91 N 12TH ST** **NY MANIFEST** **NY0001497643**
< 1/8 **BROOKLYN, NY 11211** **RCRA-NonGen**
414 ft.

Site 10 of 17 in cluster D

Relative:
Higher

Actual:
13 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:
Document ID: NYB8431956
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: NYPD1010
Trans2 State ID: Not reported

SYLVAN EQUIPMENT CORP (Continued) **1001128042**

Generator Ship Date:	970321
Trans1 Recv Date:	970321
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970324
Part A Recv Date:	Not reported
Part B Recv Date:	970421
Generator EPA ID:	NY0001497643
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0001497643
Facility Name:	SYLVAN EQUIPMENT CORP
Facility Address:	91 N 12TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SYLVAN EQUIPMENT CORP
Mailing Contact:	ELLIOT PRIGOZEN
Mailing Address:	91 N 12TH ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-4872

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	SYLVAN EQUIPMENT CORP
Facility address:	91 N 12TH ST BROOKLYN, NY 11211
EPA ID:	NY0001497643
Mailing address:	N 12TH ST BROOKLYN, NY 11211
Contact:	-

SYLVAN EQUIPMENT CORP (Continued) **1001128042**

Contact address: N 12TH ST
BROOKLYN, NY 11211
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 05/06/1997
Facility name: SYLVAN EQUIPMENT CORP
Classification: Not a generator, verified

Date form received by agency: 03/19/1997
Facility name: SYLVAN EQUIPMENT CORP
Classification: Small Quantity Generator

Violation Status: No violations found

D58 **NATIONS RENT** **FINDS** **1005444406**
East **91 N 12TH ST** **NY MANIFEST** **NYR000107276**
< 1/8 **BROOKLYN, NY 11211** **RCRA-NonGen**
414 ft.

Site 11 of 17 in cluster D

Relative: Higher

Actual: 13 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

NATIONS RENT (Continued) **1005444406**

Document ID:	NYG3390147
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	07/08/2002
Trans1 Recv Date:	07/08/2002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	07/08/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000107276
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	PD1011NY
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	02
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000107276
Facility Name:	NATIONS RENT
Facility Address:	31 NORTH 12TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NATIONS RENT
Mailing Contact:	M RICCARDI
Mailing Address:	31 NORTH 12TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-4872

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	NATIONS RENT
Facility address:	91 N 12TH ST BROOKLYN, NY 11211

NATIONS RENT (Continued) **1005444406**

EPA ID: NYR000107276
Mailing address: N 12TH ST
BROOKLYN, NY 11211
Contact: MICHAEL - RICCARDI
Contact address: N 12TH ST
BROOKLYN, NY 11211
Contact country: US
Contact telephone: (718) 387-4872
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: ELLIOT PRIGOZEN & PARTNERS
Owner/operator address: 91 N 12TH ST
BROOKLYN, NY 11211
Owner/operator country: Not reported
Owner/operator telephone: (718) 387-4872
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 06/19/2002
Facility name: NATIONS RENT
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:
Waste code: D008
Waste name: LEAD

Violation Status: No violations found

E59
WNW
< 1/8
467 ft.

Relative:
Lower

Actual:
5 ft.

LOT 1,TAXBLOCK 2294
16 NORTH 11 STREET
BROOKLYN, NY 11211

Site 1 of 3 in cluster E

E DESIGNATION

EDR ID Number S108076120
EPA ID Number N/A

E DESIGNATION:

Tax Lot(s):	1
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2002
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	10TH STREET LLC
Lot Area:	000277246
Total Building Floor Area:	00000050000
Commercial Floor Area:	00000050000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000050000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00003
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0200.00
Lot Depth:	0895.75
Building Frontage:	0100.00
Building Depth:	0500.00
Proximity Code:	0

LOT 1,TAXBLOCK 2294 (Continued) **S108076120**

Irregular Lot Code:	Y
Lot Type:	1
Basement Type Grade:	5
Land Assessed Value:	00000571500
Total Assessed Value:	00001705500
Land Exempt Value:	00000000000
Total Exempt Value:	00001134000
Year Built:	1999
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.18
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3022940001
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995341
Y Coordinate:	0202564
Zoning Map:	12C
Sanborn Map:	304 003
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

E60
WNW
< 1/8
470 ft.

Relative:
Lower

Actual:
5 ft.

15 NORTH 11TH STREET **ERNS** **91219270**
15 NORTH 11TH STREET **N/A**
BROOKLYN, NY

Site 2 of 3 in cluster E

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

C61
SW
< 1/8
477 ft.

Relative:
Higher

Actual:
14 ft.

LOT 70,TAXBLOCK 2301 **E DESIGNATION** **S108076709**
40 NORTH 10 STREET **N/A**
BROOKLYN, NY 11211

Site 14 of 15 in cluster C

E DESIGNATION:

Tax Lot(s):	70
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418

LOT 70,TAXBLOCK 2301 (Continued) **S108076709**

	MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2003
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	9TH STREET EQUITIES
Lot Area:	000009000
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0075.00
Lot Depth:	0120.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000047250
Total Assessed Value:	00000047250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000

LOT 70,TAXBLOCK 2301 (Continued) **S108076709**

Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023010070
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995230
Y Coordinate:	0202311
Zoning Map:	12C
Sanborn Map:	304 002
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

C62 **LOT 60,TAXBLOCK 2301** **E DESIGNATION** **S108076684**
SW **32 NORTH 10 STREET** **N/A**
< 1/8 **BROOKLYN, NY 11211**
494 ft.

Site 15 of 15 in cluster C

Relative:
Equal

Actual:
10 ft.

E DESIGNATION:

Tax Lot(s):	60
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2003
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported

LOT 60,TAXBLOCK 2301 (Continued) **S108076684**

Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	99 STREET EQUITIES
Lot Area:	000013500
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0075.00
Lot Depth:	0180.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000071100
Total Assessed Value:	00000071100
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023010060
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995111
Y Coordinate:	0202407
Zoning Map:	12C
Sanborn Map:	304 002
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005

LOT 60,TAXBLOCK 2301 (Continued) **S108076684**

Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

F63 **LOT 1,TAXBLOCK 2277** **E DESIGNATION** **S108076117**
NW **26 NORTH 12 STREET** **N/A**
< 1/8 **BROOKLYN, NY 11211**
497 ft.

Site 1 of 7 in cluster F

Relative:
Lower

Actual:
4 ft.

E DESIGNATION:

Tax Lot(s):	1
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2000
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F8
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	NORTH 12TH STREET PRO
Lot Area:	000330330
Total Building Floor Area:	00000059405
Commercial Floor Area:	00000059405
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000059405
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00014
Number of Floors:	004.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0381.00

LOT 1,TAXBLOCK 2277 (Continued) **S108076117**

Lot Depth:	1010.00
Building Frontage:	0050.00
Building Depth:	0265.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00001012500
Total Assessed Value:	00001341000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1930
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.18
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3022770001
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995479
Y Coordinate:	0203008
Zoning Map:	12C
Sanborn Map:	304 003
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

64
SE
< 1/8
552 ft.

MILLCRAFT MFG CO. IN **UST** **U001837552**
75 NORTH 11TH ST **HIST UST** **N/A**
BROOKLYN, NY 11211

Relative:
Higher

Actual:
21 ft.

UST:

UST:

Facility Id:	2-403873
Region:	STATE
Expiration Date:	10/14/93
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	MILLCRAFT MFG CO. IN
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	80 WYTHE AVE
Mailing Address 2:	Not reported

MILLCRAFT MFG CO. IN (Continued) **U001837552**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 782-5560
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	80 WYTHE AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 782-5560
Owner Company:	MILLCRAFT MFG CO. IN
Emergency Contact:	LEO COOPE
Emergency Phone:	(718) 782-5560
Operator:	MILLCRAFT MFG CO. IN
Operator Phone:	(718) 782-5560
Owner City:	BROOKLYN
Owner Sub Type:	Not reported
UTM X:	588020.11066
UTM Y:	4508375.05467
Site Type Name:	Unknown
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/57
Capacity Gallons:	7500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required

MILLCRAFT MFG CO. IN (Continued) **U001837552**

Date Tested: / /
Next Test Date: / /
Date Tank Closed: 12/01/88

HIST UST:
PBS Number: 2-403873
SPDES Number: Not reported
Emergency Contact: LEO COOPE
Emergency Telephone: (718) 782-5560
Operator: MILLCRAFT MFG CO. IN
Operator Telephone: (718) 782-5560
Owner Name: MILLCRAFT MFG CO. IN
Owner Address: 80 WYTHE AVE
Owner City,St,Zip: BROOKLYN, NY 11211
Owner Telephone: (718) 782-5560
Owner Type: Not reported
Owner Subtype: Not reported
Mailing Name: MILLCRAFT MFG CO. IN
Mailing Address: 80 WYTHE AVE
Mailing Address 2: Not reported
Mailing City,St,Zip: BROOKLYN, NY 11211
Mailing Contact: Not reported
Mailing Telephone: (718) 782-5560
Owner Mark: First Owner
Facility Status: 2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2: 75 NORTH 11TH ST
SWIS ID: 6101
Old PBS Number: Not reported
Facility Type: Not reported
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 10/14/1988
Expiration Date: 10/14/1993
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 0
FAMT: True
Facility Screen: Minor Data Missing
Owner Screen: Minor Data Missing
Tank Screen: 0
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City: 01
Region: 2

Tank Id: 001
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: 19571201
Capacity (gals): 7500
Product Stored: NOS 1,2, OR 4 FUEL OIL

MILLCRAFT MFG CO. IN (Continued) **U001837552**

Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	12/01/1988
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

F65 **LOT 1,TAXBLOCK 2287** **E DESIGNATION** **S108076118**
NW **21 NORTH 12 STREET** **N/A**
< 1/8 **BROOKLYN, NY 11211**
556 ft.

Site 2 of 7 in cluster F

Relative:
Lower

Actual:
4 ft.

E DESIGNATION:

Tax Lot(s):	1
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2001
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0

LOT 1,TAXBLOCK 2287 (Continued) **S108076118**

Owner, Type of Code:	P
Owner Name:	FIFTY KENT AVE ASSOC
Lot Area:	000080000
Total Building Floor Area:	00000044000
Commercial Floor Area:	00000044000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000044000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0200.00
Lot Depth:	0400.00
Building Frontage:	0200.00
Building Depth:	0220.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000472500
Total Assessed Value:	00001062000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1959
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.55
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3022870001
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995410
Y Coordinate:	0202761
Zoning Map:	12C
Sanborn Map:	304 003
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

D66
NE
< 1/8
560 ft.

Relative:
Equal

Actual:
10 ft.

ALBEST METAL STAMPING
1 KENT AVE
BROOKLYN, NY 11211

Site 12 of 17 in cluster D

NY MANIFEST **1009225324**
N/A

NY MANIFEST:

Document ID:	NJA3295675
Manifest Status:	Not reported
Trans1 State ID:	NJD002454544
Trans2 State ID:	Not reported
Generator Ship Date:	06/08/2001
Trans1 Recv Date:	06/08/2001
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/08/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NY0001420470
Trans1 EPA ID:	NJD002454544
Trans2 EPA ID:	Not reported
TSDF ID:	2809
Waste Code:	F001 - UNKNOWN
Quantity:	00100
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0001420470
Facility Name:	ALBEST METAL STAMPING
Facility Address:	1 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	ALBEST METAL STAMPING
Mailing Contact:	DAVID KLEINBARD
Mailing Address:	1 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-6000

ALBEST METAL STAMPING (Continued) **1009225324**

Document ID:	NJA3294541
Manifest Status:	Not reported
Trans1 State ID:	NJD002454544
Trans2 State ID:	Not reported
Generator Ship Date:	08/17/2001
Trans1 Recv Date:	08/17/2001
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/17/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NY0001420470
Trans1 EPA ID:	NJD002454544
Trans2 EPA ID:	Not reported
TSDF ID:	2809
Waste Code:	F001 - UNKNOWN
Quantity:	00050
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0001420470
Facility Name:	ALBEST METAL STAMPING
Facility Address:	1 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	ALBEST METAL STAMPING
Mailing Contact:	DAVID KLEINBARD
Mailing Address:	1 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-6000

D67
NE
< 1/8
560 ft.

Relative:
Equal

Actual:
10 ft.

ALBEST METAL STAMPING
1 KENT AVE
BROOKLYN, NY 11211

Site 13 of 17 in cluster D

FINDS **1010203987**
110029076531

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System).
The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

E68
NW
< 1/8
560 ft.

Relative:
Lower

Actual:
3 ft.

WILLIAMSBURG
WILLIAMSBURG
BROOKLYN, NY

Site 3 of 3 in cluster E

NY Spills **S102144068**
NY Hist Spills **N/A**

NY Spills:

Site ID:	292365
Facility Addr2:	Not reported
Facility ID:	8603569
Spill Number:	8603569
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	UNASSIGNED
Referred To:	Not reported
Spill Date:	08/29/86
Reported to Dept:	08/29/86
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	EAST RIVER
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	08/29/86
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported
Spill Closed Dt:	08/29/86
Remediation Phase:	0
Date Entered In Computer:	09/09/86
Spill Record Last Update:	09/30/04
Spiller Name:	Not reported
Spiller Company:	NYCDEP
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	8603569
DER Facility ID:	236714
Site ID:	292365
Operable Unit ID:	900821

WILLIAMSBURG (Continued) **S102144068**

Operable Unit: 01
Material ID: 476397
Material Code: 0630A
Material Name: NONENE
Case No.: Not reported
Material FA: Other
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Surface Water
Oxygenate: False
DEC Memo: Start CallerRemark - 8603569 3 REGULATORS TRIPPED END CallerRemark - 8603569
Remarks: Start DECRemark - 8603569 Prior to Sept, 2004 data translation this spill Lead DEC Field was " " END DECRemark - 8603569

NY Hist Spills:
Region of Spill: 2
Spill Number: 8603569
Investigator: Not reported
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 08/29/1986 08:00
Reported to Dept Date/Time: 08/29/86 14:44
SWIS: 61
Spiller Name: NYCDEP
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Equipment Failure
Reported to Dept: Surface Water
Water Affected: EAST RIVER
Spill Source: 02
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: 08/29/86
Cleanup Meets Std: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Not reported
Spill Closed Dt: 08/29/86
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 09/09/86
Date Spill Entered In Computer Data File: Not reported
Update Date: / /
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported

WILLIAMSBURG (Continued) **S102144068**

Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Hazardous Material
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	NONENE
Class Type:	NONENE
Times Material Entry In File:	1
CAS Number:	Not reported
Last Date:	Not reported
DEC Remarks:	Not reported
Remark:	3 REGULATORS TRIPPED

G69 **CITY METAL SMELTING & REFINING CO** **FINDS** **1006810137**
East **61 N 13TH ST** **RCRA-NonGen** **NYN008010316**
< 1/8 **BROOKLYN, NY 11211**
576 ft.

Site 1 of 3 in cluster G

Relative: Higher

Actual: 13 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	CITY METAL SMELTING & REFINING CO
Facility address:	61 N 13TH ST BROOKLYN, NY 112111005
EPA ID:	NYN008010316
Mailing address:	N 13TH ST BROOKLYN, NY 112111005
Contact:	-
Contact address:	N 13TH ST BROOKLYN, NY 112111005
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste
Handler accessibilty indicator:	Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown

CITY METAL SMELTING & REFINING CO (Continued) **1006810137**

Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	05/22/2002
Facility name:	CITY METAL SMELTING & REFINING CO
Classification:	Not a generator, verified
Violation Status:	No violations found

Evaluation Action Summary:

Evaluation date:	05/01/2002
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	EPA

F70 **CITY STORAGE** **NY Spills** **S103572470**
NW **20 NORTH 12TH ST** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
585 ft.

Site 3 of 7 in cluster F

Relative: Lower

Actual: 3 ft.

NY Spills:

Site ID:	322179
Facility Addr2:	Not reported
Facility ID:	9805691
Spill Number:	9805691
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Spill Date:	08/07/98
Reported to Dept:	08/07/98
CID:	14
Spill Cause:	Other
Water Affected:	EAST RIVER
Spill Source:	Commercial/Industrial
Spill Notifier:	Federal Government
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False

CITY STORAGE (Continued) **S103572470**

Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 08/10/98
Remediation Phase: 0
Date Entered In Computer: 08/07/98
Spill Record Last Update: 08/19/98
Spiller Name: PETER GUNDERSON
Spiller Company: CITY STORAGE
Spiller Address: 20 NORTH 12TH ST
Spiller City,St,Zip: BROOKLYN, NY
Spiller Company: 001
Spiller Phone: (917) 335-0858
Contact Name: PETER GUNDERSON
Contact Phone: (917) 335-0858
DEC Region: 2
Program Number: 9805691
DER Facility ID: 259547
Site ID: 322179
Operable Unit ID: 1063467
Operable Unit: 01
Material ID: 320429
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Surface Water
Oxygenate: False
DEC Memo: Start CallerRemark - 9805691 CREW CUTTING UP AN OLD BARGE AT CITY STORAGE (PIER 12) NOTICED UNK PETROLEUM LEAKING FROM IT - USCG ENROUTE END CallerRemark - 9805691
Remarks: Start DECRemark - 9805691 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" END DECRemark - 9805691

NY Hist Spills:
Region of Spill: 2
Spill Number: 9805691
Investigator: MARTINKAT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 08/07/1998 11:00
Reported to Dept Date/Time: 08/07/98 11:38
SWIS: 61
Spiller Name: CITY STORAGE
Spiller Contact: PETER GUNDERSON
Spiller Phone: (917) 335-0858
Spiller Contact: PETER GUNDERSON
Spiller Phone: (917) 335-0858
Spiller Address: 20 NORTH 12TH ST
Spiller City,St,Zip: BROOKLYN, NY
Spill Cause: Other

CITY STORAGE (Continued) **S103572470**

Reported to Dept: Surface Water
Water Affected: EAST RIVER
Spill Source: 01
Spill Notifier: Federal Government
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 08/10/98
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 08/07/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 08/19/98
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: CREW CUTTING UP AN OLD BARGE AT CITY STORAGE PIER 12) NOTICED UNK PETROLEUM LEAKING FROM IT - USCG ENROUTE

F71 **LOT 16,TAXBLOCK 2287** **E DESIGNATION** **S108076305**
NW **20 NORTH 12 STREET** **N/A**
< 1/8 **BROOKLYN, NY 11211**
585 ft.

Site 4 of 7 in cluster F

Relative:
Lower

Actual:
3 ft.

E DESIGNATION:
Tax Lot(s): 16
E-No: E-138
Effective Date: 5/11/2005
Satisfaction Date: Not reported
Ceqr Number: 04DCP003K
Ulurp Number: 050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No: 12c, 12d, 13a, 13b

LOT 16,TAXBLOCK 2287 (Continued) **S108076305**

Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2001
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	10TH STREET LLC
Lot Area:	000060400
Total Building Floor Area:	00000060400
Commercial Floor Area:	00000060400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000060400
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0302.00
Lot Depth:	0200.00
Building Frontage:	0302.00
Building Depth:	0200.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000355500
Total Assessed Value:	00000873000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1985
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported

LOT 16,TAXBLOCK 2287 (Continued) **S108076305**

Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3022870016
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995139
Y Coordinate:	0202976
Zoning Map:	12C
Sanborn Map:	304 003
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

F72 **20 NORTH 12TH ST PIER 12** **ERNS** **98449467**
NW **20 NORTH 12TH ST PIER 12** **N/A**
< 1/8 **BROOKLYN, NY**
585 ft.

Site 5 of 7 in cluster F

Relative:
Lower

Actual:
3 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

F73 **N 12TH ST TRANSFER CORP-20 N 12TH ST** **FINDS** **1007766388**
NW **20 NORTH 12TH STREET** **110019288153**
< 1/8 **BROOKLYN, NY 11222**
585 ft.

Site 6 of 7 in cluster F

Relative:
Lower

FINDS:
Other Pertinent Environmental Activity Identified at Site

Actual:
3 ft.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

H74 **MANHOLE 59560** **NY Spills** **S106699647**
ESE **12TH ST / WITHE AVE** **N/A**
< 1/8 **BROOKLYN, NY**
590 ft.

Site 1 of 4 in cluster H

Relative:
Higher

NY Spills:

Site ID:	317095
Facility Addr2:	Not reported
Facility ID:	0407078

Actual:
19 ft.

MANHOLE 59560 (Continued) **S106699647**

Spill Number:	0407078
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	09/26/04
Reported to Dept:	09/26/04
CID:	41
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/26/04
Remediation Phase:	0
Date Entered In Computer:	09/26/04
Spill Record Last Update:	11/26/04
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10020
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0407078
DER Facility ID:	255615
Site ID:	317095
Operable Unit ID:	890346
Operable Unit:	01
Material ID:	565441
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0407078 1 pint unknown oil from unknown source. END CallerRemark - 0407078
Remarks:	Start DECRemark - 0407078 e2mis no 155554 APPX 1 PT OF UNK OIL ON APPX 250 GALS OF WATER IN MH. NO SEWERS, WATERWAYS AFFECTED. SPILL APPEARS TO BE CONTAINED TO THE STRUCTURE. LIQUID SAMPLE TAKEN FOR PCBs. LAB RESULT RECEIVED 9/26/04 - 1904. 04-07689: 3087 PPM PCBs ENV. OPS., REPORTS A D FAULT TAG IN THE STRUCTURE. UPDATE 30-SEP-2004 2128HRS FLUSH MECHANIC O. JONES ,EMPLOYEE NO 90206 REPORTS, EARTHEN SUMP FOUND DURING CLEANUP.

MANHOLE 59560 (Continued) **S106699647**

10/01/04 = 0500 HRS = Env Ops Supv C.Fernandez reports that Env crew removed 7 drums of debris. Structure was double washed with BioGen 760 and Safety wash. Astoria tanker removed a total of 400 gallons of liquid. An Astoria transportation truck removed the drums. Sampled sump (Chain of custody DD01337) and cemented it after cleaning it out.. Tag remains in place pending sump results and soda blasting of structure. TJ - 50495 UPDATE 10-1-04 16:55HRS AS PER FEEDER REP JOHN SANTORA, D FAULT HAS BEEN COMPLETED. S. PACE 49874. SUMP RESULTS RECEIVED 10/2/04 - 0818. 04-07863. SUMP BOTTOM - 9 PPM. SUMP WALLS - 5 PPM. Lab Sequence Number: 04-08091-001 Date Approved: 10/07/2004 E2 Incident Number: 155554 Date Received: 10/06/2004 Chain of Custody ID: DD04508 Date Sampled: 10/06/2004 DESCRIPTION: GRID POINT #1 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #2 Aroclor 1248 1.8 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #3 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #4 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #5 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #6 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #7 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #8 Aroclor 1260 < 1.0 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #9 Aroclor 1248 2.5 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #10 Aroclor 1248 3.1 ug/100cm 2 EPA 608/8082 DESCRIPTION: GRID POINT #11 Aroclor 1260< 1.0 ug/100cm 2 EPA 608/8082 Tag can be pulled. END DECRemark - 0407078

F75 **NORTH 12TH AVE & KENT AVE** **SWF/LF** **S102148049**
NW **N 12TH AVE / KENT AVE** **NY Spills** **N/A**
< 1/8 **BROOKLYN, NY** **NY Hist Spills**
589 ft.

Site 7 of 7 in cluster F

Relative:
Lower

Actual:
3 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7182374288
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	BOBBY HERBST; SUPERVISOR
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - regulated
Activity Number:	24T68
Active:	No
East Coordinate:	587750
North Coordinate:	4508667
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	None
Authorization Date:	Not reported
Expiration Date:	Not reported

NORTH 12TH AVE & KENT AVE (Continued) **S102148049**

NY Spills:

Site ID:	230290
Facility Addr2:	Not reported
Facility ID:	9400121
Spill Number:	9400121
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/04/94
Reported to Dept:	04/04/94
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	04/05/94
Spill Record Last Update:	06/09/06
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9400121
DER Facility ID:	189801
Site ID:	230290
Operable Unit ID:	993850
Operable Unit:	01
Material ID:	387447
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9400121 ENTERING CITY STP (GREENPOINT) CLEAN UP CREWS AT SITE & ENROUTE. END CallerRemark - 9400121
Remarks:	Start DECRemark - 9400121 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL "4/4/94, 3:00 PM: Engelhardt at site. On scene are Bob Grimm (MEG), Tom Thomas and Sagar Chatergee (NYCDEP), Carmine

NORTH 12TH AVE & KENT AVE (Continued) **S102148049**

Sabatasso (Con Ed). According to Tom Thomas, pil was noticed entering Newtown Creek WPCP some time late Sat. night/Sun. morning, but due to the inexperience of the operator on duty at the time, it was not reported to NYCDEP IWCS until early Monday morning (4/4). Thomas estimates that oil was leaking at rate of 30-40 gpm when he first found it leaking into sewer just a couple of feet below grade in the manole. Con Ed lowered pressure on the line for a period of 1hr sometime around 3:00 PM. By the time DEC observed manhole, leak rate appeared to be <5 gpm into sewer. Pipeline is located at a depth of 5'- 6' below grade. Leak is located close to both the were and the regulator chamber so there is some concern about possible surface water impacts. USCG P.O. Duly and P.O. Svendson were on scene earlier, but Engelhardt did not speak with them before they left. Asked MEG to boom off storm sewer outfalls (2 x 156" outfalls). Bob Grimm indicated that is current is greater than 1.5 knots, oil will escape beneath boom, but they placed it anyway. After soil was partially excavated there appeared to be some oil which migrated under the pavement. Upon excavation, 3 leaks were found: looking down at pipe facing south, 2 leaks at 4 o'clock and 1 leak at 9 o'clock (top of pipe = 12 o'clock). Carmine says leak at 9 o'clock was created by hammering while trying to remove insulation from pipe. All 3 leaks were plugged by 9:30 PM. (CAE) 4/5/94, 10:30 AM: Crew is now installing shoringon excavation. Vac truck is sucking water out of trench which is seeping in. Visited Newtown Creek WPCP - MEG on scene cleaning intake screens. Al Gordon (NYCDEP) on scene at WPCP. He indicated that some small amounts of oil did reach final treatment stages. Later in the day Engelhardt spoke by telephone with Jim Pynn (Newtown Creek Plant Supervisor). He said that crew had checked regulator and tide gates nad found no oil (at N. 12th Street). They are going to check storm sewer on N. 12thStreet to make sure there is no oil in anticipation of rain event tomorrow. (CAE) 4/6/94: Continuing excavation to locate good pipe. Engelhardt had spoken to Joe Cuozzo (NYCDEP) earlier and was told that Con Ed was demanding that MEG pull out of Newtown Creek WPCP even though Newtown personnel were not satisfied that the clean up was finished. Went to plant, met with Sal Bartolomeo, Jr. (Deputy Plant Superintendent) - he showed Engelhardt the extent of the contamination. There had beenoil on the screens but he was satisfied that those had been fully cleaned. He said there was a lot of oil in the wet well, which Con Ed (Carmine) had objections to cleaning. There was also oil which got into the settling, aeration and grease separation sections of the plant, as well as the sludge thickener unit. The matter was apparently resolved after Joe Cuozzo (NYCDEP) called John Wilson (Con Ed), who called John Mitchell (Con Ed, who authorized MEG to continue cleaning until plant was clean. (CAE) 4/11/94, 10:45 AM: Workers cleaning pipe for cleeve welding. Noticed that they had a small pump in the bottom of trench with output hose on street. Asked what this was for, Con Ed replied that water had seeped into trench from duct running though it. They had subsequently pumped out water from a nearby catch basin that had been feeding the duct. Asked them to make sure that this is done from now on (pump out catch basin as opposed to trench), instead of letting water accumulate intrench and then pumping it with possible oil in it. (CAE) 5/4/94: Met at Newtown Creek WPCP with Jim Pynn. Con Ed finished clean up on Friday 4/29. They ended up removing 70+ truckloads of solidified (w/fly ash) grit and taking it to a disposalsite in Michigan. Clean Ventures ended up finishing the job. (CAE) 5/4/94: fax from Jim Pynn - copies of 2 internal NYCDEP memos regarding the spill. 6/10/94: letter from Con Edison transmitting 3 TPH and 1 SVOC sample results. Requested closure. Closure not granted - additional investigation needed. Appendix B site no. 25/45. (JHO) Update 6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) END DECRemark - 9400121

NORTH 12TH AVE & KENT AVE (Continued) **S102148049**

NY Hist Spills:

Region of Spill:	2
Spill Number:	9400121
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/04/1994 13:20
Reported to Dept Date/Time:	04/04/94 14:32
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	In Sewer
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/05/94
Date Spill Entered In Computer Data File:	Not reported
Update Date:	06/05/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1000
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported

NORTH 12TH AVE & KENT AVE (Continued) **S102148049**

Last Date: 19940728
DEC Remarks: Not reported
Remark: ENTERING CITY STP GREENPOINT) CLEAN UP CREWS AT SITE ENROUTE.

H76 **MANHOLE 627** **NY Spills** **S104195032**
ESE **WYTHE AV / N 12TH ST** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
590 ft.

Site 2 of 4 in cluster H

Relative: Higher

Actual: 18 ft.

NY Spills:

Site ID:	218624
Facility Addr2:	Not reported
Facility ID:	9907102
Spill Number:	9907102
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	09/14/99
Reported to Dept:	09/14/99
CID:	312
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/29/02
Remediation Phase:	0
Date Entered In Computer:	09/14/99
Spill Record Last Update:	01/30/02
Spiller Name:	Not reported
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	NEW YORK, NY 10003
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9907102
DER Facility ID:	180867
Site ID:	218624
Operable Unit ID:	1081400
Operable Unit:	01
Material ID:	299803
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00

MANHOLE 627 (Continued) **S104195032**

Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9907102 undiaperable sheen on 10gal of water - case #127807 - contained - sample taken END CallerRemark - 9907102
Remarks: Start DECRemark - 9907102 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" con ed e2mis notes: Undiaperable sheen while he was flushing structure for the I&A network. The I&A network pressure tested transf and it pressure tested ok. They try to diaper sheen did not work. The undiaperable sheen is on 10 gallons of water. There is no other oil filled equipment in hole other than the transf. He does not see any sump or sump pump or sewer connection. A liquidsample was taken. Seq#99-09653 @ 23ppm, Manny Davis of environmental operations reports cleanup completed at 0250hrs 9/21/99. END DECRemark - 9907102

NY Hist Spills:
Region of Spill: 2
Spill Number: 9907102
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 09/14/1999 12:35
Reported to Dept Date/Time: 09/14/99 13:53
SWIS: 61
Spiller Name: CON EDISON
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Address: 4 IRVING PLACE
Spiller City,St,Zip: NEW YORK, NY 10003-
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 09/14/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 05/24/00
Is Updated: False

MANHOLE 627 (Continued) **S104195032**

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	con ed e2mis notes: Undiaperable sheen while he was flushing structure for the I A network. The I A network pressure tested transf and it pressure tested ok. They try to diaper sheen did not work. The undiaperable sheen is on 10 gallons of water. There is no other oil filled equipment in hole other than the transf. He does not see any sump or sump pump or sewer connection. A liquid sample was taken. Seq 99-09653 @ 23ppm, Manny Davis of environmental operations reports cleanup completed at 0250hrs 9/21/99.
Remark:	undiaperable sheen on 10gal of water - case 127807 - contained - sample taken

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H77 **NY Spills** **S104789770**
ESE **74-76 WYTHE AV** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
590 ft.

Site 3 of 4 in cluster H

Relative:
Higher

Actual:
18 ft.

NY Spills:

Site ID:	226995
Facility Addr2:	Not reported
Facility ID:	0007305
Spill Number:	0007305
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JMKRIMGO
Referred To:	Not reported
Spill Date:	09/21/00
Reported to Dept:	09/21/00
CID:	14
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Citizen
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. No DEC Response. No corrective action required.
Spill Closed Dt:	09/22/00

(Continued) **S104789770**

Remediation Phase: 0
Date Entered In Computer: 09/21/00
Spill Record Last Update: 09/22/00
Spiller Name: Not reported
Spiller Company: Not reported
Spiller Address: 74-76 WYTHE AV
Spiller City,St,Zip: BROOKLYN, NY
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: Not reported
Contact Phone: Not reported
DEC Region: 2
Program Number: 0007305
DER Facility ID: 187360
Site ID: 226995
Operable Unit ID: 828163
Operable Unit: 01
Material ID: 548399
Material Code: 0010A
Material Name: HYDRAULIC OIL
Case No.: Not reported
Material FA: Other
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0007305 THE COMPANY THERE HAS A DRIVEWAY ON NORTH 12TH ST & IT APPEARS THE HYDRAULIC OIL OR BRAKE FLUID IS SPILLING FROM THE BUILDING INTO THE ROADWAY - THERE IS A SEWER ON THE CORNER - UNK IF THE SEWER IS AFFECTED - YOU CAN VISIBLY SEE THE TRAIL ON THE STREET END CallerRemark - 0007305
Remarks: Start DECRemark - 0007305 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" END DECRemark - 0007305

NY Hist Spills:
Region of Spill: 2
Spill Number: 0007305
Investigator: KRIMGOLD
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 09/21/2000 18:00
Reported to Dept Date/Time: 09/21/00 18:39
SWIS: 61
Spiller Name: Not reported
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: 74-76 WYTHE AV
Spiller City,St,Zip: BROOKLYN, NY
Spill Cause: Housekeeping
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01

(Continued) **S104789770**

Spill Notifier: Citizen
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Possible release with minimal potential for fire or hazard or Known release with no damage. No DEC Response. No corrective action required.
Spill Closed Dt: 09/22/00
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 09/21/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 09/22/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: HYDRAULIC OIL
Class Type: HYDRAULIC OIL
Times Material Entry In File: 1846
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Remark: THE COMPANY THERE HAS A DRIVEWAY ON NORTH 12TH ST IT APPEARS THE HYDRAULIC OIL OR BRAKE FLUID IS SPILLING FROM THE BUILDING INTO THE ROADWAY - THERE IS A SEWER ON THE CORNER - UNK IF THE SEWER IS AFFECTED - YOU CAN VISIBLY SEE THE TRAIL ON THE STREET

D78 **NY Spills** **S104648846**
NE **NORTH 14 TH/KENT AVE** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
646 ft.

Site 14 of 17 in cluster D

Relative:
Lower

Actual:
9 ft.

NY Spills:
Site ID: 134830
Facility Addr2: Not reported
Facility ID: 9900419
Spill Number: 9900419
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE

(Continued) **S104648846**

Referred To:	Not reported
Spill Date:	04/12/99
Reported to Dept:	04/12/99
CID:	382
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	04/12/99
Spill Record Last Update:	06/09/06
Spiller Name:	CALLER
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	NEW YORK, NY 10003
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	JOE DEVOTI
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9900419
DER Facility ID:	115775
Site ID:	134830
Operable Unit ID:	1075184
Operable Unit:	01
Material ID:	307556
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 9900419 CALLER STATES THAT UPON EVACUATING A FUEL LINE THERE WAS AIR IN THE LINE AND OIL POURED ONTO THE STREET. CLEAN UP IS UNDERWAY AND EXCAVATION WILL BE DONE. END CallerRemark - 9900419

Remarks: Start DECRemark - 9900419 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" DEC responder notes: 4/12/99- 2:15PM. ROBERT LEUNG SPOKE TO C. ENGELHARDT AND GAVE HIM THE INFO. No. 6 oil spilled during piggingof No. 7 line. On location John Mitchell (White Hat for Con Ed), Barry Korman, Sal Bocuzzi. Barry Korman syas occurred while pigging, had recovery vac truck @ Noble Street. First truck = 4221 gallons, second truck = 1400 gallons when stopped (noticed oil on street). Notified by NYC Sanitation inpector at 12:00. They then shut down the compressor. Contractor Clean Venture was @ Noble Street - responded by 12:15. They were vac'ing line from North 1st Street to valve 10 (North 11th / Kent)- removed 12,000 gallons. FDNY came in fire boat - did not get off boat. No NYCDEP of USCG response. No

(Continued) **S104648846**

oil in water (Bushwick Inlet approx. 50 feet west). Thus far only 1 subsurface structure (Con Ed vault) is impacted. There is a sewer near15th Street - oil did not reach it. Equipment on location: 3600 gallon vac truck (AllState Power Vac); 3150 and 5040 gallon vac trucks (Clean Venture). (CAE) 5/25/99: call from John Mitchell. They have not been monitoring the well. They will start every week for 5 weeks, then go to every 2 weeks if no product. Will be going tomorrow and next Tuesday. (CAE) e2mis no. 124-172: On April 12, 1999, working on Fuel Line #7 in Brooklyn. J. O'Connell andM. Dobler was working Noble Street end and J. Daly was working at North 11th Street end of Fuel Line #7. A Santiation Department employee informed D. Daly that oil was coming out on the street. J. Daly informed J. O'Connell and they meet at the location (Kent Ave) where the oil was coming on the street. They took action by putting pads down, put drain plug on the catch basin and putting oil absorent down around the catch basin. Clean Ventures is at the location. They are in the process of taking oil out of the line. Approx. 30 gallons of oil spilled. UPDATE - April 13, 1999, from manhole 4348, 1800 gallons of oil has been pumped. At present leak has not been found, still looking. UPDATE - April 14, 1999, leak was found at11:00 am, leak clamped 14:00 Tuesday. LARGE OIL SPILL CLEANUP CHECKLIST -Location of spill: N.14TH STREET AND FRANKLIN STREET, BROOKLYN. -Source/cause of spill: PIGGING OPERATION TO REMOVE # FUEL OIL FROM PIPELINE #7; A 20 INCH DIA PIPELINE. -Description of area affected by spill: 50' X 10' X 12' (EXCAVATION - APPROX.). Excavated contaminated soil, bluestone. -Name of contractor: ALL STATE POWER VAC, CLEAN HARBORS AND RCI. -Recovered oil 1,800 GALLONS; Recovered fluids/solids 200 CUBIC YARDS; Recovered oil/water 3,000+ GALLONS . -8 SOIL SAMPLES WERE COLLECTED FROM THE EXCAVATION. -1 WELL INSTALLED; OIL SHEEN ON WATER. DEC Responder notes (cont'd.): Results of well gauging/bailing/vacuuming: 5/26/99: Well depth - 140" (11.7'); Top of product - 40.5"; Top of water - 29"; product thickness - 11.5". Well was vacuumed, approx. 400 gallons oil/water removed. 6/4/99: Oil thickness 1', Depth to water 9'6". Approx. 500 gallons oil/water removed. 6/9/99: Oil thickness 1'2", Depth to water 9'8". Approx. 500 gallons oil/water removed. 6/16/99: Oil thickness (pre-vacuum) 1', Depth to water 9'3". No notation on how much oil/water removed. Post-vacuum oil thickness 1.5". 6/25/99: Oil thickness 8", Depth to water 9'4". No notation on how much oil/water removed. 7/28/99: Oil thickness 4", Depth to water 8'9". Approx. 350 gallons oil/water removed. Additional vacuum enhanced fluid recovery (VEFR) events occurred 7/11/00 (16 gallons); 10/27/00 (100 gallons); 1/24/01 (16 gallons); 4/17/01 (30 gallons); 10/4/01 (17 gallons); 4/4/02 (32 gallons); 10/24/02 (110 gallons). THIS IS PART OF APPENDIX B SITE 25/45. (JHO) Update6/9/06 Spill closed based on final site investigation report located in eDocs App. B Site 25. (SKA) END DECRemark - 9900419

NY Hist Spills:

Region of Spill:	2
Spill Number:	9900419
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/12/1999 12:00
Reported to Dept Date/Time:	04/12/99 13:03
SWIS:	61

(Continued) **S104648846**

Spiller Name:	CON ED
Spiller Contact:	CALLER
Spiller Phone:	( ) -
Spiller Contact:	JOE DEVOTI
Spiller Phone:	(212) 580-6763
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003-
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/12/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	07/31/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	20
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	4/12/99- 2:15PM. ROBERT LEUNG SPOKE TO C. ENGELHARDT AND GAVE HIM THE INF.
Remark:	CALLER STATES THAT UPON EVACUATING A FUEL LINE THERE WAS AIR IN THE LINE AND OIL POURED ONTO THE STREET. CLEAN UP IS UNDERWAY AND EXCAVATION WILL BE DONE.

D79
NE
< 1/8
646 ft.

Relative:
Lower

Actual:
9 ft.

MANHOLE #TM 625
N 14TH ST / KEMT AV
BROOKLYN, NY

NY Spills **S103574147**
NY Hist Spills **N/A**

Site 15 of 17 in cluster D

NY Spills:

Site ID:	222966
Facility Addr2:	Not reported
Facility ID:	9810087
Spill Number:	9810087
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	11/10/98
Reported to Dept:	11/10/98
CID:	384
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/07/02
Remediation Phase:	0
Date Entered In Computer:	11/10/98
Spill Record Last Update:	11/07/02
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9810087
DER Facility ID:	184356
Site ID:	222966
Operable Unit ID:	1067355
Operable Unit:	01
Material ID:	313970
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9810087 CON ED #121185 SAMPLES TAKEN FOR PCBS. CLEAN

MANHOLE #TM 625 (Continued) **S103574147**

Remarks: WILL BE DONE PENDING TEST RESULTS. END CallerRemark - 9810087
Start DECRemark - 9810087 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" E2MIS 121185 M.ADAMO #28458 LEAD MECHANIC IN TRANSFORMER GANG REPORTS FINDING APPROX 5 GALLONS OF AN UNKNOWN OIL IN TRANSFORMER HOLE PREVIOUSLY CLEANED OUT AS OF 11/09. CREW ON LOCATION TO INSTALL NEW UNIT. SUBSTANCE CONTAINED TO STRUCTRUE NO SEWERS OR WATERWAYS AFFECTED, LIQUID SAMPLE TAKEN & MARKED AS A RUSH, STOP TAG #22051 PLACED. CREW WILL REMAIN ON LOCATION UNTIL SAMPLE RESULTS ARE RECEIVED & TREAT LOCATION AS 50-499 PPM. #12255 VDC.***** UPDATE EPA PERMIT ISSUED # NYP 004028346. #12255 VDC 10-11-98 15:35HRS CREW ARRIVED ON LOC AND FOUND DEP WAITING & THEY REQUESTED SUPERVISOR ON LOC. VITO VAVALLO ARRIVED AND AND MET WITH MR. OLUREMI, FATIMILEHIN OF DEP AND FOUND DROPS ALL OVER THAT EQUALLED TO 1 LITER , IN HOLE & HE REQUESTED AN OVER 50 TANKER ON LOC TO PUMP HOLE ASAP. PRODUCT . TANKER WAS DISPATCHED AT 15:15HRS. ALSO HE IS REQUESTING COPY OF PCB RESULTS WHEN IT COMES BACK FROM CHEM LAB & FAXED TO DEP OFFICE # 718-- 595-4686. S.PACE 49874 UPDATE********** 10-11-98 15:52 RON JAMES WAS NOTIFIED AND IS HEADING TO LOC. S.PACE 49874. UPDATE********** 10-11-98 16:00HRS TANKER ARRIVED ON LOC. S.PACE 49874. UPDATE**********10-11-98 17:16HRS @ 1535 HRS DEP REQUESTS COPIES OF E2MIS REPORT & SAMPLE RESULTS FROM YESTERDAYS CLEANUP @ THIS LOCATION. FLUSH IS DELIVERING #120578 FOR HIM TO GIVE TO DEP. 1600HRS TANKER ARRIVED WILL START TO PUMP HOLE. 1625 HRS DEP NOT WAITING ANY LONGER FOR REPORT, DEP LEFT LOCATION & FLUSH DEPT FAXED REPORT TO HIM. 1645 HRS RON JAMES ARRIVED @ LOCATION . TANKER PUMPED STRUCTURE DOWN . WATER ENTERING FROM PRIMARY DUCTS. WILL CONTINUE TO PUMP, WAITING FOR CLEANUPCREW TO RELIEVE THEM. #12255 VDC. **UPDATE: 11/10/98 - 2345. LAB RESULTS <1.0PPM-LAB SEQ#98-12394-J.A.P.-56037 -----11/11/98--0252HRS--F.DELLATORRE FLUSH REPORTS CLEANUP COMPLETED WITH SLIX , REMOVED TAG#03664---G DONATONE---------- END DECRemark - 9810087

NY Hist Spills:

Region of Spill:	2
Spill Number:	9810087
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	11/10/1998 12:25
Reported to Dept Date/Time:	11/10/98 13:13
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

MANHOLE #TM 625 (Continued) **S103574147**

Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 11/10/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 11/17/98
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 5
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: CON ED 121185 SAMPLES TAKEN FOR PCBS. CLEAN WILL BE DONE PENDING TEST RESULTS.

D80 **TM 625 -** **NY Spills** **S103829150**
NE **N. 14TH ST / KENT AVE** **NY Hist Spills** **N/A**
< 1/8 **BROOKLYN, NY**
646 ft.

Site 16 of 17 in cluster D

Relative:
Lower

Actual:
9 ft.

NY Spills:
Site ID: 281453
Facility Addr2: Not reported
Facility ID: 9815002
Spill Number: 9815002
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: CAENGELH
Referred To: Not reported
Spill Date: 03/18/99
Reported to Dept: 03/18/99
CID: 322
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Affected Persons
Cleanup Ceased: / /

TM 625 - (Continued) **S103829150**

Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/06/02
Remediation Phase:	0
Date Entered In Computer:	03/18/99
Spill Record Last Update:	06/06/02
Spiller Name:	UNKNOWN
Spiller Company:	UNKNOWN
Spiller Address:	UNKNOWN
Spiller City,St,Zip:	UNKNOWN, ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9815002
DER Facility ID:	228533
Site ID:	281453
Operable Unit ID:	1076026
Operable Unit:	01
Material ID:	308118
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 9815002 TRANSFORMER MANHOLE WAS BEING PUMPED OUT ONTO THE STREET IT WAS A CLEAR LIQUID AND THEN SUDDENLY A SHEEN APPEARED - PUMP WAS TURNED OFF AND PADS PUT DOWN TO ABSORB BUT SOME OF THE WATER DID MAKE IT INTO A SEWER - ENDCallerRemark - 9815002

Remarks: Start DECRemark - 9815002 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" Con Ed e2mis #123696: TM625 LOCATED N/S NORTH 14 ST.36'E/O KENT AVE. MR.RASA WAS ASKED IF ANYTHING ENTERED THE SEWER SYSTEM. HE SAID HE WASN'T SURE HE WOULD GO CHECK, AND IF NECESSARY PUT DOWN PIGS AND DIAPERS AROUND SEWER. UPDATE 10:20 HRS. MR RASA CALLED STATING HE CHECKED AND SAW WATER THAT WAS PUMPED OUT GOING TOWARD SEWER. --PLACED PIGS & DIAPERS AROUND SEWER TO PREVENT SHEEN FROM ENTERING SEWER. S.CRIBBIN OF CIG NOTIFIED AT 1031 HOURS. UPDATE FROM ED RASA - HE REPORTS THAT DIAPERS AROUND SEWER ARE ABSORBING SHEEN.MR.RASA WAS ON LOCATION TO MAKE TRANSFORMER AUTO. -- TRANSFORMER IN TM625 IS A NEW TRANSFORMER.-- PRESSURE TESTED TRANSFORMER OK. -- CHECKED PCB LISTING, TRANSFORMER LISTED AT O-PCB. -- ED RASA UNABLE TO DIAPER SHEEN IN TM625. RON JAMES OF E.H.&S. NOTIFIED OF INCIDENT AT 10;45 HOURS. HE WAS GOING TO LOCATION. UPDATE 1058HRS.3/18/99 R.DONOVAN SPOKE TO ED RASA AND ASKED HIM IF DIAPERS OR PIGS WERE PUT DOWN BEFORE THE PRODUCT ENTERED THE CATCH BASIN. -- ED STATES THE PIGS WERE DOWN BEFORE THE PRODUCT ENTERED THE CATCH BASIN AND HE FEELS THE SHEEN IS BEING ABSORBED WHILE GOING THROUGH THE PIGS & DIAPERS. UPDATE 3/18/99 1252HRS. AT 1252HRS. ED RASSA REPORTS DEP SAGAR CHATTERJEE ARRIVED ON LOCATION AT 1225HRS. MR CHATTERJEE VARIFIED ED RASA'S REPORT AND IS SATISFIED WITH ALL STEPS THAT WERE TAKEN UPDATE 19:00 3/18/99

TM 625 - (Continued) **S103829150**

OIL SAMPLERECEIVED FOR TM0625 LESS THEN <1 PPM PCB LAB SEQ 99-02777
FLASHPOINT RECEIVED 3/19/99 - 0805. >140 DEG. F 3/19/99 1950HRS - J.
DELAROSA, FLUSH OPERATOR, REPORTS CLEAN UP COMPLETED WITH DIAPERS, ABSORBANTS
AND SLIX AND ENV. STOP TAG # 18946 REMOVED END DECRemark - 9815002

NY Hist Spills:

Region of Spill:	2
Spill Number:	9815002
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	03/18/1999 10:00
Reported to Dept Date/Time:	03/18/99 10:47
SWIS:	61
Spiller Name:	UNK
Spiller Contact:	UNK
Spiller Phone:	( ) -
Spiller Address:	UNK
Spiller City,St,Zip:	UNK
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	03/18/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	03/18/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0

TM 625 - (Continued) **S103829150**

Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: TRANSFORMER MANHOLE WAS BEING PUMPED OUT ONTO THE STREET IT WAS A CLEAR LIQUID AND THEN SUDDENLY A SHEEN APPEARED - PUMP WAS TURNED OFF AND PADS PUT DOWN TO ABSORB BUT SOME OF THE WATER DID MAKE IT INTO A SEWER -

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D81 **LOT 100,TAXBLOCK 2590** **E DESIGNATION** **S108076209**
NE **1 FRANKLIN STREET** **N/A**
< 1/8 **BROOKLYN, NY 11222**
649 ft.

Site 17 of 17 in cluster D

Relative:
Lower

Actual:
9 ft.

E DESIGNATION:

Tax Lot(s):	100
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	R6
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	C2-4/R6
Split Boundary Indicator:	Y
Building Class:	V1
Land Use Category:	11
Number of Easements:	1
Owner, Type of Code:	Not reported
Owner Name:	MOTIVA ENTERPRISES LL
Lot Area:	000165993
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000

LOT 100,TAXBLOCK 2590 (Continued) **S108076209**

Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	4
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0320.25
Lot Depth:	0200.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000387450
Total Assessed Value:	00000387450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3025900100
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995711
Y Coordinate:	0203501
Zoning Map:	12C
Sanborn Map:	304 004
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

I82 **BAY SIDE FUEL** **ERNS** **89104089**
West **BAY SIDE FUEL** **N/A**
< 1/8 **BROOKLYN, NY**
657 ft.

Site 1 of 2 in cluster I

Relative:
Lower

Actual:
5 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

I83
West
< 1/8
657 ft.

Relative:
Lower

Actual:
5 ft.

BAYSIDE FUEL DOCK **ERNS** **91201717**
BAYSIDE FUEL DOCK **N/A**
BROOKLYN, NY

Site 2 of 2 in cluster I

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

J84
SSW
< 1/8
660 ft.

Relative:
Higher

Actual:
17 ft.

N 9TH ST & KENT AVE/BKLYN **NY Spills** **S102141638**
N 9TH ST / KENT AVE **NY Hist Spills** **N/A**
NEW YORK CITY, NY

Site 1 of 5 in cluster J

NY Spills:

Site ID:	76252
Facility Addr2:	Not reported
Facility ID:	9005099
Spill Number:	9005099
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	FINGER
Referred To:	Not reported
Spill Date:	07/24/90
Reported to Dept:	08/08/90
CID:	Not reported
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Railroad Car
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt:	10/16/97
Remediation Phase:	0
Date Entered In Computer:	08/08/90
Spill Record Last Update:	10/17/97
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9005099
DER Facility ID:	71309
Site ID:	76252
Operable Unit ID:	945583
Operable Unit:	01
Material ID:	436162
Material Code:	0022
Material Name:	Waste Oil/Used Oil

N 9TH ST & KENT AVE/BKLYN (Continued) **S102141638**

Case No.: Not reported
Material FA: Petroleum
Quantity: -1.00
Units: Pounds
Recovered: 0.00
Resource Affected: Sewer
Oxygenate: False
DEC Memo: Start CallerRemark - 9005099 CON EDISON FOUND OIL IN CATCH BASIN, THEY TRACED IT BACK TO PORPERTY WITH OLD LOCOMOTIVE ON IT, THEY SAY THAT OIL IS LEAKING FROM THE LOCOMOTIVE INTO THE CATCH BASIN. END CallerRemark - 9005099
Remarks: Not reported

NY Hist Spills:
Region of Spill: 2
Spill Number: 9005099
Investigator: FINGER
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 07/24/1990 12:00
Reported to Dept Date/Time: 08/08/90 11:00
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Housekeeping
Reported to Dept: In Sewer
Water Affected: Not reported
Spill Source: 11
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt: 10/16/97
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 08/08/90
Date Spill Entered In Computer Data File: Not reported
Update Date: 10/17/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported

N 9TH ST & KENT AVE/BKLYN (Continued) **S102141638**

Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Pounds
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: WASTE OIL
Class Type: WASTE OIL
Times Material Entry In File: 9509
CAS Number: Not reported
Last Date: 19940927
DEC Remarks: 08/08/90: CON ED PUMPED OUT CATCH BASIN, DEC WILL INVESTIGATE NOTIFY NYCDEP IWCS.
Remark: CON EDISON FOUND OIL IN CATCH BASIN, THEY TRACED IT BACK TO PORPERTY WITH OLD LOCOMOTIVE ON IT, THEY SAY THAT OIL IS LEAKING FROM THE LOCOMOTIVE INTO THE CATCH BASIN.

G85 **WYTHE AVE & N 13TH ST** **NY Spills** **S103483460**
East **WYTHE AVE / N 13TH ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
693 ft.

Site 2 of 3 in cluster G

Relative:
Higher

Actual:
13 ft.

NY Spills:
Site ID: 205163
Facility Addr2: Not reported
Facility ID: 8912490
Spill Number: 8912490
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 04/01/89
Reported to Dept: 05/04/95
CID: Not reported
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: / /
Spill Record Last Update: 04/10/03
Spiller Name: Not reported
Spiller Company: CON ED
Spiller Address: Not reported
Spiller City,St,Zip: ZZ
Spiller Company: 999

WYTHE AVE & N 13TH ST (Continued) **S103483460**

Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	8912490
DER Facility ID:	170411
Site ID:	205163
Operable Unit ID:	939208
Operable Unit:	01
Material ID:	438415
Material Code:	0541A
Material Name:	DIELECTRIC FLUID
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	6000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 8912490 Reported by Con Ed as required under Consent Order. END CallerRemark - 8912490
Remarks:	Start DECRemark - 8912490 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" APPENDIX B SITE NO. 63. END DECRemark - 8912490

NY Hist Spills:

Region of Spill:	2
Spill Number:	8912490
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/01/1989 12:00
Reported to Dept Date/Time:	05/04/95 12:00
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response.

WYTHE AVE & N 13TH ST (Continued) **S103483460**

Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: / /
Date Spill Entered In Computer Data File: Not reported
Update Date: 07/02/98
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 6000
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIELECTRIC FLUID
Class Type: DIELECTRIC FLUID
Times Material Entry In File: 41
CAS Number: Not reported
Last Date: Not reported
DEC Remarks: Not reported
Remark: Reported by Con Ed as required under Consent Order.

G86 **MANHATTAN POLY BAG CO** **FINDS** **1000239975**
East **94 N 13TH ST** **NY MANIFEST** **NYD080430606**
1/8-1/4 **BROOKLYN, NY 11211** **RCRA-NonGen**
696 ft.

Site 3 of 3 in cluster G

Relative: Higher

Actual: 13 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:
Document ID: NYA6272118
Manifest Status: Completed copy
Trans1 State ID: PLATE#
Trans2 State ID: Not reported
Generator Ship Date: 870915
Trans1 Recv Date: 870915
Trans2 Recv Date: Not reported
TSD Site Recv Date: 870915
Part A Recv Date: 870923
Part B Recv Date: 870924
Generator EPA ID: NYD080430606

MANHATTAN POLY BAG CO (Continued) **1000239975**

Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577
Document ID:	NYA3127408
Manifest Status:	Completed copy
Trans1 State ID:	PLATE#
Trans2 State ID:	9082-GF
Generator Ship Date:	870305
Trans1 Recv Date:	870305
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870305
Part A Recv Date:	870311
Part B Recv Date:	870330
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F005 - UNKNOWN
Quantity:	00275

MANHATTAN POLY BAG CO (Continued) **1000239975**

Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601739
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	820121
Trans1 Recv Date:	820121
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	820122
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

MANHATTAN POLY BAG CO (Continued) **1000239975**

Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601757
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	820618
Trans1 Recv Date:	820618
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	820618
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJT000027821
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

MANHATTAN POLY BAG CO (Continued) **1000239975**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601766
Manifest Status:	Completed copy
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	821014
Trans1 Recv Date:	821014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	821014
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00880
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	016
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

MANHATTAN POLY BAG CO (Continued) **1000239975**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601775
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	821119
Trans1 Recv Date:	821119
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	821119
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY

MANHATTAN POLY BAG CO (Continued) **1000239975**

Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601685
Manifest Status:	TSDF copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	810518
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	810507
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	Not reported
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	80-81
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI

MANHATTAN POLY BAG CO (Continued) **1000239975**

Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577
Document ID:	NYO1601694
Manifest Status:	Completed copy
Trans1 State ID:	1812AK
Trans2 State ID:	Not reported
Generator Ship Date:	810714
Trans1 Recv Date:	810714
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	810716
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	80-81
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN

MANHATTAN POLY BAG CO (Continued) **1000239975**

Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577
Document ID:	NYO1601703
Manifest Status:	Completed copy
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	810915
Trans1 Recv Date:	810915
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	810916
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00550
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	80-81
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

MANHATTAN POLY BAG CO (Continued) **1000239975**

Document ID:	NYO1601712
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	811102
Trans1 Recv Date:	811102
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	811111
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00330
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	80-81
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601721
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	811203

MANHATTAN POLY BAG CO (Continued) **1000239975**

Trans1 Recv Date:	811203
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	811204
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	80-81
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577
Document ID:	NYO1601802
Manifest Status:	Completed copy
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	830114
Trans1 Recv Date:	830114
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	830114
Part A Recv Date:	030131
Part B Recv Date:	030131

MANHATTAN POLY BAG CO (Continued) **1000239975**

Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	83
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYO1601811
Manifest Status:	Completed copy
Trans1 State ID:	NYJA081
Trans2 State ID:	Not reported
Generator Ship Date:	830222
Trans1 Recv Date:	830222
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	830223
Part A Recv Date:	030308
Part B Recv Date:	030308
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NJD064330665
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES

MANHATTAN POLY BAG CO (Continued) **1000239975**

Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	83
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577
Document ID:	NYA3809373
Manifest Status:	Completed copy
Trans1 State ID:	PLATE#
Trans2 State ID:	Not reported
Generator Ship Date:	860224
Trans1 Recv Date:	860224
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860224
Part A Recv Date:	860228
Part B Recv Date:	860310
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F003 - UNKNOWN
Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.

MANHATTAN POLY BAG CO (Continued) **1000239975**

Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

Document ID:	NYA3852764
Manifest Status:	Completed copy
Trans1 State ID:	PLATE#826
Trans2 State ID:	Not reported
Generator Ship Date:	860410
Trans1 Recv Date:	860410
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860410
Part A Recv Date:	860415
Part B Recv Date:	860505
Generator EPA ID:	NYD080430606
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F003 - UNKNOWN
Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

MANHATTAN POLY BAG CO (Continued) **1000239975**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD080430606
Facility Name:	MANHATTAN POLY BAG COMPANY
Facility Address:	94 NORTH 13 STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MANHATTAN POLY BAG COMPANY
Mailing Contact:	GALEK SEYMOUR PRODUCTION
Mailing Address:	94 NORTH 13 STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-679-6577

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	MANHATTAN POLY BAG CO
Facility address:	94 N 13TH ST BROOKLYN, NY 112111008
EPA ID:	NYD080430606
Mailing address:	N 13TH ST BROOKLYN, NY 11211
Contact:	-
Contact address:	N 13TH ST BROOKLYN, NY 11211
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown

MANHATTAN POLY BAG CO (Continued) **1000239975**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: MANHATTAN POLY BAG CO
Classification: Not a generator, verified

Date form received by agency: 12/18/1980
Facility name: MANHATTAN POLY BAG CO
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 10/28/1988
Date achieved compliance: 01/26/1989
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/01/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 09/15/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 10/28/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 01/26/1989
Evaluation lead agency: State

Evaluation date: 03/12/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

87
WNW
1/8-1/4
765 ft.

LOT 30,TAXBLOCK 2287
2 NORTH 11 STREET
BROOKLYN, NY 11211

E DESIGNATION

S108469827
N/A

Relative:
Lower

Actual:
1 ft.

E DESIGNATION:

Tax Lot(s):	30
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	2001
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	10TH STREET LLC
Lot Area:	000201300
Total Building Floor Area:	00000036000
Commercial Floor Area:	00000036000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000036000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0215.00
Lot Depth:	0200.00
Building Frontage:	0180.00
Building Depth:	0200.00
Proximity Code:	0
Irregular Lot Code:	Y

LOT 30,TAXBLOCK 2287 (Continued) **S108469827**

Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000367650
Total Assessed Value:	00000954000
Land Exempt Value:	00000000000
Total Exempt Value:	00000586350
Year Built:	1999
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.18
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3022870030
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0994682
Y Coordinate:	0203337
Zoning Map:	12C
Sanborn Map:	304 003
Tax Map:	30804
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

K88 **LOT 5,TAXBLOCK 2309** **E DESIGNATION** **S108469847**
South **56 NORTH 9 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
786 ft.

Site 1 of 10 in cluster K

Relative:
Higher

Actual:
26 ft.

E DESIGNATION:

Tax Lot(s):	5
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2005
School District:	14
City Council District:	33
Fire Company:	L106

LOT 5,TAXBLOCK 2309 (Continued) **S108469847**

Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E1
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RONIT REALTY LLC
Lot Area:	000017000
Total Building Floor Area:	00000016625
Commercial Floor Area:	00000016625
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000016625
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0095.00
Lot Depth:	0175.00
Building Frontage:	0095.00
Building Depth:	0175.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000100350
Total Assessed Value:	00000253800
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1980
Year Built Code:	Not reported
Year Altered1:	1980
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.98
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023090005
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995229
Y Coordinate:	0201970
Zoning Map:	12C

LOT 5,TAXBLOCK 2309 (Continued) **S108469847**

Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

K89 **LOT 13,TAXBLOCK 2309** **E DESIGNATION** **S108469791**
South **62 NORTH 9 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
807 ft.

Site 2 of 10 in cluster K

Relative:
Higher

Actual:
27 ft.

E DESIGNATION:

Tax Lot(s):	13
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2005
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	YEUNG, CHO KOON
Lot Area:	000002500
Total Building Floor Area:	00000002500
Commercial Floor Area:	00000002500
Office Floor Area:	00000000000
Retail Floor Area:	00000000000

LOT 13,TAXBLOCK 2309 (Continued) **S108469791**

Garage Floor Area:	00000002500
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0025.00
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000016875
Total Assessed Value:	00000032670
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1950
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023090013
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995306
Y Coordinate:	0201905
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

L90
SSE
1/8-1/4
815 ft.

BAROUH EATON ALLEN CORP.
96 NORTH 10TH STREET
BROOKLYN, NY 11211

AST

A100293178
N/A

Site 1 of 3 in cluster L

Relative:
Higher

AST:

Actual:
28 ft.

AST:

Region:	STATE
Facility Id:	2-608339
UTM X:	587979.69220
UTM Y:	4508294.75803
Expiration Date:	02/21/08
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	BAROUH EATON ALLEN CORP.
Mailing Title:	Not reported
Mailing Contact:	KATHLEEN CICCHETTI
Mailing Address:	67 KENT AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 782-2601
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	67 KENT AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 782-2601
Owner Company:	BAROUH EATON ALLEN CORP.
Emergency Contact:	CHRISTOPHER MCGARRY
Emergency Phone:	(516) 997-4292
Operator:	RICARDO RODRIGO
Operator Phone:	(718) 782-2601
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

BAROUH EATON ALLEN CORP. (Continued) **A100293178**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

H91 **STANDARD WHITE METALS CORP** **UST** **U000394618**
ESE **121 N 12 ST** **HIST UST** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
828 ft.

Site 4 of 4 in cluster H

Relative: Higher

UST:

Actual: 19 ft.

UST:

Facility Id:	2-084751
Region:	STATE
Expiration Date:	03/24/92
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	STANDARD WHITE METALS CORP
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	121 N 12 ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 963-2200
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	121 N 12 ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 963-2200
Owner Company:	STANDARD WHITE METALS CORP
Emergency Contact:	PAT DE FALCO
Emergency Phone:	(516) 277-4586
Operator:	STANDARD WHITE METALS CORP
Operator Phone:	(718) 963-2200
Owner City:	BROOKLYN
Owner Sub Type:	Not reported

STANDARD WHITE METALS CORP (Continued) **U000394618**

UTM X:	588134.98495
UTM Y:	4508379.54699
Site Type Name:	Unknown
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	03/01/85
Capacity Gallons:	7500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-084751
SPDES Number:	Not reported
Emergency Contact:	PAT DE FALCO
Emergency Telephone:	(516) 277-4586
Operator:	STANDARD WHITE METALS CORP
Operator Telephone:	(718) 963-2200
Owner Name:	STANDARD WHITE METALS CORP
Owner Address:	121 N 12 ST
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 963-2200
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	STANDARD WHITE METALS CORP
Mailing Address:	121 N 12 ST

STANDARD WHITE METALS CORP (Continued) **U000394618**

Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	Not reported
Mailing Telephone:	(718) 963-2200
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	121 N 12 ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	03/24/1987
Expiration Date:	03/24/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	19850301
Capacity (gals):	7500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

M92
NW
1/8-1/4
852 ft.

Relative:
Lower

Actual:
1 ft.

TRANSGAS ENERGY SYSTEMS
1 NORTH 12TH STREET
BROOKLYN, NY 11211

Site 1 of 3 in cluster M

Database(s): RCRA-SQG, FINDS, CBS UST, MOSF UST, CBS AST, LTANKS, NY Spills, NY MANIFEST, MOSF AST, NY Hist Spills, CBS, MOSF, CT MANIFEST

EDR ID Number: 1000351174
EPA ID Number: NYD086231917

RCRA-SQG:

Date form received by agency:	01/01/2006
Facility name:	BAYSIDE FUEL OIL DEPOT CORP
Facility address:	1 N 12TH ST BROOKLYN, NY 11211
EPA ID:	NYD086231917
Mailing address:	SHORE PKWY BROOKLYN, NY 11214
Contact:	ANTHONY - NATALE
Contact address:	SHORE PKWY BROOKLYN, NY 11214
Contact country:	US
Contact telephone:	(718) 372-9800
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency: 12/18/1997

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Facility name: BAYSIDE FUEL OIL DEPOT CORP
Classification: Small Quantity Generator

Date form received by agency: 01/25/1994
Facility name: BAYSIDE FUEL OIL DEPOT CORP
Site name: TEXACO SALES TERMINAL
Classification: Large Quantity Generator

Date form received by agency: 03/17/1992
Facility name: BAYSIDE FUEL OIL DEPOT CORP
Site name: STAR ENTERPRISE
Classification: Large Quantity Generator

Date form received by agency: 11/19/1980
Facility name: BAYSIDE FUEL OIL DEPOT CORP
Classification: Large Quantity Generator

Date form received by agency: 11/19/1980
Facility name: BAYSIDE FUEL OIL DEPOT CORP
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 09/08/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 09/18/1984
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:
Other Pertinent Environmental Activity Identified at Site

Not reported

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions,

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

and settlements.

The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

PCS (Permit Compliance System) is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

CBS UST:

UST_CBS Number:	2-000222
Region:	STATE
ICS No:	Not reported
PBS No:	Not reported
MOSF No:	2-1240
Facility Tel:	(718) 388-1515
Town:	NEW YORK CITY
Operator:	NICHOLAS DEMARIA
Emergency Contact:	VINCENT ALEGRETTI
Emergency Contact Phone:	(718) 388-1515
Certification Date:	11/07/2001
Expiration Date:	02/08/2004
Owner Name:	BAYSIDE FUEL OIL DEPOT CORP.
Owner Address:	1776 SHORE PARKWAY
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Tele:	(718) 372-9800
Owner Type:	Corporate/Commercial
Total Tanks:	1
Facility Type:	RETAIL GASOLINE SALES
Mail To Name:	BAYSIDE FUEL OIL DEPOT CORP.
Mail To Contact:	VINCENT ALLEGRETTI
Mail To Address:	1776 SHORE PARKWAY
Mail To Address 2:	Not reported
Mail To City,St,Zip:	BROOKLYN, NY 11214
Facility Status:	NO LONGER A MAJOR FACILITY
Mail To Telephone:	(718) 372-9800
SPDES No:	0-006301
Owner Subtype:	Not reported

Tank Number:	013
Date Entered:	11/05/1997
Capacity:	1080
Chemical:	Xylene (mixed)

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Tank Closed:	11/97
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Install Date:	04/85
CAS No:	1330207
Substance:	More than one Hazardous Substance on DEC List
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Internal:	None
Pipe External:	None
Leak Detection:	Other
2nd Containmt:	Vault (w/access)
Overfill Protection:	Product Level Gauge
Haz Percent:	36
Pipe Containment:	None
Tank Error Status:	No Missing Data
Tank Secret:	False
Date Entered:	07:30:09
Last Test:	Not reported
Due Date:	Not reported
SWIS Code:	6101
Pipe Type:	STEEL/IRON
Cert Flag:	False
Is it There:	False
Is Updated:	False
Owners Mark:	Second Owner
Lat/Long:	40|43|29 / 73|57|37
Renew Date:	02/01/93
Deliquent:	False
Total Capacity:	8000
Date Expired:	05/14/95
Flag:	C
Case No:	Not reported
Federal Amt:	True
Pipe Flag:	False
Reserve Flag:	True

Tank Number:	012
Date Entered:	11/05/1997
Capacity:	1080
Chemical:	Xylene (mixed)
Tank Closed:	11/97
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Install Date:	04/85
CAS No:	1330207
Substance:	More than one Hazardous Substance on DEC List
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Internal:	None
Pipe External:	None
Leak Detection:	Other

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

2nd Containmt:	Vault (w/access)
Overfill Protection:	Product Level Gauge
Haz Percent:	36
Pipe Containment:	None
Tank Error Status:	No Missing Data
Tank Secret:	False
Date Entered:	07:30:00
Last Test:	Not reported
Due Date:	Not reported
SWIS Code:	6101
Pipe Type:	STEEL/IRON
Cert Flag:	False
Is it There:	False
Is Updated:	False
Owners Mark:	Second Owner
Lat/Long:	40|43|29 / 73|57|37
Renew Date:	02/01/93
Deliquent:	False
Total Capacity:	8000
Date Expired:	05/14/95
Flag:	C
Case No:	Not reported
Federal Amt:	True
Pipe Flag:	False
Reserve Flag:	True

MOSF UST:

Facility ID:	2-1240
SWIS Code:	61
Facility Town:	NEW YORK CITY
Contact Phone:	(718) 372-9800
Emerg Contact:	ALFRED ALLEGRETTI
Emergency Telephone:	(718) 372-9800
CBS Number:	-
SPDES Num:	-
Total Tanks:	13
Total Capacity:	5551798
Avg Throughput:	588000
License Stat:	1
Facility Status:	ACTIVE FACILITY
Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Prod Xfer Options:	AD
Expiration Date:	03/31/2002
Applic Rcvd:	10/07/1997
Operator:	ALFRED ALLEGRETTI
Owner Name:	BAYSIDE FUEL OIL DEPOT CORP.
Owner Address:	1776 SHORE PARKWAY
Owner City,St,Zip:	BROOKLYN, NY 11214-
Owner Telephone:	(718) 372-9800
Owner Type:	Corporate/Commercial
Owner Status:	1
Owner Mark:	Third Owner
Mail To Name:	BAYSIDE FUEL OIL DEPOT CORP.
Mail To Address:	1776 SHORE PARKWAY
Mail To Address 2:	PO BOX 140128
Mail City,St,Zip:	BROOKLYN, NY 11214-0002
Mail To Contact:	ALFRED ALLEGRETTI

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Mail To Telephone:	(718) 372-9800
Legal Agent Name:	ALFRED ALLEGRETTI
Legal Agent Address:	1776 SHORE PARKWAY
Legal Agent City,St,Zip:	BROOKLYN, NY 11214-
Date Filed:	03/65
Tank ID:	012
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Install Date:	04/85
Capacity (Gal):	1080
Product:	UNKNOWN
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Contain:	Diking
Leak Detection:	Other
Overfill Protection:	Product Level Gauge
Dispenser:	Suction
Test Date:	12/93
Date Closed:	Not reported
Latitude:	40|43|29
Longitude:	73|57|37
Status of Data:	Minor Errors
Inspected Date:	09/29/1997
Inspector Initials:	AS
Inspector Status:	Not reported
Pipe Flag:	True
License Issued:	11/01/1997
Vessel Id:	Not reported
Renew Flag:	True
Renew Date:	10/31/2001
Federal Id No:	Not reported
COI Date:	/ /

Tank ID:	013
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Install Date:	04/85
Capacity (Gal):	1080
Product:	UNKNOWN
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Contain:	Diking
Leak Detection:	Other
Overfill Protection:	Product Level Gauge
Dispenser:	Suction

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Test Date: 12/93
Date Closed: Not reported
Latitude: 40|43|29
Longitude: 73|57|37
Status of Data: Minor Errors
Inspected Date: 09/29/1997
Inspector Initials: AS
Inspector Status: Not reported
Pipe Flag: True
License Issued: 11/01/1997
Vessel Id: Not reported
Renew Flag: True
Renew Date: 10/31/2001
Federal Id No: Not reported
COI Date: / /

MOSF:
Facility ID: 2-1240
Program Type: MOSF
Dec Region: 2
Expiration Date: 2009/03/31
Tank Status: Active
UTMX: 587800.4326
UTMY: 4508705.2693

CBS AST:
CBS Number: 2-000222
Region: STATE
ICS Number: Not reported
PBS Number: Not reported
MOSF Number: 2-1240
Telephone: (718) 388-1515
Facility Town: NEW YORK CITY
Operator: NICHOLAS DEMARIA
Emrgncy Contact: VINCENT ALEGRETTI
Emrgncy Phone: (718) 388-1515
Expiration Date: 02/08/2004
Owner Name: BAYSIDE FUEL OIL DEPOT CORP.
Owner Address: 1776 SHORE PARKWAY
Owner City,St,Zip: BROOKLYN, NY 11211
Owner Telephone: (718) 372-9800
Owner type: Corporate/Commercial
Facility Type: RETAIL GASOLINE SALES
Mail Name: BAYSIDE FUEL OIL DEPOT CORP.
Mail Contact Addr: 1776 SHORE PARKWAY
Mail Contact Addr2: Not reported
Mail Contact Contact: VINCENT ALLEGRETTI
Mail Contact City,St,Zip: BROOKLYN, NY 11214
Mail Phone: (718) 372-9800
SPDES Number: 0-006301
Facility Status: ACTIVE FACILITY
Owner Sub Type: Not reported

Tank Id: 11
Date Entered: 05/14/1991
Capacity (Gal): 8000

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Chemical:	Toluene
Tank Closed:	Not reported
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Install Date:	11/89
Certified Date:	11/07/2001
CAS Number:	108883
Substance:	Single Hazardous Substance on DEC List
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Intrnl Protection:	None
Extrnl Protection:	Painted/Asphalt Coating
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	1
Pipe Containment:	Diking
Tank Containment:	Diking
Leak Detection:	Other
Overfill Protection:	High Level Alarm
Haz Percent:	100
Total Tanks:	1
Tank Secret:	False
Last Test:	Not reported
Due Date:	Not reported
Tank Error Status:	No Missing Data
SWIS Code:	6101
Lat/Long:	40|43|29 / 73|57|37
Pipe Flag:	False
Federal ID:	Not reported
Is Updated:	F
Renew Date:	02/01/93
Is it There:	F
Deliquent:	F
Date Expired:	05/14/95
Owner Mark:	2
Certificate Needs to be Printed:	False
Fiscal Amt for Registration Fee Correct:	True
Renewal Has Been Printed for Facility:	True
Pre-Printed Renewal App Last Printed:	10/30/2001
Total Capacity of All Active Tanks(gal):	8000

Tank Id:	12
Date Entered:	05/14/1991
Capacity (Gal):	10000
Chemical:	Toluene
Tank Closed:	00/00
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Install Date:	01/91
Certified Date:	11/07/2001
CAS Number:	108883
Substance:	Single Hazardous Substance on DEC List
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Intrnl Protection:	None
Extrnl Protection:	Painted/Asphalt Coating
Pipe Location:	Aboveground

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	1
Pipe Containment:	Diking
Tank Containment:	Diking
Leak Detection:	Other
Overfill Protection:	High Level Alarm
Haz Percent:	100
Total Tanks:	1
Tank Secret:	False
Last Test:	Not reported
Due Date:	Not reported
Tank Error Status:	No Missing Data
SWIS Code:	6101
Lat/Long:	40|43|29 / 73|57|37
Pipe Flag:	False
Federal ID:	Not reported
Is Updated:	F
Renew Date:	02/01/93
Is it There:	F
Deliquent:	F
Date Expired:	05/14/95
Owner Mark:	2
Certificate Needs to be Printed:	False
Fiscal Amt for Registration Fee Correct:	True
Renewal Has Been Printed for Facility:	True
Pre-Printed Renewal App Last Printed:	10/30/2001
Total Capacity of All Active Tanks(gal):	8000

LTANKS:

Site ID:	336794
Spill Date:	01/28/05
Facility Addr2:	Not reported
Facility ID:	0411570
Program Number:	0411570
SWIS:	2401
Region of Spill:	2
Investigator:	qxabidi
Referred To:	Not reported
Reported to Dept:	01/28/05
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/22/06
Remediation Phase:	0
Date Entered In Computer:	01/28/05
Spill Record Last Update:	09/28/06
Spille Namer:	PAT

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Spiller Company:	CLASSIC FUEL
Spiller Phone:	(718) 384-3712
Spiller Extention:	Not reported
Spiller Address:	150 BANKER STREET
Spiller City,St,Zip:	BROOKLYN, NY 11222
Spiller County:	001
Spiller Contact:	SCOTT VITELLO
Spiller Phone:	(718) 372-9800
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0411570
DER Facility ID:	272130
Site ID:	336794
Operable Unit ID:	1098795
Operable Unit:	01
Material ID:	578974
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	10.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0411570 Tipple was at the site at 6:40 AM and discovered the spill. Detailed work outline was discussed with Bayside and Classic Fuel to clean up both the yard area and the street. 08/10/06: This spill is transferred from Mr. Koon Tang to Q.Abidi. Called Pat at (718)372-9800 and talked to Ms. Dana regarding status of the spill. She said that when Mr. Pat will come she will find about it and she will convey my message to Pat. Mr. Pat will call me back. -QA 09/22/06: OnSeptember 21, received a closing confirmation letter from Mr. Albert Cirino (Model Petroleum Transportation INC.). According to Mr.Cirino the spill was on concrete. No water and no land were contaminted by the spill. the spill is cleaned. Also talkto Bayside Terminal manager Mr. Sergio, He said they clean their yard. Also talk to Mr. John (718)388-1515 he said yard is asphaltand asphalt is sealed, it is not open dirt. John spoke on phone that they picked up each & every pocket of the product.so according to letter of Albert Cirino and Conversation with John and Terminal Manager Sergio DEC Staff closed the spill. -QA END DECRemark - 0411570
Remarks:	Start CallerRemark - 0411570 OVER FILLED WHILE FILING UP A TANK: CLEANED UP: END CallerRemark - 0411570

NY Spills:

Site ID:	77439
Facility Addr2:	Not reported
Facility ID:	0203677

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Spill Number:	0203677
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SIGONA
Referred To:	Not reported
Spill Date:	07/08/02
Reported to Dept:	07/08/02
CID:	14
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Major Facility > 400,000 gal
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/20/03
Remediation Phase:	0
Date Entered In Computer:	07/08/02
Spill Record Last Update:	05/20/03
Spiller Name:	W.D. HOWARD
Spiller Company:	CHEVRON PRODUCTS COMPANY
Spiller Address:	2300 WINDY RIDGE PARKWAY
Spiller City,St,Zip:	ATLANTA, GA
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0203677
DER Facility ID:	272130
Site ID:	77439
Operable Unit ID:	856570
Operable Unit:	01
Material ID:	560196
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	77439
Operable Unit ID:	856570
Operable Unit:	01
Material ID:	560197
Material Code:	0159A
Material Name:	COAL TAR PITCH VOLATILES
Case No.:	08007452
Material FA:	Hazardous Material
Quantity:	0.00

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	77439
Operable Unit ID:	856570
Operable Unit:	01
Material ID:	560198
Material Code:	0180A
Material Name:	CREOSOTE
Case No.:	08001589
Material FA:	Hazardous Material
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0203677 While drilling at location an odor of petroleum was noticed END CallerRemark - 0203677
Remarks:	Not reported

Site ID:	77440
Facility Addr2:	Not reported
Facility ID:	0211984
Spill Number:	0211984
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SIGONA
Referred To:	Not reported
Spill Date:	03/05/03
Reported to Dept:	03/05/03
CID:	14
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Major Facility > 400,000 gal
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates a file or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	07/11/03
Remediation Phase:	0
Date Entered In Computer:	03/05/03
Spill Record Last Update:	12/04/03
Spiller Name:	W.D. HOWARD
Spiller Company:	CHEVRON PRODUCTS COMPANY
Spiller Address:	2300 WINDY RIDGE PARKWAY
Spiller City,St,Zip:	ATLANTA, GA 30339-
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Program Number: 0211984
DER Facility ID: 272130
Site ID: 77440
Operable Unit ID: 863007
Operable Unit: 01
Material ID: 511760
Material Code: 0159A
Material Name: COAL TAR PITCH VOLATILES
Case No.: 08007452
Material FA: Hazardous Material
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Air
Oxygenate: False
Site ID: 77440
Operable Unit ID: 863007
Operable Unit: 01
Material ID: 511759
Material Code: 0009
Material Name: Gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Air
Oxygenate: False
DEC Memo: Start CallerRemark - 0211984 Caller stated company is digging and dirt smells of oil. END CallerRemark - 0211984
Remarks: Not reported

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY MANIFEST:
Document ID: NJA0388649
Manifest Status: Completed copy
Trans1 State ID: NJDEPS103
Trans2 State ID: Not reported
Generator Ship Date: 871221
Trans1 Recv Date: 871221
Trans2 Recv Date: Not reported
TSD Site Recv Date: 871221
Part A Recv Date: 880115
Part B Recv Date: 880105
Generator EPA ID: NYD086231917
Trans1 EPA ID: NJD000813477
Trans2 EPA ID: Not reported
TSDF ID: NJD080631369
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 04000
Units: P - Pounds
Number of Containers: 010
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 100

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA1471562
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS699
Trans2 State ID:	Not reported
Generator Ship Date:	920423
Trans1 Recv Date:	920423
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920423
Part A Recv Date:	920430
Part B Recv Date:	920602
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002385730
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	11320
Units:	P - Pounds
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NJA0247712
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS103
Trans2 State ID:	Not reported
Generator Ship Date:	870206
Trans1 Recv Date:	870206
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870206
Part A Recv Date:	870212
Part B Recv Date:	870305
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD000813477
Trans2 EPA ID:	Not reported
TSDF ID:	NJD080631369
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	02000
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NJA1471585
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS699
Trans2 State ID:	NJDEPS699
Generator Ship Date:	920512
Trans1 Recv Date:	920512
Trans2 Recv Date:	920512
TSD Site Recv Date:	920512
Part A Recv Date:	Not reported
Part B Recv Date:	920609
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	NJD980772768
TSDF ID:	NJD002385730
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	19480
Units:	P - Pounds
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA1510514
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS699
Trans2 State ID:	Not reported
Generator Ship Date:	921002
Trans1 Recv Date:	921002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921002
Part A Recv Date:	Not reported
Part B Recv Date:	921020
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002385730
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	09220
Units:	P - Pounds
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA1510517
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS699
Trans2 State ID:	Not reported
Generator Ship Date:	921002
Trans1 Recv Date:	921002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921002
Part A Recv Date:	Not reported
Part B Recv Date:	921019
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	008
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA1510482
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS699
Trans2 State ID:	Not reported
Generator Ship Date:	920917
Trans1 Recv Date:	920917
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920917
Part A Recv Date:	Not reported
Part B Recv Date:	920930
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002385730
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	03440
Units:	P - Pounds
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Document ID:	CTF0402208
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	970828
Trans1 Recv Date:	970828
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970828
Part A Recv Date:	Not reported
Part B Recv Date:	970916
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	CTD021816889
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NJA1541033
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS699
Trans2 State ID:	Not reported
Generator Ship Date:	930209

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Trans1 Recv Date:	930209
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930209
Part A Recv Date:	Not reported
Part B Recv Date:	930223
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA0480036
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-10
Trans2 State ID:	Not reported
Generator Ship Date:	881101
Trans1 Recv Date:	881101
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881101
Part A Recv Date:	881116
Part B Recv Date:	881121

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD000813477
Trans2 EPA ID:	Not reported
TSDF ID:	NJD080631369
Waste Code:	F005 - UNKNOWN
Quantity:	04400
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	04400
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA1607157
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS699
Trans2 State ID:	Not reported
Generator Ship Date:	931229
Trans1 Recv Date:	931229
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	931230

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Part A Recv Date:	940107
Part B Recv Date:	940113
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA2017621
Manifest Status:	Completed copy
Trans1 State ID:	S6993
Trans2 State ID:	Not reported
Generator Ship Date:	941027
Trans1 Recv Date:	941027
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	941027
Part A Recv Date:	Not reported
Part B Recv Date:	941108
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

TSDF ID:	NJD002385730
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	02440
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA1895608
Manifest Status:	Completed copy
Trans1 State ID:	S6993
Trans2 State ID:	Not reported
Generator Ship Date:	941004
Trans1 Recv Date:	941004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	941004
Part A Recv Date:	Not reported
Part B Recv Date:	941017
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002385730
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	02373
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NYB5445558
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	JA197
Trans2 State ID:	Not reported
Generator Ship Date:	941030
Trans1 Recv Date:	941230
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950105
Part A Recv Date:	950111
Part B Recv Date:	950130
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	KYD088438817
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00250

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00100
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NJA0826405
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	000000000
Trans2 State ID:	000000000
Generator Ship Date:	900402
Trans1 Recv Date:	900402
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	900402
Part A Recv Date:	900618
Part B Recv Date:	900411
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD991291584
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	01200
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NYO1539468
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	821203
Trans1 Recv Date:	821203
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	821203
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	U228 - TRICHLOROETHENE
Quantity:	00672
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	014
Container Type:	DM - Metal drums, barrels

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NYO1539693
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NY28040
Trans2 State ID:	Not reported
Generator Ship Date:	820205
Trans1 Recv Date:	820205
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	820209
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NYD089806012
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	06000
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277
Document ID:	NYB5445576
Manifest Status:	Completed copy
Trans1 State ID:	JA197
Trans2 State ID:	Not reported
Generator Ship Date:	950710
Trans1 Recv Date:	950710
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950712
Part A Recv Date:	950717
Part B Recv Date:	950727
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	KYD088438817
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00300
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NYO2058282
Manifest Status:	Completed copy
Trans1 State ID:	NY2A029
Trans2 State ID:	Not reported
Generator Ship Date:	821210
Trans1 Recv Date:	821210
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	821210
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	F001 - UNKNOWN
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	Not reported
Specific Gravity:	100
Year:	82
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Document ID:	NYB5445756
Manifest Status:	Completed copy
Trans1 State ID:	JA197XVTB
Trans2 State ID:	Not reported
Generator Ship Date:	951106
Trans1 Recv Date:	951106
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	951107
Part A Recv Date:	951117
Part B Recv Date:	951130
Generator EPA ID:	NYD086231917
Trans1 EPA ID:	NJD980772768
Trans2 EPA ID:	Not reported
TSDF ID:	KYD981477821
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00040
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00075
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD086231917
Facility Name:	STAR ENTERPRISE
Facility Address:	1 NORTH 12TH ST-G OCONNER
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STAR ENTERPRISE
Mailing Contact:	JOHN F LOVE
Mailing Address:	333 RESEARCH CT
Mailing Address 2:	Not reported
Mailing City:	NORCROSS
Mailing State:	GA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	908-862-2277

Click this hyperlink while viewing on your computer to access
12 additional NY_MANIFEST: record(s) in the EDR Site Report.

MOSF AST:

MOSF Number:	2-1240
SWIS Code:	61
Facility Town:	NEW YORK CITY
Facility Phone:	(718) 372-9800
Emergency Contact Name:	ALFRED ALLEGRETTI
Emergency Contact Phone:	(718) 372-9800
Total Tanks:	13
Total Capacity:	5551798
Daily Throughput:	588000
License Status:	MOSF AST
Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Product Transfer Operation:	AD
Facility Status:	ACTIVE FACILITY
Operator Name:	ALFRED ALLEGRETTI
Owner Name:	BAYSIDE FUEL OIL DEPOT CORP.
Owner Address:	1776 SHORE PARKWAY
Owner City,St,Zip:	BROOKLYN, NY 11214-
Owner Phone:	(718) 372-9800
Owner Type:	Corporate/Commercial
Owner Status:	1
Owner Mark:	Third Owner
Mailing Name:	BAYSIDE FUEL OIL DEPOT CORP.
Mailing Address:	1776 SHORE PARKWAY
Mailing Address 2:	PO BOX 140128
Mailing City,St,Zip:	BROOKLYN, NY 11214-0002
Mailing Contact:	ALFRED ALLEGRETTI
Mailing Phone:	(718) 372-9800
Legal Agent Name:	ALFRED ALLEGRETTI
Legal Agent Address:	1776 SHORE PARKWAY
Legal Agent City,St,Zip:	BROOKLYN, NY 11214-
LIC Expires:	03/31/2002

Tank ID:	04

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	UNLEADED GASOLINE
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Contain:	8
Leak Detection:	Groundwater Well
Overfill Protection:	High Level Alarm
Dispensing Mthd:	Suction
Test Date:	07/92
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	491988
Lat/Long:	40|43|29 / 73|57|37
Federal ID:	Not reported
Inspected Date:	09/29/1997
Inspector:	AS
Renew Date:	10/31/2001
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	In Service
COI Date:	/ /
Date License Issued:	11/01/1997
Date License Application Received:	10/07/1997
Chemical Bulk Storage Number:	-
Pollution Discharge Elimination System Num:	-
Date Legal Agent Filed with Secretary of State:	03/65

Tank ID:	05
Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	UNLEADED GASOLINE
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Contain:	8
Leak Detection:	Groundwater Well
Overfill Protection:	High Level Alarm
Dispensing Mthd:	Suction
Test Date:	08/92
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	171486

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Lat/Long:	40|43|29 / 73|57|37
Federal ID:	Not reported
Inspected Date:	09/29/1997
Inspector:	AS
Renew Date:	10/31/2001
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	In Service
COI Date:	/ /
Date License Issued:	11/01/1997
Date License Application Received:	10/07/1997
Chemical Bulk Storage Number:	-
Pollution Discharge Elimination System Num:	-
Date Legal Agent Filed with Secretary of State:	03/65

Tank ID:	06
Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	NOS 1,2, OR 4 FUEL OIL
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Contain:	8
Leak Detection:	Groundwater Well
Overfill Protection:	High Level Alarm
Dispensing Mthd:	Suction
Test Date:	05/92
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	1013922
Lat/Long:	40|43|29 / 73|57|37
Federal ID:	Not reported
Inspected Date:	09/29/1997
Inspector:	AS
Renew Date:	10/31/2001
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	In Service
COI Date:	/ /
Date License Issued:	11/01/1997
Date License Application Received:	10/07/1997
Chemical Bulk Storage Number:	-
Pollution Discharge Elimination System Num:	-
Date Legal Agent Filed with Secretary of State:	03/65

Tank ID:	07

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	DIESEL
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Contain:	8
Leak Detection:	Groundwater Well
Overfill Protection:	High Level Alarm
Dispensing Mthd:	Suction
Test Date:	08/92
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	731682
Lat/Long:	40|43|29 / 73|57|37
Federal ID:	Not reported
Inspected Date:	09/29/1997
Inspector:	AS
Renew Date:	10/31/2001
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	In Service
COI Date:	/ /
Date License Issued:	11/01/1997
Date License Application Received:	10/07/1997
Chemical Bulk Storage Number:	-
Pollution Discharge Elimination System Num:	-
Date Legal Agent Filed with Secretary of State:	03/65

Tank ID:	08
Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	DIESEL
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Contain:	8
Leak Detection:	Groundwater Well
Overfill Protection:	High Level Alarm
Dispensing Mthd:	Suction
Test Date:	10/93
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	210630

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Lat/Long:	40|43|29 / 73|57|37
Federal ID:	Not reported
Inspected Date:	09/29/1997
Inspector:	AS
Renew Date:	10/31/2001
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	In Service
COI Date:	/ /
Date License Issued:	11/01/1997
Date License Application Received:	10/07/1997
Chemical Bulk Storage Number:	-
Pollution Discharge Elimination System Num:	-
Date Legal Agent Filed with Secretary of State:	03/65

Click this hyperlink while viewing on your computer to access
8 additional NY_AST_MOS: record(s) in the EDR Site Report.

NY Hist Spills:

Region of Spill:	2
Spill Number:	9804544
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/23/1996 12:00
Reported to Dept Date/Time:	07/10/98 15:25
SWIS:	61
Spiller Name:	STAR ENTERPRISE
Spiller Contact:	JENNIFER BOTHWELL
Spiller Phone:	(860) 586-5851
Spiller Contact:	JENNIFER BOTHWELL
Spiller Phone:	(860) 586-5851
Spiller Address:	211 RIVER SIDE DR
Spiller City,St,Zip:	EAST HARTFORD, CT 06128-
Spill Cause:	Unknown
Reported to Dept:	Groundwater
Water Affected:	Not reported
Spill Source:	03
Spill Notifier:	DEC
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 07/10/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 07/17/98
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: On July 16, 1998, DEC SIGONA RECEIVED PROPOSED site investigation plan. Letter sent to STar Enterprise on 7/17/98 approving plan. Stipulation Agreement sent to Star for signature on 7/10/98.
Remark: ground water monitoring revealed the presents of petroleum ingroundwater star enterprise is developing a remediation plan with dec sigona).

CBS:
CBS Number: 2-000222
Program Type: CBS
Dec Region: 2
Expiration Date: N/A
UTMX: 0.0000
UTMY: 0.0000

MOSF:
Facility ID: 2-1240
Program Type: MOSF
Dec Region: 2
Expiration Date: 2009/03/31
Tank Status: Active
UTMX: 587800.4326
UTMY: 4508705.2693

CT MANIFEST:
Manifest No: Not reported
Waste Occurence: Not reported
UNNA: Not reported
Hazard Class: Not reported
US Dot Description: Not reported
No of Containers: Not reported
Container Type: Not reported
Quantity: Not reported
Weight/Volume: Not reported

TRANSGAS ENERGY SYSTEMS (Continued) **1000351174**

Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1997
Manifest ID:	CTF0402208
TSDF EPA ID:	CTD021816889
TSDF Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
TSDF Address:	136 GRACEY AVE.
TSDF City,St,Zip:	MERIDEN, CT 06451
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	/ /
Transporter EPA ID:	NJD980772768
Transporter Name:	AUCHTER INDUSTRIAL VACUUM SERVICE, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD086231917
Gererator Phone:	7183729800
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	Not reported
Date Shipped:	08/28/97
Date Received:	/ /
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported

M93 **TRANSGAS ENERGY SYSTEMS LLC** **FINDS** **1005905710**
NW **1 N 12TH ST - SUB YARD** **NY MANIFEST** **NYR000107953**
1/8-1/4 **BROOKLYN, NY 11211** **RCRA-NonGen**
852 ft.

Site 2 of 3 in cluster M

Relative:
Lower

Actual:
1 ft.

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

TRANSGAS ENERGY SYSTEMS LLC (Continued) **1005905710**

NY MANIFEST:

Document ID:	MIA8498090
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	08/06/2002
Trans1 Recv Date:	08/06/2002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/16/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000107953
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	0448290ME
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	04500
Units:	P - Pounds
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	02
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000107953
Facility Name:	TRANS GAS ENERGY SYSTEMS
Facility Address:	630 FIRST AVE STE 30-G
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	TRANS GAS ENERGY SYSTEMS
Mailing Contact:	JAMES KELLOGG
Mailing Address:	630 FIRST AVE STE 30-G
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	201-933-5541

Document ID:	MIA8498104
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported

TRANSGAS ENERGY SYSTEMS LLC (Continued) **1005905710**

Generator Ship Date:	08/23/2002
Trans1 Recv Date:	08/23/2002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	09/05/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000107953
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	0438601ME
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	03600
Units:	P - Pounds
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	02
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000107953
Facility Name:	TRANS GAS ENERGY SYSTEMS
Facility Address:	630 FIRST AVE STE 30-G
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	TRANS GAS ENERGY SYSTEMS
Mailing Contact:	JAMES KELLOGG
Mailing Address:	630 FIRST AVE STE 30-G
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	201-933-5541
Document ID:	MIA8498117
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	10/22/2002
Trans1 Recv Date:	10/22/2002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/23/2002
Part A Recv Date:	Not reported

TRANSGAS ENERGY SYSTEMS LLC (Continued) **1005905710**

Part B Recv Date:	Not reported
Generator EPA ID:	NYR000107953
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	UPW019671
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00500
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	02
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000107953
Facility Name:	TRANS GAS ENERGY SYSTEMS
Facility Address:	630 FIRST AVE STE 30-G
Facility City:	NEW YORK
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	TRANS GAS ENERGY SYSTEMS
Mailing Contact:	JAMES KELLOGG
Mailing Address:	630 FIRST AVE STE 30-G
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	201-933-5541

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	TRANSGAS ENERGY SYSTEMS LLC
Facility address:	1 N 12TH ST - SUB YARD BROOKLYN, NY 11211
EPA ID:	NYR000107953
Mailing address:	1ST AVE SUITE 30C NEW YORK, NY 10016
Contact:	ADAM - VICTOR
Contact address:	1ST AVE SUITE 30C NEW YORK, NY 10016
Contact country:	US
Contact telephone:	(212) 725-0427
Contact email:	Not reported

TRANSGAS ENERGY SYSTEMS LLC (Continued) **1005905710**

EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: BAYSIDE FUEL OIL DEPOT CORP
Owner/operator address: 1776 SHORE PKWY
BROOKLYN, NY 11214
Owner/operator country: Not reported
Owner/operator telephone: (718) 372-9800
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/11/2002
Facility name: TRANSGAS ENERGY SYSTEMS LLC
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Violation Status: No violations found

M94 **BAYSIDE OIL** **VCP** **S105775540**
NW **1-65 NORTH 12TH STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
852 ft.

Site 3 of 3 in cluster M

Relative:
Lower

Actual:
1 ft.

VCP:

Program Type: VCP
Site Code: 57122
Assessment: Not reported
Env Problems: Previous studies at the Site confirm widespread petroleum contamination with MGP involvement. For example, fuel oil and naphthalene odors are reported in boring logs as deep as 60 feet, and in July 2002 TRC Environmental (TGE's consultant) found heavy staining and MGP waste in a boring 20 feet below grade and reported the occurrence to NYSDEC as a spill (No. 0203677). In addition to organic pollutants, a 1997 investigation also found soil samples with elevated levels of lead. The Phase IIassessment was completed in January 2003 and confirmed widespread groundwater and soil contamination with MGP waste and petroleum related contaminants. Heavy staining and odors (coal tar) observed from 20 feet depths to top of clay at 60 feet depths. VOCs and PAH exceed RSCOs below 20 feet depth. Benzene concentrations below 20 feet depth observed up to 864,000 ppb. Off-site benzene detected upto 128,000 ppb. Free product observed (wells B4, MW7). On-site groundwater impacted from water table to top of clay by petroleum and coal tar related compounds. Benzene detected throughout the site at concentrations of 6.5 ppb to 29,500 ppb (in MWB-11). MTBE ranged from 1.2 to 329 ppb and naphthalene ranged from 1.6 to 579 ppb.
Site Desc: The TransGas Energy (TGE) Facility is a project for a new energy facility located on the East River waterfront between the Greenpoint and Williamsburg sections of Brooklyn. TGE proposed to construct and operate an 1100-megawatt gas-fired plant on the Brooklyn waterfront near Bushwick Inlet between the communities of Greenpoint and Williamsburg. For over 100 years, the Site has been operated as a fuel oil storage and distribution facility. Site soils and groundwater are contaminated with Petroleum spill contaminants, MGP Waste and heavy metal contamination. TGE entered the Department's Voluntary Cleanup Program (VCP) in December 2002. The site must be remediated before the facility can be constructed. The current owner of the Site, which TGE has optioned for its cogeneration facility, is the Bayside Fuel Oil Depot. Under Bayside Fuel and previous owners (which include Socony Mobil, Texaco Refining and Marketing and others), the Site has been operated as a fuel oil storage and distribution facility for over 100 years. There is an existing oil spill stipulation (Spill No. 9804544) with Texaco Refining and Marketing that has resulted in ongoing recovery of free-product and contaminated-groundwater. The Phase II assessment was completed in January 2003 and confirmed widespread groundwater and soil contamination with MGP waste and petroleum related contaminants. RI is on-going.

N95 **WYTHE AVE. (BERRY ST.) STATION** **Manufactured Gas Plants** **1008407903**
ESE **WYTHE AVE., BERRY ST., N 12TH AND 13TH ST** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
855 ft.

Site 1 of 2 in cluster N

Relative:
Higher

Actual:
17 ft.

N96
ESE
1/8-1/4
855 ft.

JOSEPH J SARCONA TRUCKING CO
124 NORTH 12TH STREET
BROOKLYN, NY 11211

UST
HIST UST

U000394949
N/A

Site 2 of 2 in cluster N

Relative:
Higher

UST:

Actual:
19 ft.

UST:

Facility Id:	2-109088
Region:	STATE
Expiration Date:	03/24/97
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	ROBERT SHARON P.C.
Mailing Title:	Not reported
Mailing Contact:	ROBERT SHARON P.C.
Mailing Address:	8 WEST 38 STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10018
Mailing Phone No:	(212) 764-4040
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	8 WEST 38 STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10018
Owner Phone:	(212) 764-4040
Owner Company:	ROBERT SHARON P.C.
Emergency Contact:	ROBERT SHARON
Emergency Phone:	(212) 764-4040
Operator:	JOSEPH J SARCONA TRUCKING CO
Operator Phone:	(718) 782-9576
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	588141.14260
UTM Y:	4508374.93501
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None

JOSEPH J SARCONA TRUCKING CO (Continued) **U000394949**

Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/94

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/94

JOSEPH J SARCONA TRUCKING CO (Continued) **U000394949**

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/94

HIST UST:

PBS Number:	2-109088
SPDES Number:	Not reported
Emergency Contact:	ROBERT SHARON
Emergency Telephone:	(212) 764-4040
Operator:	JOSEPH J SARCONA TRUCKING CO
Operator Telephone:	(718) 782-9576
Owner Name:	ROBERT SHARON P.C.
Owner Address:	8 WEST 38 STREET
Owner City,St,Zip:	NEW YORK, NY 10018
Owner Telephone:	(212) 764-4040
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	ROBERT SHARON P.C.
Mailing Address:	8 WEST 38 STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10018
Mailing Contact:	ROBERT SHARON P.C.
Mailing Telephone:	(212) 764-4040
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	Not reported

JOSEPH J SARCONA TRUCKING CO (Continued) **U000394949**

SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	TRUCKING/TRANSPORTATION
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	Not reported
Expiration Date:	03/24/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/1994
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE

JOSEPH J SARCONA TRUCKING CO (Continued) **U000394949**

Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/1994
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/1994
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

O97 **LOT 14,TAXBLOCK 2296** **E DESIGNATION** **S108076270**
SE **100 NORTH 11 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
858 ft.

Site 1 of 6 in cluster O

Relative:
Higher

Actual:
25 ft.

E DESIGNATION:

Tax Lot(s):	14
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported

LOT 14,TAXBLOCK 2296 (Continued) **S108076270**

Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	1003
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	100 118 NORTH 11TH ST
Lot Area:	000045000
Total Building Floor Area:	00000131000
Commercial Floor Area:	00000131000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000131000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00004
Number of Floors:	005.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0200.00
Lot Depth:	0225.00
Building Frontage:	0052.00
Building Depth:	0118.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000224100
Total Assessed Value:	00001440000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1910
Year Built Code:	E

LOT 14,TAXBLOCK 2296 (Continued) **S108076270**

Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	HECLA IRON WORKS BUILDING
Built Floor Area Ratio-Far:	0002.91
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3022960014
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0996075
Y Coordinate:	0201888
Zoning Map:	12C
Sanborn Map:	304 014
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

98
East
1/8-1/4
868 ft.

168 NORTH 14TH STREET **UST U004045085**
168 NORTH 14TH STREET **N/A**
BROOKLYN, NY 11211

Relative:
Higher

Actual:
11 ft.

UST:

UST:

Facility Id:	2-609624
Region:	STATE
Expiration Date:	06/28/09
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	JAY WEITZMAN
Mailing Title:	PRESIDENT
Mailing Contact:	JAY WEITZMAN
Mailing Address:	87 KENT AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 963-2200
Mailing Email:	Not reported
Owner Title:	PRESIDENT
Owner Name:	JAY WEITZMAN
Owner Address:	87 KENT AVENUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 963-2200
Owner Company:	JAY WEITZMAN

168 NORTH 14TH STREET (Continued) **U004045085**

Emergency Contact:	JAY WEITZMAN
Emergency Phone:	(718) 963-2200
Operator:	JAY WEITZMAN
Operator Phone:	(718) 963-2200
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588147.86466
UTM Y:	4508565.31850
Site Type Name:	Other Wholesale/Retail Sales
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	01
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	Not reported
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	None
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/18/04

K99
South
1/8-1/4
874 ft.

Relative:
Higher

Actual:
30 ft.

MANHOLE# 25
9TH ST/WYTHE AVE
BROOKLYN, NY

Site 3 of 10 in cluster K

NY Spills

S106698669
N/A

NY Spills:

Site ID:	138765
Facility Addr2:	Not reported
Facility ID:	0405774
Spill Number:	0405774
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	08/26/04
Reported to Dept:	08/26/04
CID:	406
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/23/06
Remediation Phase:	0
Date Entered In Computer:	08/26/04
Spill Record Last Update:	10/23/06
Spiller Name:	ERT DESK
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	999
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0405774
DER Facility ID:	118637
Site ID:	138765
Operable Unit ID:	888530
Operable Unit:	01
Material ID:	486611
Material Code:	0748A
Material Name:	CABLE OIL
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	138765

MANHOLE# 25 (Continued) **S106698669**

Operable Unit ID: 888530
Operable Unit: 01
Material ID: 486610
Material Code: 0748A
Material Name: CABLE OIL
Case No.: Not reported
Material FA: Petroleum
Quantity: 0.00
Units: Not reported
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0405774 One quart of material spilled. Defective joint on a cable in the manhole. No clean up yet. ConEd#155080 No to all the five Questions. END CallerRemark - 0405774
Remarks: Start DECRemark - 0405774 10/23/06 - See e-docs for Con Ed report detailing cleanup and closure. Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" e2mis no. 155080: APPROX 1 QT OF DIELECTRIC FLUID THAT LEAKED FROM AFDR CABLE (# UNKNOWN) ONTO THE CEMENT FLOOR OF MH25. SPILL IS CONTAINED. CLEANUP PENDING LAB RESULT, THE FDR COMING OFF AND THE D FAULT CORRECTED. END DECRemark - 0405774

K100 **LOT 17,TAXBLOCK 2309** **E DESIGNATION** **S108076324**
South **70 NORTH 9 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
881 ft.

Site 4 of 10 in cluster K

Relative: Higher

Actual: 26 ft.

E DESIGNATION:
Tax Lot(s): 17
E-No: E-138
Effective Date: 5/11/2005
Satisfaction Date: Not reported
Ceqr Number: 04DCP003K
Ulurp Number: 050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No: 12c, 12d, 13a, 13b
Description: Underground Gasoline Storage Tanks* Testing Protocol
Description 2: Not reported
Borough Code: BK
Community District: 301
Census Tract: 557
Census Block: 2005
School District: 14
City Council District: 33
Fire Company: L106
Health Area: 30
Police Precinct: 094
Zone District 1: M1-2/R6A
Zone District 2: Not reported
Commercial Overlay1: Not reported
Commercial Overlay2: Not reported
Special Purpose District1: MX-8
Special Purpose District2: Not reported
All Components1: M1-2/R6A/MX-8
All Components2: Not reported
Split Boundary Indicator: N
Building Class: F9

LOT 17,TAXBLOCK 2309 (Continued) **S108076324**

Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	IRF REALTY CO LLC
Lot Area:	000025000
Total Building Floor Area:	00000051750
Commercial Floor Area:	00000051750
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000051750
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	004.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0200.00
Lot Depth:	0100.00
Building Frontage:	0120.00
Building Depth:	0075.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000168750
Total Assessed Value:	00000346950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1900
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0002.07
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023090017
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995359
Y Coordinate:	0201828
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

P101
NE
1/8-1/4
905 ft.

Relative:
Lower

Actual:
8 ft.

V E 2 PLATING CO
7-11 N 15 ST
BROOKLYN, NY 11222

Site 1 of 13 in cluster P

FINDS
UST
NY MANIFEST
HIST UST
RCRA-NonGen
CT MANIFEST

1000389047
NYD001486885

FINDS:
Other Pertinent Environmental Activity Identified at Site

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

UST:

UST:

Facility Id:	2-364150
Region:	STATE
Expiration Date:	10/15/92
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	VENTURINI
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	1240 78ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11228
Mailing Phone No:	(718) 745-3376
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1240 78ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11228
Owner Phone:	(718) 745-3376
Owner Company:	VENTURINI
Emergency Contact:	VENTURINI
Emergency Phone:	(718) 745-3370
Operator:	VENTURINI
Operator Phone:	(718) 383-4747
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588070.93712
UTM Y:	4508722.77460

V E 2 PLATING CO (Continued) **1000389047**

Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	07/01/96

NY MANIFEST:

Document ID:	CTC0225015
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	3184ACT
Trans2 State ID:	Not reported
Generator Ship Date:	890726
Trans1 Recv Date:	890726
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890726
Part A Recv Date:	890912
Part B Recv Date:	890816
Generator EPA ID:	NYD001486885
Trans1 EPA ID:	CTD016424210
Trans2 EPA ID:	Not reported
TSDF ID:	CTD093616613
Waste Code:	F006 - WW TREAT SL FM ELECTROPLATING OPER
Quantity:	03487

V E 2 PLATING CO (Continued) **1000389047**

Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001486885
Facility Name:	PRESTO ELECTRO PLATING CORP
Facility Address:	7-11 NORTH 15TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PRESTO ELECTRO PLATING CORP
Mailing Contact:	PRESTO ELECTRO PLATING CORP
Mailing Address:	7-11 NORTH 15TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-745-3376
Document ID:	MIA3014422
Manifest Status:	Completed copy
Trans1 State ID:	T888GCNJ
Trans2 State ID:	Not reported
Generator Ship Date:	950209
Trans1 Recv Date:	950209
Trans2 Recv Date:	950209
TSD Site Recv Date:	950210
Part A Recv Date:	Not reported
Part B Recv Date:	950223
Generator EPA ID:	NYD001486885
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	MID098011992
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	25514
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

V E 2 PLATING CO (Continued) **1000389047**

Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001486885
Facility Name:	PRESTO ELECTRO PLATING CORP
Facility Address:	7-11 NORTH 15TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PRESTO ELECTRO PLATING CORP
Mailing Contact:	PRESTO ELECTRO PLATING CORP
Mailing Address:	7-11 NORTH 15TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-745-3376
Document ID:	MIA3014423
Manifest Status:	Completed copy
Trans1 State ID:	989TTXNJ
Trans2 State ID:	Not reported
Generator Ship Date:	950209
Trans1 Recv Date:	950209
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950210
Part A Recv Date:	Not reported
Part B Recv Date:	950223
Generator EPA ID:	NYD001486885
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	MID098011992
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	05366
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

V E 2 PLATING CO (Continued) **1000389047**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001486885
Facility Name:	PRESTO ELECTRO PLATING CORP
Facility Address:	7-11 NORTH 15TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PRESTO ELECTRO PLATING CORP
Mailing Contact:	PRESTO ELECTRO PLATING CORP
Mailing Address:	7-11 NORTH 15TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-745-3376

Document ID:	MIA3014439
Manifest Status:	Completed copy
Trans1 State ID:	3721ASNY
Trans2 State ID:	Not reported
Generator Ship Date:	950217
Trans1 Recv Date:	950217
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950222
Part A Recv Date:	Not reported
Part B Recv Date:	950306
Generator EPA ID:	NYD001486885
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	MID098011992
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	35500
Units:	P - Pounds
Number of Containers:	057
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

V E 2 PLATING CO (Continued) **1000389047**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001486885
Facility Name:	PRESTO ELECTRO PLATING CORP
Facility Address:	7-11 NORTH 15TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PRESTO ELECTRO PLATING CORP
Mailing Contact:	PRESTO ELECTRO PLATING CORP
Mailing Address:	7-11 NORTH 15TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-745-3376

Document ID:	MIA3014437
Manifest Status:	Completed copy
Trans1 State ID:	T820JF
Trans2 State ID:	Not reported
Generator Ship Date:	950213
Trans1 Recv Date:	950213
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950214
Part A Recv Date:	Not reported
Part B Recv Date:	950227
Generator EPA ID:	NYD001486885
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	MID098011992
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	03179
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001486885
Facility Name:	PRESTO ELECTRO PLATING CORP

V E 2 PLATING CO (Continued) **1000389047**

Facility Address:	7-11 NORTH 15TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PRESTO ELECTRO PLATING CORP
Mailing Contact:	PRESTO ELECTRO PLATING CORP
Mailing Address:	7-11 NORTH 15TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-745-3376

HIST UST:

PBS Number:	2-364150
SPDES Number:	Not reported
Emergency Contact:	VENTURINI
Emergency Telephone:	(718) 745-3370
Operator:	VENTURINI
Operator Telephone:	(718) 383-4747
Owner Name:	VENTURINI
Owner Address:	1240 78ST
Owner City,St,Zip:	BKLYN, NY 11228
Owner Telephone:	(718) 745-3376
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	VENTURINI
Mailing Address:	1240 78ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BKLYN, NY 11228
Mailing Contact:	Not reported
Mailing Telephone:	(718) 745-3376
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	3 NORTH 15TH ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/15/1987
Expiration Date:	10/15/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False

V E 2 PLATING CO (Continued) **1000389047**

CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	07/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	V E 2 PLATING CO
Facility address:	7-11 N 15 ST BROOKLYN, NY 11222
EPA ID:	NYD001486885
Mailing address:	HESTER ST NEW YORK, NY 10002
Contact:	-
Contact address:	HESTER ST NEW YORK, NY 10002
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No

V E 2 PLATING CO (Continued) **1000389047**

Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 09/10/1999
Facility name: V E 2 PLATING CO
Classification: Not a generator, verified

Date form received by agency: 01/25/1995
Facility name: V E 2 PLATING CO
Classification: Large Quantity Generator

Date form received by agency: 03/01/1990
Facility name: V E 2 PLATING CO
Site name: PRESTO ELECTRO PLATING CORPORATION
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/03/1994
Date achieved compliance: 02/28/1995
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/29/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 9000
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 05/03/1994
Date achieved compliance: 02/28/1995
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/29/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 9000
Final penalty amount: Not reported
Paid penalty amount: Not reported

V E 2 PLATING CO (Continued) **1000389047**

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 01/14/1992
Date achieved compliance: 02/28/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/14/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 01/14/1992
Date achieved compliance: 02/28/1995
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/29/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 9000
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 09/01/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 05/26/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/28/1995
Evaluation lead agency: State

Evaluation date: 05/26/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 02/28/1995
Evaluation lead agency: State

Evaluation date: 10/18/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/28/1995
Evaluation lead agency: State

Evaluation date: 10/18/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 02/28/1995

V E 2 PLATING CO (Continued) **1000389047**

Evaluation lead agency: State

CT MANIFEST:

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1989
Manifest ID:	CTC0225015
TSDF EPA ID:	CTD093616613
TSDF Name:	ENVIRITE CORP
TSDF Address:	OLD WATERBURY ROAD
TSDF City,St,Zip:	THOMASTON, CT 06787
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	07/26/89
Transporter EPA ID:	CTD016424210
Transporter Name:	TRI-S, INCORPORATED
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD001486885
Gererator Phone:	2123834747
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	07/26/89
Date Received:	07/26/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

P102
NNE
1/8-1/4
905 ft.

Relative:
Lower

Actual:
8 ft.

MANHOLE #4347
FRANKLIN ST / N 15TH ST
BROOKLYN, NY

Site 2 of 13 in cluster P

NY Spills **S103575467**
NY Hist Spills **N/A**

NY Spills:

Site ID:	151987
Facility Addr2:	Not reported
Facility ID:	9811591
Spill Number:	9811591
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	12/15/98
Reported to Dept:	12/15/98
CID:	351
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/19/03
Remediation Phase:	0
Date Entered In Computer:	12/15/98
Spill Record Last Update:	02/19/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	MIKE CEASAR
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9811591
DER Facility ID:	129024
Site ID:	151987
Operable Unit ID:	1068902
Operable Unit:	01
Material ID:	311879
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9811591 NOTIFIER LOCATED A SHEEN (ABOUT 1 OUNCE OF

MANHOLE #4347 (Continued) **S103575467**

PRODUCT) ON WATER IN A MANHOLE - SAMPLE TAKEN CLEAN UP PENDING RESULTS - CON ED #121959 END CallerRemark - 9811591

Remarks: Start DECRemark - 9811591 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" E2MIS 121959 R.CALISE #14889 SENIOR FIELD OPERATOR WHILE ATTEMPTING TO IDENTIFY FEEDER 6B47 IN MH4347 FOUND AN UNDIAPERABLE SHEEN OF UNKNOWNOIL ON 33 GALLONS OF WATER. CONTAINED TO STRUCTURE, NO SEWERS OR WATERWAYS AFFECTED. THERE IS A TANK IN STRUCTURE BUT IS NOT LEAKING. LIQUID SAMPLE TAKEN WITH A 4-6 HOUR TURN AROUND & STOP TAG#08766 PLACED. UPDATE 15-DEC-1998 2042HRS LAB RESULTS RETURNED <1.00PPM LAB SQUENCE # 98-135959 UPDATE 1/28/99 22:40 OIL CLEAN UP COMPLETED WITH SLIX IN MH4347 AND OIL TAG REMOVED BY ROSENKING FLUSH DEPT..... END DECRemark - 9811591

NY Hist Spills:

Region of Spill:	2
Spill Number:	9811591
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	12/15/1998 11:35
Reported to Dept Date/Time:	12/15/98 12:18
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	MIKE CEASAR
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	12/15/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	01/11/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported

MANHOLE #4347 (Continued) **S103575467**

Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	NOTIFIER LOCATED A SHEEN ABOUT 1 OUNCE OF PRODUCT) ON WATER IN A MANHOLE - SAMPLE TAKEN CLEAN UP PENDING RESULTS - CON ED 121959

P103 **NYC DEP B-9 FACILITY** **HIST UST** **U000409956**
NE **22 NORTH 15TH STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
911 ft.

Site 3 of 13 in cluster P

Relative:
Lower

Actual:
9 ft.

HIST UST:

PBS Number:	2-456195
SPDES Number:	Not reported
Emergency Contact:	KEN CARCHETTA
Emergency Telephone:	(718) 595-7175
Operator:	N.Y.C.D.E.P.
Operator Telephone:	(718) 389-5142
Owner Name:	N.Y.C. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Owner Address:	59-17 JUNCTION BOULEVARD
Owner City,St,Zip:	CORONA, NY 11368
Owner Telephone:	(718) 595-4374
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	N.Y.C. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Mailing Address:	59-17 JUNCTION BOULEVARD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	CORONA, NY 11368
Mailing Contact:	NAOMI WOHGANG
Mailing Telephone:	(718) 595-4518
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/18/1998

NYC DEP B-9 FACILITY (Continued) **U000409956**

Expiration Date:	12/06/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19840201
Capacity (gals):	1080
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1998
Test Method:	Petro-Tite
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19840201
Capacity (gals):	1080
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None

NYC DEP B-9 FACILITY (Continued) **U000409956**

Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1998
Test Method:	Petro-Tite
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19840201
Capacity (gals):	1080
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1998
Test Method:	Petro-Tite
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19980501
Capacity (gals):	1000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Impressed Current
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	High Level Alarm
Dispenser:	Suction
Date Tested:	Not reported

NYC DEP B-9 FACILITY (Continued) **U000409956**

Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 005
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19980501
Capacity (gals): 1000
Product Stored: UNLEADED GASOLINE
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Fiberglass Liner (FRP)
Tank External: Fiberglass
Pipe Location: Underground
Pipe Type: STAINLESS STEEL ALLOY
Pipe Internal: Fiberglass Liner (FRP)
Pipe External: Impressed Current
Second Containment: Vault (w/access)
Leak Detection: In-tank System
Overfill Prot: High Level Alarm
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 006
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19980501
Capacity (gals): 1000
Product Stored: DIESEL
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Fiberglass Liner (FRP)
Tank External: Fiberglass
Pipe Location: Underground
Pipe Type: STAINLESS STEEL ALLOY
Pipe Internal: Fiberglass Liner (FRP)
Pipe External: Impressed Current
Second Containment: Vault (w/access)
Leak Detection: Electronic
Overfill Prot: High Level Alarm
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported

NYC DEP B-9 FACILITY (Continued) **U000409956**

Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

P104 **NYC DEP BORROW SHOP** **NY Spills** **S103274119**
NE **22 NORTH 15TH ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
911 ft.

Site 4 of 13 in cluster P

Relative:
Lower

Actual:
9 ft.

NY Spills:

Site ID:	345921
Facility Addr2:	Not reported
Facility ID:	0501684
Spill Number:	0501684
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SMSANGES
Referred To:	Not reported
Spill Date:	05/11/05
Reported to Dept:	05/11/05
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/23/05
Remediation Phase:	0
Date Entered In Computer:	05/12/05
Spill Record Last Update:	05/23/05
Spiller Name:	KAREN DEVITO
Spiller Company:	NYC DEP GARAGE
Spiller Address:	22 NORTH 15TH STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(718) 595-5343
Contact Name:	KAREN DEVITO
Contact Phone:	(718) 595-5343
DEC Region:	2
Program Number:	0501684
DER Facility ID:	242398
Site ID:	345921
Operable Unit ID:	1103643
Operable Unit:	01
Material ID:	583866
Material Code:	0043A
Material Name:	ANTIFREEZE
Case No.:	Not reported
Material FA:	Other

NYC DEP BORROW SHOP (Continued) **S103274119**

Quantity:	8.00
Units:	Gallons
Recovered:	8.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0501684 BROKEN HOSE, SPED DRI PLACED DOWN, AND IS CLEANED UP; NO DRAINS: END CallerRemark - 0501684
Remarks:	Not reported

Site ID:	212137
Facility Addr2:	Not reported
Facility ID:	9801521
Spill Number:	9801521
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JAKOLLEE
Referred To:	Not reported
Spill Date:	05/05/98
Reported to Dept:	05/05/98
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	05/05/98
Spill Record Last Update:	02/02/05
Spiller Name:	LOU DIMEGLIO
Spiller Company:	NYC DEP BORROW SHOP
Spiller Address:	22 NORTH 15TH ST
Spiller City,St,Zip:	BROOKLYN, ZZ
Spiller Company:	001
Spiller Phone:	(718) 389-4810
Contact Name:	LOU DIMEGLIO
Contact Phone:	(718) 389-4810
DEC Region:	2
Program Number:	9801521
DER Facility ID:	242398
Site ID:	212137
Operable Unit ID:	1062057
Operable Unit:	01
Material ID:	323451
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons

NYC DEP BORROW SHOP (Continued) **S103274119**

Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9801521 TANK REPLACEMENT BEING PERFORMED WHEN CONTAMINATED SOIL WAS ENCOUNTERED-ASSESSMETN WILL BE DONE AFTER TANKS ARE RE-INSTALLED. END CallerRemark - 9801521
Remarks: Start DECRemark - 9801521 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KOLLEENY" END DECRemark - 9801521

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:
Region of Spill: 2
Spill Number: 9801521
Investigator: KOLLEENY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 05/05/1998 12:00
Reported to Dept Date/Time: 05/05/98 13:25
SWIS: 61
Spiller Name: NYC DEP BORROW SHOP
Spiller Contact: LOU DIMEGLIO
Spiller Phone: (718) 389-4810
Spiller Contact: LOU DIMEGLIO
Spiller Phone: (718) 389-4810
Spiller Address: 22 NORTH 15TH ST
Spiller City,St,Zip: BROOKLYN
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 05/05/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 05/08/98
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported

NYC DEP BORROW SHOP (Continued) **S103274119**

Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	GASOLINE
Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	TANK REPLACEMENT BEING PERFORMED WHEN CONTAMINATED SOIL WAS ENCOUNTERED-ASSESSMETN WILL BE DONE AFTER TANKS ARE RE-INSTALLED.

P105 **NYC DEP B9 NORTH 15 YARD** **NY Spills** **S102239320**
NE **22 NORTH 15TH STREET** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
911 ft.

Site 5 of 13 in cluster P

Relative:
Lower

Actual:
9 ft.

NY Spills:

Site ID:	299627
Facility Addr2:	Not reported
Facility ID:	9515580
Spill Number:	9515580
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JAKOLLEE
Referred To:	Not reported
Spill Date:	03/04/96
Reported to Dept:	03/04/96
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	03/04/96
Spill Record Last Update:	10/04/05
Spiller Name:	SAME
Spiller Company:	SAME
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller Company:	001

NYC DEP B9 NORTH 15 YARD (Continued) **S102239320**

Spiller Phone:	Not reported
Contact Name:	LOUIS SANTOS
Contact Phone:	(718) 389-4451
DEC Region:	2
Program Number:	9515580
DER Facility ID:	242398
Site ID:	299627
Operable Unit ID:	1026658
Operable Unit:	01
Material ID:	355706
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	299627
Operable Unit ID:	1026658
Operable Unit:	01
Material ID:	355705
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9515580 piping leaked into the soil of a underground tank.the tanks are 2 1000 gallon diesel tanks.they are still in the ground. piping has been replaced.this occurred in august 1995. END CallerRemark - 9515580
Remarks:	Start DECRemark - 9515580 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KOLLEENY" END DECRemark - 9515580

NY Hist Spills:

Region of Spill:	2
Spill Number:	9515580
Investigator:	KOLLEENY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	03/04/1996 16:49
Reported to Dept Date/Time:	03/04/96 16:56
SWIS:	61
Spiller Name:	SAME
Spiller Contact:	SAME
Spiller Phone:	Not reported
Spiller Contact:	LOUIS SANTOS
Spiller Phone:	(718) 389-4451

NYC DEP B9 NORTH 15 YARD (Continued) **S102239320**

Spiller Address: Not reported
Spiller City,St,Zip: NY
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 03/04/96
Date Spill Entered In Computer Data File: Not reported
Update Date: 10/14/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: piping leaked into the soil of a underground tank.the tanks are 2 1000 gallon diesel tanks.they are still in the ground. piping has been replaced.this occurred in august 1995.

P106
NE
1/8-1/4
913 ft.

Relative:
Lower

Actual:
9 ft.

NYCDEP - BROOKLYN WATER MAINTENANCE
22 N 15TH ST
BROOKLYN, NY 11205

Site 6 of 13 in cluster P

RCRA-CESQG

1010328501
NYR000143495

RCRA-CESQG:

Date form received by agency:	12/13/2006
Facility name:	NYCDEP - BROOKLYN WATER MAINTENANCE
Facility address:	22 N 15TH ST BROOKLYN, NY 11205
EPA ID:	NYR000143495
Mailing address:	JUNCTION BLVD FLUSHING, NY 11373
Contact:	SHAY MCATAMNEY
Contact address:	JUNCTION BLVD FLUSHING, NY 11373
Contact country:	US
Contact telephone:	(718) 595-4618
Contact email:	SMCATAMNEY@DEP.NYC.GOV
EPA Region:	02
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	NYCDEP
Owner/operator address:	Not reported Not reported
Owner/operator country:	Not reported
Owner/operator telephone:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Operator
Owner/Op start date:	09/13/1985
Owner/Op end date:	Not reported

Owner/operator name:	NYCDEP
Owner/operator address:	JUNCTION BLVD FLUSHING, NY 11373
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Owner
Owner/Op start date:	09/13/1985
Owner/Op end date:	Not reported

NYCDEP - BROOKLYN WATER MAINTENANCE (Continued) **1010328501**

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No
- Off-site waste receiver: Commercial status unknown

Historical Generators:
- Date form received by agency: 12/12/2006
- Facility name: NYCDEP - BROOKLYN WATER MAINTENANCE
- Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:
- Waste code: D001
- Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Violation Status: No violations found

P107 **NYCDEP - BROOKLYN WATER MAINTENANCE** **RCRA-CESQG** **1010328502**
NE **22 N 15TH ST** **NYR000143495**
1/8-1/4 **BROOKLYN, NY 11205**
913 ft.

Site 7 of 13 in cluster P

Relative: Lower

Actual: 9 ft.

RCRA-CESQG:
- Date form received by agency: 12/13/2006
- Facility name: NYCDEP - BROOKLYN WATER MAINTENANCE
- Facility address: 22 N 15TH ST
  BROOKLYN, NY 11205
- EPA ID: NYR000143495
- Mailing address: JUNCTION BLVD
  FLUSHING, NY 11373
- Contact: SHAY MCATAMNEY
- Contact address: JUNCTION BLVD
  FLUSHING, NY 11373
- Contact country: US
- Contact telephone: (718) 595-4618
- Contact email: SMCATAMNEY@DEP.NYC.GOV
- EPA Region: 02
- Classification: Conditionally Exempt Small Quantity Generator

NYCDEP - BROOKLYN WATER MAINTENANCE (Continued) **1010328502**

Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	NYCDEP
Owner/operator address:	Not reported
	Not reported
Owner/operator country:	Not reported
Owner/operator telephone:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Operator
Owner/Op start date:	09/13/1985
Owner/Op end date:	Not reported

Owner/operator name:	NYCDEP
Owner/operator address:	JUNCTION BLVD
	FLUSHING, NY 11373
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Municipal
Owner/Operator Type:	Owner
Owner/Op start date:	09/13/1985
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency: 12/12/2006

NYCDEP - BROOKLYN WATER MAINTENANCE (Continued) **1010328502**

Facility name: NYCDEP - BROOKLYN WATER MAINTENANCE
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Violation Status: No violations found

Q108 **EAST RIVER STATE PARK (FORMERLY BROOKLYN EASTERN** **UST** **U004046613**
SW **32 NORTH 8TH STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11255**
914 ft.

Site 1 of 10 in cluster Q

Relative: Higher

UST:

Actual: 15 ft.

UST:
Facility Id: 2-609809
Region: STATE
Expiration Date: 01/04/10
Renewal Date: / /
Total Capacity: 0
Facility Type: VACANT FORMER RAIL YARD
Mailing Company: NYSOPRHP
Mailing Title: Not reported
Mailing Contact: CHARLES H. PLACE
Mailing Address: 163 W. 125TH STREET,
Mailing Address 2: 17TH FLOOR
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip Code: 10027
Mailing Phone No: (212) 866-3535
Mailing Email: Not reported
Owner Title: ASST. DEPT. COMISSIONER
Owner Name: MARY ELLEN KRIS
Owner Address: 163 W. 125TH STREET, 17TH FLOOR
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 10027
Owner Phone: (212) 866-3100
Owner Company: NYSOPRHP C/O NYC REGION
Emergency Contact: CHARLES PLACE
Emergency Phone: (212) 866-3535
Operator: NYS OFFICE OF PARKS, REC. & HISTORICAL PRESERVATIO
Operator Phone: (212) 866-3100
Owner City: NEW YORK
Owner Sub Type: NYS OFFICE PARKS REC HIST PRES (State Government)
UTM X: 587724.66799
UTM Y: 4508295.73401
Site Type Name: Other
Site Type Status: Unregulated
Comments: 03/08/05. Tanks capacity has been changed from 1500 to 550 after tans

EAST RIVER STATE PARK (FORMERLY BROOKLYN EASTERN (Continued) **U004046613**

excavation. YK.

Program Type: PBS

Tank Number: 001
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: 101
Pipe Model: A
Active Status: Inactive
Install Date: / /
Capacity Gallons: 550
Material Name: Diesel
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: Not reported
Tank Internal Protection 1: Painted/Asphalt Coating
Tank Internal Protection 2: Original Sacrificial Anode
Pipe Location Name: Not reported
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: Original Sacrificial Anode
Pipe External Protection 2: Wrapped
Tank Secondary Containment 1: None
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: None
Tank Leak Detection 1: Not reported
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Not reported
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: Not reported
Type Of Overfill Prevention 2: Not reported
Dispenser Method: Not reported
Spill Prevention: Not reported
Tightness Test Method: Unknown
Date Tested: / /
Next Test Date: / /
Date Tank Closed: 01/11/05

Tank Number: 002
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: 101
Pipe Model: A
Active Status: Inactive
Install Date: / /
Capacity Gallons: 550
Material Name: Diesel
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: Not reported
Tank Internal Protection 1: Painted/Asphalt Coating
Tank Internal Protection 2: Original Sacrificial Anode
Pipe Location Name: Not reported
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: Original Sacrificial Anode
Pipe External Protection 2: Wrapped

EAST RIVER STATE PARK (FORMERLY BROOKLYN EASTERN (Continued) **U004046613**

Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	Not reported
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Not reported
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	01/11/05

J109 **MANHOLE #15** **NY Spills** **S106969993**
SSW **8 ST AT KENT AVE** **N/A**
1/8-1/4 **BROOKLYN, NY**
918 ft.

Site 2 of 5 in cluster J

Relative:
Higher

Actual:
16 ft.

NY Spills:

Site ID:	349857
Facility Addr2:	Not reported
Facility ID:	0504934
Spill Number:	0504934
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	07/24/05
Reported to Dept:	07/24/05
CID:	27
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/28/05
Remediation Phase:	0
Date Entered In Computer:	07/25/05
Spill Record Last Update:	09/28/05
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported

MANHOLE #15 (Continued) **S106969993**

DEC Region: 2
Program Number: 0504934
DER Facility ID: 300528
Site ID: 349857
Operable Unit ID: 1107445
Operable Unit: 01
Material ID: 2097338
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 1.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0504934 Caller reports 1 qt oil spilled in a manhole onto sand in a concrete structure. No to the five questions. END CallerRemark - 0504934
Remarks: Start DECRemark - 0504934 e2mis no 159977 R.PARISI FOUND: APPROX. 1QT OF UNKNOWN OIL ON SAND IN A DRY CONCRETE STRUCTURE. NO WATER. MR. PARISI STATES THERE IS A BLOWN JOINT AND A RESERVOIR TANK IN STRUCTURE BUT CANNOT CONFIRM THE SOURCE OF THE OIL. NO SEWERS OR WATERWAYS APPEAR TO BE AFFECTED. THE SPILL APPEARS TO BE CONTAINED. NO PUMP. NO SUMP. OWNER OF SUBSTANCES IS UNKNOWN. NO KNOWN SUBSTANTIAL CRACKS IN STRUCTURE. ENIVIR. TAG# 42370 PLACED. 1 OIL & SAND SAMPLE TAKEN FROM SPILL. LabSequence Number: 05-07594-001 - TOTAL PCB 34 ppm. UPDATE 7/25/05 03:34 HRS ENV OPS MIDDLETON REPORTS THE JOINT HAS BEEN CUT OUT, THE STRUCTURE WAS DOUBLE WASHED WITH BIOGEN 760, NO SUMPS WERE FOUND, AND THE ENV TAG WAS LEFT IN PLACE PER FCR DUE TO CABLE BEING PULLED FROM M16 TO M15. J ANDERSON 8/02/05 06:55 HRS. -- BROOKLYN ENV OPS O/S E. WILLIAMS REPORTS THAT W. TUDY OF ENV OPS REMOVED ENV STOP TAG ON 8/01/05 AT 09:00 HRS. INCIDENT CLOSED OUT AS OF THAT TIME. -- W.W. #17344 -- Closed. 9-28-05. GB END DECRemark - 0504934

J110 **NYCDEP** **NY MANIFEST** **1009235688**
SSW **101 KENT AVE** **N/A**
1/8-1/4 **BROOKLYN, NY**
919 ft.

Site 3 of 5 in cluster J

Relative:
Higher

Actual:
17 ft.

NY MANIFEST:
Document ID: NYG1979811
Manifest Status: Not reported
Trans1 State ID: NYD049178296
Trans2 State ID: Not reported
Generator Ship Date: 07/29/2003
Trans1 Recv Date: 07/29/2003
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/30/2003
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP003661634
Trans1 EPA ID: NYD049178296
Trans2 EPA ID: Not reported
TSDF ID: 68699AN
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00150
Units: P - Pounds

NYCDEP (Continued) **1009235688**

Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP003661634
Facility Name:	NYCDEP
Facility Address:	101 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYCDEP
Mailing Contact:	N/S
Mailing Address:	59-17 JUNCTION BLVD
Mailing Address 2:	Not reported
Mailing City:	CORONA
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-595-4814

J111 **CONSOLIDATED EDISON** **NY MANIFEST** **1009234221**
SSW **KENT AVENUE / 8TH STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
919 ft.

Site 4 of 5 in cluster J

Relative:
Higher

NY MANIFEST:

Actual:
17 ft.

Document ID:	NYB7235964
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	80336AB
Generator Ship Date:	960814
Trans1 Recv Date:	960814
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960814
Part A Recv Date:	960828
Part B Recv Date:	960913
Generator EPA ID:	NYP000926972
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	00275

CONSOLIDATED EDISON (Continued) **1009234221**

Units:	K - Kilograms (2.2 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP000926972
Facility Name:	CONSOLIDATED EDISON
Facility Address:	KENT AVENUE AND 8TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYB7188192
Manifest Status:	Completed copy
Trans1 State ID:	20854AD
Trans2 State ID:	Not reported
Generator Ship Date:	960814
Trans1 Recv Date:	960814
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960816
Part A Recv Date:	960828
Part B Recv Date:	960829
Generator EPA ID:	NYP000926972
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980593636
Waste Code:	B003 - PETROLEUM OIL WITH 500 PPM OR > PCB
Quantity:	07239
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

CONSOLIDATED EDISON (Continued) **1009234221**

Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP000926972
Facility Name:	CONSOLIDATED EDISON
Facility Address:	KENT AVENUE AND 8TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

J112 **MANHOLE 55860** **NY Spills** **S107408353**
SSW **8 ST / KENT AVE** **N/A**
1/8-1/4 **BROOKLYN, NY**
919 ft.

Site 5 of 5 in cluster J

Relative:
Higher

Actual:
17 ft.

NY Spills:

Site ID:	351400
Facility Addr2:	Not reported
Facility ID:	0506227
Spill Number:	0506227
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	08/20/05
Reported to Dept:	08/20/05
CID:	74
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

MANHOLE 55860 (Continued) **S107408353**

UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/13/05
Remediation Phase:	0
Date Entered In Computer:	08/20/05
Spill Record Last Update:	10/13/05
Spiller Name:	ERT DESK'
Spiller Company:	MANHOLE 55860
Spiller Address:	8TH ST/KENT AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK'
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0506227
DER Facility ID:	296286
Site ID:	351400
Operable Unit ID:	1108918
Operable Unit:	01
Material ID:	2098893
Material Code:	0541A
Material Name:	DIELECTRIC FLUID
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0506227 on 200 gallons of water feeder problem cleanup pending test results END CallerRemark - 0506227
Remarks:	Start DECRemark - 0506227 e2mis no 160604 BULLEN #17094 FOUND APPROX 15 GALLONS OF DIELECTRIC FLUID LEAKING FROM 2-3C-CABLE THAT ARE CUT .ONTO 200 GALLONS OF WATER IN MH-55860. IT APPEARS TO BE CONTAINED AT THIS TIME NO SEWERS OR WATERWAYS AFFECTED. 1-SAMPLE WILL BE TAKEN. ENVIR TAG#31473 PLACED. CLEANUP PENDING TEST RESULT DD#18905. Closed. 10-13-05. see eDocs. GB END DECRemark - 0506227

K113 **IN FRONT OF** **NY Spills** **S106470067**
South **90 NORTH 9TH ST** **N/A**
1/8-1/4 **BROOKLYN, NY**
930 ft.

Site 5 of 10 in cluster K

Relative:
Higher

Actual:
31 ft.

NY Spills:

Site ID:	112318
Facility Addr2:	Not reported
Facility ID:	0402857
Spill Number:	0402857
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	06/15/04
Reported to Dept:	06/15/04

IN FRONT OF (Continued) **S106470067**

CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/22/04
Remediation Phase:	0
Date Entered In Computer:	06/15/04
Spill Record Last Update:	09/22/04
Spiller Name:	ERT DESK
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	999
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0402857
DER Facility ID:	98118
Site ID:	112318
Operable Unit ID:	884410
Operable Unit:	01
Material ID:	490465
Material Code:	0043A
Material Name:	ANTIFREEZE
Case No.:	Not reported
Material FA:	Other
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0402857 Cleanup is in progress. END CallerRemark - 0402857
Remarks:	Start DECRemark - 0402857 e2mis 153868 ENV OPS REPORTS THAT VEHICLE #607 OVERHEATED AND LEAKED APPROX 1 GAL OF ANTIFREEZE ON ASPHALT PAVEMENT IN F/O 90 N 9 ST. THE SPILL WAS CONTAINED WITH DIAPERS AND BALONEYS, AND OIL ABSORB IS BEING BROUGHT TOTHE LOCATION TO COMPLETE THE CLEANUP. UPDATE 6-15-04 16:55HRS R. VEGA REPORTS, DOUBLE WASHED STREET WITH OIL ABSORBENTS AND DIAPERS, JOB IS 100 COMPLETED. END DECRemark - 0402857

K114
South
1/8-1/4
958 ft.

Relative:
Higher

Actual:
30 ft.

ENGINE COMPANY 212
136 WYTHE AVENUE
BROOKLYN, NY 11211

Site 6 of 10 in cluster K

AST
HIST AST

S107782641
N/A

AST:

AST:

Region:	STATE
Facility Id:	2-600498
UTM X:	587904.20389
UTM Y:	4508214.29255
Expiration Date:	12/20/06
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	FDNY
Site Type Name:	Other
Site Type Status:	Unregulated
Mailing Company:	FIRE DEPARTMENT
Mailing Title:	Not reported
Mailing Contact:	ASST COMMISSIONER OF FACILITIES
Mailing Address:	48-34 35TH STREET
Mailing Address 2:	Not reported
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 784-6510
Mailing Email:	Not reported
Owner Title:	ADMINISTRATIVE PROJECT MANAGER
Owner Name:	MIKHAIL ALTSHILER
Owner Address:	9 METROTECH
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11201-3857
Owner Phone:	(718) 999-2094
Owner Company:	FIRE DEPARTMENT
Emergency Contact:	EOC/NOTIFICATION DESK
Emergency Phone:	(718) 999-2094
Operator:	COMPANY OFFICER
Operator Phone:	(212) 570-4236
Owner City:	BROOKLYN
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination

ENGINE COMPANY 212 (Continued) **S107782641**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Jacketed
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Diking (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	In-Tank System (ATG)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/05/06

Tank Number:	002
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	1500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/02

HIST AST:

PBS Number:	2-600498
SWIS Code:	6101

ENGINE COMPANY 212 (Continued) **S107782641**

Operator:	COMPANY OFFICER
Facility Phone:	(718) 965-8212
Facility Addr2:	136 WYTHE AVENUE
Facility Type:	OTHER
Emergency:	EOC/NOTIFICATION DESK
Emergency Tel:	(718) 999-2094
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	FIRE DEPARTMENT
Owner Address:	9 METROTECH
Owner City,St,Zip:	BROOKLYN, NY 11201-3857
Federal ID:	Not reported
Owner Tel:	(718) 999-2094
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Contact:	DIRECTOR
Mailing Name:	BUILDINGS MAINTENANCE DIVISION
Mailing Address:	FIRE DEPARTMENT
Mailing Address 2:	48-34 35TH STREET
Mailing City,St,Zip:	LONG ISLAND CITY, NY 11101
Mailing Telephone:	(718) 784-6510
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	11/23/2001
Expiration:	12/20/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2050
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	1
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	05

ENGINE COMPANY 212 (Continued) **S107782641**

Tank Containment:	Excavation/Tranch Liner
Leak Detection:	49
Overfill Protection:	35
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	002
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	1500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	0
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	6
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

L115 **LTANKS** **S105055184**
South **93 NORTH 9TH ST** **HIST LTANKS** **N/A**
1/8-1/4 **BROOKLYN, NY**
962 ft.

Site 2 of 3 in cluster L

Relative:
Higher

LTANKS:

Site ID:	143272
Spill Date:	06/26/01
Facility Addr2:	Not reported
Facility ID:	0103335
Program Number:	0103335
SWIS:	2401
Region of Spill:	2
Investigator:	JEDURNIN
Referred To:	Not reported

Actual:
32 ft.

(Continued) **S105055184**

Reported to Dept:	06/27/01
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Federal Government
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/31/05
Remediation Phase:	0
Date Entered In Computer:	06/27/01
Spill Record Last Update:	10/31/05
Spille Namer:	UNKNOWN
Spiller Company:	UNKNOWN
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	UNKNOWN
Spiller City,St,Zip:	UNKNOWN, ZZ
Spiller County:	001
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Extention:	0
DEC Region:	2
Program Number:	0103335
DER Facility ID:	224362
Site ID:	143272
Operable Unit ID:	840056
Operable Unit:	01
Material ID:	535420
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0103335 On July 10, 2001, RGM Liquid Waste Removal provides NYSDEC with end-point sample results collected on July 3, 2001. 07/11/2001, nysdec notes that the "TANK PULLED,SOIL EXCAVATED AND STOCKPILED WAITING FOR DISPOSAL. ENDPOINT SAMPLES TAKEN." 9/2/03 TIPPLE SENT REQUEST FOR

(Continued) **S105055184**

DOCUMENTATION. On September 26, 2003, American Environmental Assessment Corporation provided notarized documentation that the tank was properly removed from the site on July 13, 2001. OnNovember 24, 2003, NYSDEC was provided documentation of two Non-hazardous Material Manifests for the disposal of petroleum-contaminated soil dated July 13, 2005. Also, on November 24, 2003, NYSDEC was provided documentation of six soil sample analyses from the sides of the tank pit and the bottom of the pit, dated July 3, 2001. The samples were analyzed for STARS 8021 and 8270 and are acceptable for closing (per TAGM 4046) Spill No.0103335. END DECRemark - 0103335

Remarks: Start CallerRemark - 0103335 anonymous caller reported tanks being removed and tanks are leaking END CallerRemark - 0103335

HIST LTANKS:

Region of Spill:	2
Spill Number:	0103335
Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/26/2001
Spill Time:	09:00
Reported to Department Date:	06/27/01
Reported to Department Time:	08:45
SWIS:	61
Spiller Contact:	UNK
Spiller Phone:	(000) 000-0000
Spiller Extention:	0
Spiller Name:	UNK
Spiller Address:	UNK
Spiller City,St,Zip:	UNK
Facility Contact:	UNK
Facility Phone:	(000) 000-0000
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Federal Government
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /

(Continued) **S105055184**

Date Spill Entered In Computer Data File:	06/27/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/11/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	07/11/2001 TANK PULLED,SOIL EXCAVATED AND STOCKPILED WAITING FOR DISPOSAL. END POINT SAMPLES TAKEN.
Spill Cause:	anonymous caller reported tanks being removed and tanks are leaking

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L116 **COMMERCIAL BUILDING** **LTANKS** **S104516556**
South **93 NORTH 9TH STREET** **HIST LTANKS** **N/A**
1/8-1/4 **BROOKLYN, NY**
962 ft.

Site 3 of 3 in cluster L

Relative:
Higher

Actual:
32 ft.

LTANKS:

Site ID:	275967
Spill Date:	02/16/00
Facility Addr2:	Not reported
Facility ID:	9913062
Program Number:	9913062
SWIS:	2401
Region of Spill:	2
Investigator:	JEDURNIN
Referred To:	Not reported
Reported to Dept:	02/16/00
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/21/05
Remediation Phase:	0
Date Entered In Computer:	02/16/00
Spill Record Last Update:	06/21/05

COMMERCIAL BUILDING (Continued) **S104516556**

Spille Namer:	MYRON CUTLER
Spiller Company:	COMMERCIAL BUILDING
Spiller Phone:	(718) 388-3133
Spiller Extention:	Not reported
Spiller Address:	93 NORTH 9TH STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	MYRON CUTLER
Spiller Phone:	(718) 388-3133
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9913062
DER Facility ID:	224362
Site ID:	275967
Operable Unit ID:	1087599
Operable Unit:	01
Material ID:	294921
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	275967
Spill Tank Test:	1548057
Tank Number:	1
Tank Size:	1080
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 9913062 04/24/2000: Tank was re-tested on 04/06/2000 and passed the test. Report was received on 04/24/2000. All piping was replace. pyh 07/11/2001 TANK REMOVED DURING RENOVATIONS (SEE SPILL# 0103335, same site) 01/26/04:Reassigned from Rommel to Austin 02/17/04: Reassigned from AUSTIN to KRIMGOLD. Based on the above information (tank passed test, replaced piping, tank removed) this site is closed. John Durnin 6/21/2005 END DECRemark - 9913062
Remarks:	Start CallerRemark - 9913062 tank failed the test. END CallerRemark - 9913062

HIST LTANKS:

Region of Spill:	2
Spill Number:	9913062
Investigator:	ROMMEL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported

COMMERCIAL BUILDING (Continued) **S104516556**

Spill Date:	02/16/2000
Spill Time:	14:00
Reported to Department Date:	02/16/00
Reported to Department Time:	15:34
SWIS:	61
Spiller Contact:	MYRON CUTLER
Spiller Phone:	(718) 388-3133
Spiller Extention:	Not reported
Spiller Name:	COMMERCIAL BUILDING
Spiller Address:	93 NORTH 9TH STREET
Spiller City,St,Zip:	BROOKLYN, NY
Facility Contact:	MYRON CUTLER
Facility Phone:	(718) 388-3133
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	02/16/00
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/11/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	1
Tank Size:	1080
Test Method:	Horner EZ Check
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	04/24/2000: Tank was re-tested on 04/06/2000 and passed the test. Report was received on 04/24/2000. All piping was replace. pyh 07/11/2001 TANK REMOVED DURING RENOVATIONS, SEE SPILL 0103335

COMMERCIAL BUILDING (Continued) **S104516556**

Spill Cause: tank failed the test.

R117 **RESIDENTS** **NY Spills** **S103570432**
SSW **67 NORTH 8TH STREET** **NY Hist Spills** **N/A**
1/8-1/4 **WILLIAMSBURG-BROOKLYN, NY**
986 ft.

Site 1 of 6 in cluster R

Relative: Higher

Actual: 24 ft.

NY Spills:

Site ID:	251048
Facility Addr2:	WILLIAMSBURG
Facility ID:	9614853
Spill Number:	9614853
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	ADZHITOM
Referred To:	Not reported
Spill Date:	03/25/97
Reported to Dept:	03/25/97
CID:	14
Spill Cause:	Other
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/26/97
Remediation Phase:	0
Date Entered In Computer:	03/25/97
Spill Record Last Update:	04/02/97
Spiller Name:	ESTON
Spiller Company:	T+S TRUCKING
Spiller Address:	53 SECOND AVE
Spiller City,St,Zip:	BROOKLYN, NY 11215-
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	N/A
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9614853
DER Facility ID:	205756
Site ID:	251048
Operable Unit ID:	1042473
Operable Unit:	01
Material ID:	339954
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	Gallons
Recovered:	15.00

RESIDENTS (Continued) **S103570432**

Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9614853 DRIVER WAS MAKING A DELIVERY THERE AND PUMPED 15 GALLONS INTO THE BASEMENT.HE STOPPED AND LEFT.APPARENTLY OIL WAS PUT IN THE WRONG FILL.THEY ARE CLEANING UP SPILL. END CallerRemark - 9614853
Remarks: Start DECRemark - 9614853 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ZHITOMIRSKY" THE SPILL WAS CLEANED BY T & S TRUCKING. THE DRIVER WENT AT 6:30 AM THEY ORDERED #2 OIL. AFTER HE STATED PUMPING, HE NOTICED NO VENT ALARM.HE STOPPED DELIVERY, CALLED OFFICE. T & S TRUCKING CLEANED UP THE SPILL WHICH WAS IN THE BASEMENT. NO DRAINS IN THE BASEMENT. FD RESPONDED. ASTON CLARE T & S TRUCKING 3/25/97 18:20. END DECRemark - 9614853

NY Hist Spills:
Region of Spill: 2
Spill Number: 9614853
Investigator: ZHITOMIRSKY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 03/25/1997 06:30
Reported to Dept Date/Time: 03/25/97 17:18
SWIS: 61
Spiller Name: T+S TRUCKING
Spiller Contact: ESTON
Spiller Phone: Not reported
Spiller Contact: N/A
Spiller Address: 53 SECOND AVE
Spiller City,St,Zip: BROOKLYN, NY 11215-
Spill Cause: Other
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 09
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 03/26/97
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 03/25/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 04/02/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported

RESIDENTS (Continued) **S103570432**

Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	15
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	15
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	THE SPILL WAS CLEANED BY T S TRUCKING. THE DRIVER WENT AT 6:30 AM THEY ORDERED 2 OIL. AFTER HE STATED PUMPING, HE NOTICED NO VENT ALARM. HE STOPPED DELIVERY, CALLED OFFICE. T S TRUCKING CLEANED UP THE SPILL WHICH WAS IN THE BASEMENT. NO DRAINS IN THE BASEMENT. FD RESPONDED. ASTON CLARE T S TRUCKING 3/25/97 18:20.
Remark:	DRIVER WAS MAKING A DELIVERY THERE AND PUMPED 15 GALLONS INTO THE BASEMENT.HE STOPPED AND LEFT.APPARENTLY OIL WAS PUT IN THE WRONG FILL.THEY ARE CLEANING UP SPILL.

S118 **VAULT #3533** **NY Spills S103573020**
ENE **15TH ST / GEM ST** **NY Hist Spills N/A**
1/8-1/4 **BROOKLYN, NY**
990 ft.

Site 1 of 2 in cluster S

Relative:
Lower

Actual:
9 ft.

NY Spills:

Site ID:	230888
Facility Addr2:	Not reported
Facility ID:	9808835
Spill Number:	9808835
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	10/15/98
Reported to Dept:	10/15/98
CID:	365
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/28/02
Remediation Phase:	0
Date Entered In Computer:	10/15/98
Spill Record Last Update:	10/28/02
Spiller Name:	Not reported

VAULT #3533 (Continued) **S103573020**

Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9808835
DER Facility ID:	190267
Site ID:	230888
Operable Unit ID:	1070014
Operable Unit:	01
Material ID:	316320
Material Code:	0020A
Material Name:	TRANSFORMER OIL
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	10.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 9808835 POSS LEAKING FROM BOTTOM OF TRANSFORMER BUT UNKNOWN WHAT CAUSED IT - ALL CONTAINED IN THE VAULT - CON ED #120548 - OLD STAMP THAT SAYS 11 PPM PCBS - NO CLEAN UP TIL PCBS CONFIRMED END CallerRemark - 9808835

Remarks: Start DECRemark - 9808835 Prior to Sept, 2004 data translation this spill Lead
DEC Field was "ENGELHARDT" Con Ed e2mis #120548: Kimmel (77066) 25-MAR-1999
Modified First Reported to CIG DATE based on CIG Log information.
15-OCT-1998 17:05 J.CAMPANILE O.S NETWORKS REPORTS WHILE MAKING ROUTINE 25 YEAR INSPECTION IN VS-3533 HE FOUND APPROX 10 GALS TRANSFORMER OIL ON DIRT (HOLE IS DRY MANUFACTURE DATE FOR TRANS 1961. KNOWN PCB COUNT IS 11PPM 9-19-1985 TRANS WAS RETROFILLED PRIOR TO 1985.TRANS IS LEAKING FROM BOTTOM DUE TO HEAVY RUST. THERE ARE NO DRAINS IN HOLE. NO SUMP PUMP. HOLE IS CONTAINED NO SEWERS OR WATERWAYS AFFECTED. HE TOOK A LIQUID SAMPLE FROMN TRANS AS IT IS KNOWN OIL FROM TRANS. HE WILL REQUEST A PRIORITY 4-6 HR TURNAROUND. HE ALSO INSTALLED STOP TAG # 08548 (NO PRESSURE TEST TAKEN DUE TO UNIT AT MIN & AND LEAKING IS SEEN FROM UNIT. C.I.G MASSERIA NOTIFIED LAB RESULT RECEIVED 10/15/98 - 2325. 98-11120. 19 PPM. UPDATE 10/20/98 1400 EQUIPMENT REMOVED TRANSFORMER. UPDATE: 10/22/98 - 1300 W. TUDY - 74933 - ENV. OPS., REPORTS 19 PPM CLEANUP COMPLETE WITH SLIX AND TAG #08548 REMOVED. END DECRemark - 9808835

NY Hist Spills:

Region of Spill:	2
Spill Number:	9808835
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/15/1998 17:05
Reported to Dept Date/Time:	10/15/98 18:44
SWIS:	61
Spiller Name:	CON EDISON

VAULT #3533 (Continued) **S103573020**

Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	10/15/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	10/16/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	10
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	10
Unkonwn Quantity Recovered:	False
Material:	TRANSFORMER OIL
Class Type:	TRANSFORMER OIL
Times Material Entry In File:	533
CAS Number:	Not reported
Last Date:	19940926
DEC Remarks:	Not reported
Remark:	POSS LEAKING FROM BOTTOM OF TRANSFORMER BUT UNKNOWN WHAT CAUSED IT - ALL CONTAINED IN THE VAULT - CON ED 120548 - OLD STAMP THAT SAYS 11 PPM PCBS - NO CLEAN UP TIL PCBS CONFIRMED

K119 **LOT 17,TAXBLOCK 2317** **E DESIGNATION** **S108076325**
SSW **74 NORTH 8 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1004 ft.

Site 7 of 10 in cluster K

Relative:
Higher

Actual:
25 ft.

E DESIGNATION:

Tax Lot(s):	17
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6B/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	Z9
Land Use Category:	Not reported
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	72 N 8 ST CORP
Lot Area:	000002500
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0025.00
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0025.00
Proximity Code:	0

LOT 17,TAXBLOCK 2317 (Continued) **S108076325**

Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000017055
Total Assessed Value:	00000018450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1910
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023170017
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995199
Y Coordinate:	0201658
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

O120 **A & M T EITELBAUM** **AST** **U003392777**
SE **111 NORTH 11TH ST** **HIST AST** **N/A**
1/8-1/4 **BROOKLYN, NY 11205**
1006 ft.

Site 2 of 6 in cluster O

Relative: Higher

AST:

Actual: 22 ft.

AST:

Region:	STATE
Facility Id:	2-243795
UTM X:	588136.46577
UTM Y:	4508283.15431
Expiration Date:	02/25/08
Renewal Date:	06/05/02
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	111 ON N. 11TH CORP.
Mailing Title:	Not reported
Mailing Contact:	ANTHONY FERNICOLA
Mailing Address:	111 NORTH 11TH STREET

A & M T EITELBAUM (Continued) **U003392777**

Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11205
Mailing Phone No:	(718) 302-1110
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	111 N. 11TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11205
Owner Phone:	(718) 302-1110
Owner Company:	111 ON N. 11TH CORP.
Emergency Contact:	ANTHONY FERNICOLA
Emergency Phone:	(718) 302-1110
Operator:	ANTHONY FERNICOLA
Operator Phone:	(718) 302-1110
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/01/80
Capacity Gallons:	4000
Material Name:	#6 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

A & M T EITELBAUM (Continued) **U003392777**

HIST AST:

PBS Number:	2-243795
SWIS Code:	6101
Operator:	A & M TEITEBAUM
Facility Phone:	(718) 643-0435
Facility Addr2:	111 NORTH 11TH ST
Facility Type:	APARTMENT BUILDING
Emergency:	A & M TEITEBAUM
Emergency Tel:	(718) 643-0435
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	A & M TEITELBAUM
Owner Address:	20 GRAND AVE
Owner City,St,Zip:	BROOKLYN, NY 11205
Federal ID:	Not reported
Owner Tel:	(718) 643-0435
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	A & M TEITELBAUM
Mailing Address:	20 GRAND AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11205
Mailing Telephone:	(718) 643-0435
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	09/25/1997
Expiration:	10/23/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19800701
Capacity (Gal):	4000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported

A & M T EITELBAUM (Continued) **U003392777**

Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

P121 **LOT 222,TAXBLOCK 2590** **E DESIGNATION** **S108076403**
NNE **9 QUAY STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1010 ft.

Site 8 of 13 in cluster P

Relative:
Lower

Actual:
8 ft.

E DESIGNATION:

Tax Lot(s):	222
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	M3-1
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	M3-1
Split Boundary Indicator:	Y
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	POPSCORP INC
Lot Area:	000006327

LOT 222,TAXBLOCK 2590 (Continued) **S108076403**

Total Building Floor Area:	00000006327
Commercial Floor Area:	00000006327
Office Floor Area:	00000000000
Retail Floor Area:	00000006327
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0085.33
Lot Depth:	0147.58
Building Frontage:	0085.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000030375
Total Assessed Value:	00000128250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	Not reported
Year Altered1:	1999
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900222
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995936
Y Coordinate:	0203613
Zoning Map:	12C
Sanborn Map:	304 033
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	222
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported

LOT 222,TAXBLOCK 2590 (Continued) **S108076403**

Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Window Wall Attenuation & Alternate Ventilation
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	M3-1
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	M3-1
Split Boundary Indicator:	Y
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	POPSCORP INC
Lot Area:	000006327
Total Building Floor Area:	00000006327
Commercial Floor Area:	00000006327
Office Floor Area:	00000000000
Retail Floor Area:	00000006327
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0085.33
Lot Depth:	0147.58
Building Frontage:	0085.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000030375
Total Assessed Value:	00000128250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	Not reported

LOT 222,TAXBLOCK 2590 (Continued) **S108076403**

Year Altered1:	1999
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900222
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995936
Y Coordinate:	0203613
Zoning Map:	12C
Sanborn Map:	304 033
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Q122 **LOT 12,TAXBLOCK 2317** **E DESIGNATION** **S108076234**
SSW **64 NORTH 8 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1015 ft.

Site 2 of 10 in cluster Q

Relative:
Higher

Actual:
21 ft.

E DESIGNATION:

Tax Lot(s):	12
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported

LOT 12,TAXBLOCK 2317 (Continued) **S108076234**

All Components1:	M1-2/R6B/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	A1
Land Use Category:	01
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	SMELIANSKI, VICTOR
Lot Area:	000002500
Total Building Floor Area:	00000001000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00001
Non and Residential Units:	00001
Lot Frontage:	0025.00
Lot Depth:	0100.00
Building Frontage:	0020.00
Building Depth:	0025.00
Proximity Code:	2
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	2
Land Assessed Value:	00000001067
Total Assessed Value:	00000007896
Land Exempt Value:	00000001067
Total Exempt Value:	00000001430
Year Built:	1899
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.40
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023170012
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995118
Y Coordinate:	0201761
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 12,TAXBLOCK 2317 (Continued) **S108076234**

Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Q123 **LOT 6,TAXBLOCK 2317** **E DESIGNATION** **S108076672**
SSW **107 KENT AVENUE** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1017 ft.

Site 3 of 10 in cluster Q

Relative:
Higher

Actual:
16 ft.

E DESIGNATION:

Tax Lot(s):	6
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	CARPORT CORP
Lot Area:	000001438
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	000.00
Residential Units:	00000

LOT 6,TAXBLOCK 2317 (Continued) **S108076672**

Non and Residential Units:	00000
Lot Frontage:	0020.00
Lot Depth:	0071.92
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000009720
Total Assessed Value:	00000009720
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023170006
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0994990
Y Coordinate:	0201801
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Q124 **BROOKLYN EASTERN DISTRICT TERMINAL** **FINDS** **1000333149**
SSW **116 KENT AVE** **RCRA-NonGen** **NYD980645907**
1/8-1/4 **BROOKLYN, NY 11211**
1017 ft.

Site 4 of 10 in cluster Q

Relative:
Higher

Actual:
16 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA

BROOKLYN EASTERN DISTRICT TERMINAL (Continued) **1000333149**

program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	BROOKLYN EASTERN DISTRICT TERMINAL
Facility address:	116 KENT AVE BROOKLYN, NY 11211
EPA ID:	NYD980645907
Mailing address:	FURMAN ST BROOKLYN, NY 11201
Contact:	FRANK - DAYTON
Contact address:	FURMAN ST BROOKLYN, NY 11201
Contact country:	US
Contact telephone:	(718) 624-3400
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	NEW YORK DOCK RAILWAY
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency: 11/14/1980

BROOKLYN EASTERN DISTRICT TERMINAL (Continued) **1000333149**

Facility name: BROOKLYN EASTERN DISTRICT TERMINAL
Classification: Unverified

Hazardous Waste Summary:
Waste code: NONE
Waste name: None

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 09/02/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

K125 **APARTMENT BUILDING** **NY Spills** **S102560488**
SSW **73 NORTH 8TH STREET** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1019 ft.

Site 8 of 10 in cluster K

Relative:
Higher

Actual:
26 ft.

NY Spills:
Site ID: 328943
Facility Addr2: Not reported
Facility ID: 9614852
Spill Number: 9614852
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: ADZHITOM
Referred To: Not reported
Spill Date: 03/25/97
Reported to Dept: 03/25/97
CID: 14
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: 03/25/97
Spill Record Last Update: 03/14/05
Spiller Name: Not reported
Spiller Company: ALL KIND QUILTS
Spiller Address: NORTH 8TH STREET
Spiller City,St,Zip: BROOKLYN, NY
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: ALEXANDRA JABLONSKYJ
Contact Phone: (718) 782-3109

APARTMENT BUILDING (Continued) **S102560488**

DEC Region: 2
Program Number: 9614852
DER Facility ID: 264734
Site ID: 328943
Operable Unit ID: 1046230
Operable Unit: 01
Material ID: 339953
Material Code: 0001
Material Name: #2 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9614852 FACTORY NEXT DOOR TO APARTMENT BUILDING IS LEAKING OIL INTO THE GROUND WHICH IS SEEPING INTO THE WALLS OF THE BASEMENT OF THE APARTMENT BUILDING FIRE DEPT WAS ON THE SCENE AND TICKETED FACTORY OWNER UNKNOWN WHEN ANDWHAT TYPE OF CLEAN UP WILL TAKE PLACE CALLER REQ CALL FROM DEC END CallerRemark - 9614852
Remarks: Start DECRemark - 9614852 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ZHITOMIRSKY/TIBBE" 1810 - The pipe was ruptured. The pipe is located in the basement of 13 North 8th Street. See also spill #9013128. END DECRemark - 9614852

NY Hist Spills:
Region of Spill: 2
Spill Number: 9614852
Investigator: ZHITOMIRSKY/TIBBE
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 03/25/1997 16:30
Reported to Dept Date/Time: 03/25/97 17:13
SWIS: 61
Spiller Name: ALL KIND QUILTS
Spiller Contact: Not reported
Spiller Phone: (000) 000-0000
Spiller Contact: ALEXANDRA JABLONSKYJ
Spiller Phone: (718) 782-3109
Spiller Address: NORTH 8TH STREET
Spiller City,St,Zip: BROOKLYN, NY
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 09
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /

APARTMENT BUILDING (Continued) **S102560488**

Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 03/25/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 04/02/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Remark: FACTORY NEXT DOOR TO APARTMENT BUILDING IS LEAKING OIL INTO THE GROUND WHICH IS SEEPING INTO THE WALLS OF THE BASEMENT OF THE APARTMENT BUILDING FIRE DEPT WAS ON THE SCENE AND TICKETED FACTORY OWNER UNKNOWN WHEN AND WHAT TYPE OF CLEAN UP WILL TAKE PLACE CALLER REQ CALL FROM DEC

K126 **NY Spills** **S104649347**
SSW **73 NORTH 8TH ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1019 ft.

Site 9 of 10 in cluster K

Relative:
Higher

Actual:
26 ft.

NY Spills:
Site ID: 253100
Facility Addr2: Not reported
Facility ID: 9904328
Spill Number: 9904328
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: SMSANGES
Referred To: Not reported
Spill Date: 07/12/99
Reported to Dept: 07/12/99
CID: 14
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Responsible Party

(Continued) **S104649347**

Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/25/03
Remediation Phase:	0
Date Entered In Computer:	07/12/99
Spill Record Last Update:	02/25/03
Spiller Name:	CALLER
Spiller Company:	Not reported
Spiller Address:	73 NORTH 8TH ST
Spiller City,St,Zip:	BROOKLYN, NY 11211-
Spiller Company:	001
Spiller Phone:	(718) 782-3109
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9904328
DER Facility ID:	264734
Site ID:	253100
Operable Unit ID:	1083225
Operable Unit:	01
Material ID:	553123
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9904328 pump gasket leaked spill to concrete basment floor petro oil was contacted repair has been made spill contained clean up will be left homeowner END CallerRemark - 9904328
Remarks:	Start DECRemark - 9904328 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SANGESLAND" END DECRemark - 9904328

NY Hist Spills:

Region of Spill:	2
Spill Number:	9904328
Investigator:	SANGESLAND
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/12/1999 20:30
Reported to Dept Date/Time:	07/12/99 22:19
SWIS:	61
Spiller Name:	Not reported
Spiller Contact:	CALLER
Spiller Phone:	(718) 782-3109

(Continued) **S104649347**

Spiller Address:	73 NORTH 8TH ST
Spiller City,St,Zip:	BROOKLYN, NY 11211-
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	09
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/12/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	02/04/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Remark:	pump gasket leaked spill to concrete basment floor petro oil was contacted repair has been made spill contained clean up will be left homeowner

---

K127 **73 NORTH 8TH ST/BROOKLYN** **NY Spills** **S102141864**
SSW **73 NORTH 8TH STREET** **NY Hist Spills** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
1019 ft.

Site 10 of 10 in cluster K

Relative:
Higher

NY Spills:

Site ID:	328942
Facility Addr2:	Not reported
Facility ID:	9013128
Spill Number:	9013128

Actual:
26 ft.

73 NORTH 8TH ST/BROOKLYN (Continued) **S102141864**

Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	RWAUSTIN
Referred To:	Not reported
Spill Date:	02/23/91
Reported to Dept:	03/25/91
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	03/14/05
Remediation Phase:	0
Date Entered In Computer:	04/04/91
Spill Record Last Update:	03/14/05
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9013128
DER Facility ID:	264734
Site ID:	Not reported
Operable Unit ID:	Not reported
Operable Unit:	Not reported
Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	Not reported
DEC Memo:	Start CallerRemark - 9013128 SUSPECT LEAKING TANK OR CONTIUAL OVERFLOW CAUSING OIL TO LEAK INTO CALLER'S BASEMENT. END CallerRemark - 9013128
Remarks:	Start DECRemark - 9013128 Prior to Sept, 2004 data translation this spill Lead DEC Field was "AUSTIN" 5/10/04 - AUSTIN - TRANSFERRED FROM SULLIVAN TO AUSTIN FOR REASSIGNMENT - END 3/14/05 - Austin - Spill closed and consolidated with #9614852 -End END DECRemark - 9013128

NY Hist Spills:

Region of Spill:	2
Spill Number:	9013128

73 NORTH 8TH ST/BROOKLYN (Continued) **S102141864**

Investigator:	SULLIVAN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/23/1991 14:00
Reported to Dept Date/Time:	03/25/91 14:35
SWIS:	61
Spiller Name:	Not reported
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/04/91
Date Spill Entered In Computer Data File:	Not reported
Update Date:	11/13/92
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Remark:	SUSPECT LEAKING TANK OR CONTIUAL OVERFLOW CAUSING OIL TO LEAK INTO CALLER S

73 NORTH 8TH ST/BROOKLYN (Continued) **S102141864**

BASEMENT.

Q128 **LOT 7,TAXBLOCK 2317** **E DESIGNATION** **S108076691**
SSW **105 KENT AVENUE** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1026 ft.

Site 5 of 10 in cluster Q

Relative:
Higher

Actual:
18 ft.

E DESIGNATION:

Tax Lot(s):	7
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	CARPORT CORP
Lot Area:	000001438
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0020.00
Lot Depth:	0071.92

LOT 7,TAXBLOCK 2317 (Continued) **S108076691**

Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000009720
Total Assessed Value:	00000009720
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023170007
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995028
Y Coordinate:	0201792
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

S129 **ACME SMOKED FISH CO** **UST** **U000397395**
NE **26-56 GEM ST** **HIST UST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1031 ft.

Site 2 of 2 in cluster S

Relative:
Lower

UST:

Actual:
8 ft.

UST:

Facility Id:	2-271861
Region:	STATE
Expiration Date:	02/03/93
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	R CASLOW & J BROWNSTEIN
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	272 HUNGRY HARBOR RD
Mailing Address 2:	Not reported

ACME SMOKED FISH CO (Continued) **U000397395**

Mailing City:	VALLEY STREAM
Mailing State:	NY
Mailing Zip Code:	11581
Mailing Phone No:	(516) 791-8307
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	272 HUNGRY HARBOR RD
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11581
Owner Phone:	(516) 791-8307
Owner Company:	R CASLOW & J BROWNSTEIN
Emergency Contact:	LARRY E MILLER
Emergency Phone:	(516) 679-0005
Operator:	LARRY E MILLER
Operator Phone:	(718) 383-8585
Owner City:	VALLEY STREAM
Owner Sub Type:	Corporate or Commercial
UTM X:	588155.92281
UTM Y:	4508706.52281
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	05/01/56
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required

ACME SMOKED FISH CO (Continued) **U000397395**

Date Tested: / /
Next Test Date: / /
Date Tank Closed: 05/01/90

HIST UST:
PBS Number: 2-271861
SPDES Number: Not reported
Emergency Contact: LARRY E MILLER
Emergency Telephone: (516) 679-0005
Operator: LARRY E MILLER
Operator Telephone: (718) 383-8585
Owner Name: R CASLOW & J BROWNSTEIN
Owner Address: 272 HUNGRY HARBOR RD
Owner City,St,Zip: VALLEY STREAM, NY 11581
Owner Telephone: (516) 791-8307
Owner Type: Not reported
Owner Subtype: Not reported
Mailing Name: R CASLOW & J BROWNSTEIN
Mailing Address: 272 HUNGRY HARBOR RD
Mailing Address 2: Not reported
Mailing City,St,Zip: VALLEY STREAM, NY 11581
Mailing Contact: Not reported
Mailing Telephone: (516) 791-8307
Owner Mark: First Owner
Facility Status: 2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2: 26 GEM ST
SWIS ID: 6101
Old PBS Number: Not reported
Facility Type: Not reported
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 02/03/1988
Expiration Date: 02/03/1993
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 0
FAMT: True
Facility Screen: Minor Data Missing
Owner Screen: Minor Data Missing
Tank Screen: 0
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City: 01
Region: 2

Tank Id: 001
Tank Location: UNDERGROUND
Tank Status: Closed-In Place
Install Date: 19560501
Capacity (gals): 5000
Product Stored: NOS 1,2, OR 4 FUEL OIL

ACME SMOKED FISH CO (Continued) **U000397395**

Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

T130 **LOT 9,TAXBLOCK 2310** **E DESIGNATION** **S108076727**
South **NORTH 9 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1033 ft.

Site 1 of 2 in cluster T

Relative:
Higher

Actual:
33 ft.

E DESIGNATION:

Tax Lot(s):	9
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	1005
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	R6B
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0

LOT 9,TAXBLOCK 2310 (Continued) **S108076727**

Owner, Type of Code:	Not reported
Owner Name:	NORTH TENTH STREET CO
Lot Area:	000001667
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0016.67
Lot Depth:	0100.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000014400
Total Assessed Value:	00000014400
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023100009
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995595
Y Coordinate:	0201667
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

P131 **POLY CONVERTERS OF AMERICA INC** **FINDS** **1000439808**
NNE **2 MESEROLE AVE** **NY MANIFEST** **NYD980646491**
1/8-1/4 **BROOKLYN, NY 11222** **RCRA-NonGen**
1039 ft.

Site 9 of 13 in cluster P

Relative:
Lower

Actual:
8 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System).
The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA1329226
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920220
Trans1 Recv Date:	920220
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920225
Part A Recv Date:	920228
Part B Recv Date:	920312
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1321305
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920319
Trans1 Recv Date:	920319
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920325
Part A Recv Date:	920331
Part B Recv Date:	920410
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00407
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NYC1481343
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	10219PNY
Generator Ship Date:	920414
Trans1 Recv Date:	920414
Trans2 Recv Date:	920423
TSD Site Recv Date:	920428
Part A Recv Date:	920429
Part B Recv Date:	920529
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	NYD980769947
TSDF ID:	KYD053348108
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA1327804
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	920513
Trans1 Recv Date:	920513
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920520
Part A Recv Date:	Not reported
Part B Recv Date:	920609
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00444
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Document ID:	NJA1433300
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921014
Trans1 Recv Date:	921014
Trans2 Recv Date:	921016
TSD Site Recv Date:	921016
Part A Recv Date:	921104
Part B Recv Date:	921030
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA1422519
Manifest Status:	Completed copy
Trans1 State ID:	NDJEPS869
Trans2 State ID:	NJDEPS103
Generator Ship Date:	920729

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Trans1 Recv Date:	920729
Trans2 Recv Date:	920731
TSD Site Recv Date:	920803
Part A Recv Date:	Not reported
Part B Recv Date:	920813
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	NJD000813477
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1357542
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921216
Trans1 Recv Date:	921216
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921221
Part A Recv Date:	921230
Part B Recv Date:	930108

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01335
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1414088
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	920901
Trans1 Recv Date:	920901
Trans2 Recv Date:	920904
TSD Site Recv Date:	920904
Part A Recv Date:	Not reported
Part B Recv Date:	920924
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1453245
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930120
Trans1 Recv Date:	930120
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930126
Part A Recv Date:	930128
Part B Recv Date:	930210
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA1661264
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	930624
Trans1 Recv Date:	930624
Trans2 Recv Date:	930628
TSD Site Recv Date:	930629
Part A Recv Date:	930702
Part B Recv Date:	930715
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	ILD984908202
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00888
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1658926
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	930519
Trans1 Recv Date:	930519
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930520
Part A Recv Date:	930601
Part B Recv Date:	930604
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01484
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA1640598
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	930319
Trans1 Recv Date:	930319
Trans2 Recv Date:	930322
TSD Site Recv Date:	930323
Part A Recv Date:	Not reported
Part B Recv Date:	930401
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01332
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1740696
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	931105
Trans1 Recv Date:	931105
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	931108
Part A Recv Date:	931201
Part B Recv Date:	931124
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	01993
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1744073
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	931027
Trans1 Recv Date:	931027
Trans2 Recv Date:	931029
TSD Site Recv Date:	931029
Part A Recv Date:	931119
Part B Recv Date:	931117
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	ILD984908202
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	01990
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1846305
Manifest Status:	Completed copy
Trans1 State ID:	51994
Trans2 State ID:	S10342
Generator Ship Date:	931203
Trans1 Recv Date:	931203
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	931208
Part A Recv Date:	931215
Part B Recv Date:	931221
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	NJD000813477
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	01993
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Mailing Phone:	718-383-3466
Document ID:	NJA1826133
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPE086
Trans2 State ID:	Not reported
Generator Ship Date:	940601
Trans1 Recv Date:	940601
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940602
Part A Recv Date:	941005
Part B Recv Date:	940614
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01333
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1810161
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Trans2 State ID:	Not reported
Generator Ship Date:	940114
Trans1 Recv Date:	940114
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940121
Part A Recv Date:	940201
Part B Recv Date:	940207
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01333
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA1740649
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPE086
Generator Ship Date:	940217
Trans1 Recv Date:	940217
Trans2 Recv Date:	940221
TSD Site Recv Date:	940221

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Part A Recv Date:	940302
Part B Recv Date:	940307
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	ILD984908202
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01777
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA0700157
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	900308
Trans1 Recv Date:	900308
Trans2 Recv Date:	900312
TSD Site Recv Date:	900313
Part A Recv Date:	900326
Part B Recv Date:	900405
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01332
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	90
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0714978
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	891108
Trans1 Recv Date:	891108
Trans2 Recv Date:	891120
TSD Site Recv Date:	891121
Part A Recv Date:	891117
Part B Recv Date:	891206
Generator EPA ID:	NYD980646491
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00889
Units:	P - Pounds
Number of Containers:	002

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00389
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD980646491
Facility Name:	POLY CONVERTORS INC
Facility Address:	12 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTORS INC
Mailing Contact:	POLY CONVERTORS INC
Mailing Address:	12 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Click this hyperlink while viewing on your computer to access
19 additional NY_MANIFEST: record(s) in the EDR Site Report.

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	POLY CONVERTERS OF AMERICA INC
Facility address:	2 MESEROLE AVE BROOKLYN, NY 112222609
EPA ID:	NYD980646491
Mailing address:	MESEROLE AVE BROOKLYN, NY 11222
Contact:	-
Contact address:	MESEROLE AVE BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: POLY CONVERTERS OF AMERICA INC
Classification: Not a generator, verified

Date form received by agency: 06/02/1981
Facility name: POLY CONVERTERS OF AMERICA INC
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/22/1987
Date achieved compliance: 11/18/1987
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/24/1987
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 01/27/1987
Date achieved compliance: 01/27/1987
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1000439808**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 07/08/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 05/22/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/18/1987
Evaluation lead agency: State

Evaluation date: 01/27/1987
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - General
Date achieved compliance: 01/27/1987
Evaluation lead agency: State

P132 **POLY CONVERTERS OF AMERICA INC** **NY MANIFEST** **1009244603**
NNE **2 MESEROLE AVE** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1044 ft.

Site 10 of 13 in cluster P

Relative: Lower

Actual: 8 ft.

NY MANIFEST:
Document ID: NJA0164106
Manifest Status: Completed copy
Trans1 State ID: NJDEPS-86
Trans2 State ID: Not reported
Generator Ship Date: 861210
Trans1 Recv Date: 861210
Trans2 Recv Date: Not reported
TSD Site Recv Date: 861211
Part A Recv Date: 861216
Part B Recv Date: 861217
Generator EPA ID: NYT370012361
Trans1 EPA ID: NJD060803905
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 01100
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 010
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 86
Manifest Tracking Num: Not reported
Import Ind: Not reported
Export Ind: Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA0303826
Manifest Status:	Completed copy
Trans1 State ID:	NYSDECJA-
Trans2 State ID:	201-344-3
Generator Ship Date:	870706
Trans1 Recv Date:	870706
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870707
Part A Recv Date:	870714
Part B Recv Date:	870715
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA0353992
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS861
Trans2 State ID:	Not reported
Generator Ship Date:	871217
Trans1 Recv Date:	871217
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871217
Part A Recv Date:	871222
Part B Recv Date:	871228
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0353991
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	871006
Trans1 Recv Date:	871006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871006
Part A Recv Date:	871014
Part B Recv Date:	871015
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0353993
Manifest Status:	Completed copy
Trans1 State ID:	NJDEP-S86
Trans2 State ID:	Not reported
Generator Ship Date:	880418
Trans1 Recv Date:	880418
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880419
Part A Recv Date:	880422
Part B Recv Date:	880426
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0241345
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS861
Trans2 State ID:	Not reported
Generator Ship Date:	870323
Trans1 Recv Date:	870323
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870324
Part A Recv Date:	870327
Part B Recv Date:	870402
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Mailing Phone:	718-383-3466
Document ID:	NJA0353999
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-86
Trans2 State ID:	Not reported
Generator Ship Date:	880919
Trans1 Recv Date:	880919
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880920
Part A Recv Date:	880923
Part B Recv Date:	880928
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0353994
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-86

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Trans2 State ID:	Not reported
Generator Ship Date:	881212
Trans1 Recv Date:	881212
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881213
Part A Recv Date:	881219
Part B Recv Date:	881227
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NYA8382699
Manifest Status:	Completed copy
Trans1 State ID:	000000000
Trans2 State ID:	000000000
Generator Ship Date:	890816
Trans1 Recv Date:	890816
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890816

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Part A Recv Date:	890822
Part B Recv Date:	890830
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD000813477
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049253719
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	89
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

Document ID:	NJA0353995
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS103
Trans2 State ID:	Not reported
Generator Ship Date:	890410
Trans1 Recv Date:	890410
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890410
Part A Recv Date:	890414
Part B Recv Date:	890419
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD000813477
Trans2 EPA ID:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0006119
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	JA-170
Trans2 State ID:	Not reported
Generator Ship Date:	840928
Trans1 Recv Date:	841009
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	841009
Part A Recv Date:	851029
Part B Recv Date:	841018
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00440
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	008

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	84
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0029763
Manifest Status:	Completed copy
Trans1 State ID:	JA-170NJS
Trans2 State ID:	Not reported
Generator Ship Date:	850520
Trans1 Recv Date:	850520
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	850520
Part A Recv Date:	850524
Part B Recv Date:	850529
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00440
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	008
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	85
Manifest Tracking Num:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0164168
Manifest Status:	Completed copy
Trans1 State ID:	NJDPS8612
Trans2 State ID:	Not reported
Generator Ship Date:	860506
Trans1 Recv Date:	860506
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860507
Part A Recv Date:	860513
Part B Recv Date:	860513
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466
Document ID:	NJA0164105
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS861
Trans2 State ID:	Not reported
Generator Ship Date:	860729
Trans1 Recv Date:	860729
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860729
Part A Recv Date:	860804
Part B Recv Date:	860807
Generator EPA ID:	NYT370012361
Trans1 EPA ID:	NJD060803905
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported

POLY CONVERTERS OF AMERICA INC (Continued) **1009244603**

Mgmt Method Type Code:	Not reported
EPA ID:	NYT370012361
Facility Name:	POLY CONVERTERS OF AMERICA INC
Facility Address:	2 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	POLY CONVERTERS OF AMERICA INC
Mailing Contact:	MARLENE LEDERMAN
Mailing Address:	2 MESEROLE AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3466

P133 **LOSTRITTO & CALANDRILLO CORP.** **SWF/LF** **S105841733**
NNE **1-23 MESEROLE AVE** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1044 ft.

Site 11 of 13 in cluster P

Relative:
Lower

Actual:
8 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7183896857
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	RALPH SCOPO; MANAGER
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - regulated
Activity Number:	24T23
Active:	No
East Coordinate:	587900
North Coordinate:	4508800
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	2-6101-00010
Authorization Date:	Not reported
Expiration Date:	Not reported

R134 **LOT 16,TAXBLOCK 2317** **E DESIGNATION** **S108076308**
SSW **72 NORTH 8 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1045 ft.

Site 2 of 6 in cluster R

Relative:
Higher

Actual:
24 ft.

E DESIGNATION:

Tax Lot(s):	16
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6B/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	B9
Land Use Category:	01
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	72 NORTH 8TH ST CORP
Lot Area:	000002500
Total Building Floor Area:	00000002250
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00002
Non and Residential Units:	00002
Lot Frontage:	0025.00
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0035.00
Proximity Code:	2

LOT 16,TAXBLOCK 2317 (Continued) **S108076308**

Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	2
Land Assessed Value:	00000001454
Total Assessed Value:	00000012078
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1899
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023170016
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995200
Y Coordinate:	0201699
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

T135
South
1/8-1/4
1056 ft.

Relative:
Higher

Actual:
33 ft.

LOT 11,TAXBLOCK 2310 **E DESIGNATION** **S108076215**
96 NORTH 9 STREET **N/A**
BROOKLYN, NY 11211

Site 2 of 2 in cluster T

E DESIGNATION:

Tax Lot(s):	11
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	1005
School District:	14
City Council District:	33

LOT 11,TAXBLOCK 2310 (Continued) **S108076215**

Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	R6B
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	B1
Land Use Category:	01
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	EUGENE SUDOL
Lot Area:	000001667
Total Building Floor Area:	00000001400
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00002
Non and Residential Units:	00002
Lot Frontage:	0016.67
Lot Depth:	0100.00
Building Frontage:	0016.67
Building Depth:	0035.00
Proximity Code:	3
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	2
Land Assessed Value:	00000001383
Total Assessed Value:	00000011865
Land Exempt Value:	00000001383
Total Exempt Value:	00000001430
Year Built:	1910
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.84
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023100011
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995622
Y Coordinate:	0201646

LOT 11,TAXBLOCK 2310 (Continued) **S108076215**

Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

R136 **146 WYTHE AVE/BROOKLYN** **LTANKS** **S100142800**
South **146 WYTHE AVENUE** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
1082 ft.

Site 3 of 6 in cluster R

Relative:
Higher

Actual:
30 ft.

LTANKS:

Site ID:	303096
Spill Date:	08/23/89
Facility Addr2:	Not reported
Facility ID:	8905160
Program Number:	8905160
SWIS:	2401
Region of Spill:	2
Investigator:	FINGER
Referred To:	Not reported
Reported to Dept:	08/24/89
CID:	Not reported
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Affected Persons
Cleanup Ceased:	08/24/89
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	08/24/89
Remediation Phase:	0
Date Entered In Computer:	09/06/89
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8905160

146 WYTHE AVE/BROOKLYN (Continued) **S100142800**

DER Facility ID:	244883
Site ID:	303096
Operable Unit ID:	930469
Operable Unit:	01
Material ID:	445602
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Air
Oxygenate:	False
Site ID:	303096
Spill Tank Test:	1535906
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 8905160 CONTRACTOR SAND BLASTING ADJACENT BLDG CAUSING MATERIAL TO AFFECT RESIDENTS OF THE NEIGHBORHOOD, REFERRED CASE TO THE NYCDEP & DOH. END CallerRemark - 8905160

HIST LTANKS:

Region of Spill:	2
Spill Number:	8905160
Investigator:	FINGER
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	08/23/1989
Spill Time:	16:45
Reported to Department Date:	08/24/89
Reported to Department Time:	14:30
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Air

146 WYTHE AVE/BROOKLYN (Continued) **S100142800**

Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	08/24/89
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	08/24/89
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	09/06/89
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Spill Cause:	CONTRACTOR SAND BLASTING ADJACENT BLDG CAUSING MATERIAL TO AFFECT RESIDENTS OF THE NEIGHBORHOOD, REFERRED CASE TO THE NYCDEP DOH.

U137 **LOT 215,TAXBLOCK 2590** **E DESIGNATION** **S108076395**
NNE **11 FRANKLIN STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1084 ft.

Site 1 of 13 in cluster U

Relative:
Lower

Actual:
8 ft.

E DESIGNATION:

Tax Lot(s):	215
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported

LOT 215,TAXBLOCK 2590 (Continued) **S108076395**

Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	Not reported
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	MARISA H. ROMANELLO
Lot Area:	000024000
Total Building Floor Area:	00000013200
Commercial Floor Area:	00000013200
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000013200
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0140.75
Lot Depth:	0147.58
Building Frontage:	0120.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000118800
Total Assessed Value:	00000292950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	Not reported
Year Altered1:	1992
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.55
Maximum Allowable Far:	02.43

LOT 215,TAXBLOCK 2590 (Continued) **S108076395**

Borough Code:	3
Borough Tax Block And Lot:	3025900215
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995911
Y Coordinate:	0203705
Zoning Map:	12C
Sanborn Map:	304 033
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	215
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Window Wall Attenuation & Alternate Ventilation
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	Not reported
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	MARISA H. ROMANELLO
Lot Area:	000024000
Total Building Floor Area:	00000013200
Commercial Floor Area:	00000013200
Office Floor Area:	00000000000

LOT 215,TAXBLOCK 2590 (Continued) **S108076395**

Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000013200
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0140.75
Lot Depth:	0147.58
Building Frontage:	0120.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000118800
Total Assessed Value:	00000292950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	Not reported
Year Altered1:	1992
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.55
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900215
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995911
Y Coordinate:	0203705
Zoning Map:	12C
Sanborn Map:	304 033
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Q138
SSW
1/8-1/4
1094 ft.

NYCTA - 7TH STREET FAN PLANT
N 7TH & KENT ST
BROOKLYN, NY 11212

FINDS **1001080005**
NY MANIFEST **NYR000017129**
RCRA-CESQG

Site 6 of 10 in cluster Q

Relative:
Higher

Actual:
17 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYG4336191
Manifest Status:	Not reported
Trans1 State ID:	1637983ME
Trans2 State ID:	Not reported
Generator Ship Date:	10/27/2004
Trans1 Recv Date:	10/27/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/04/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000017129
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049836
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00118
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00232
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

NYCTA - 7TH STREET FAN PLANT (Continued) **1001080005**

EPA ID:	NYR000017129
Facility Name:	NYCTA - 7TH ST FAN PLANT
Facility Address:	N 7TH & KENT ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYCTA - 7TH ST FAN PLANT
Mailing Contact:	HOWARD MATZA
Mailing Address:	370 JAY ST/ROOM 809
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-243-4581
Document ID:	NYG5261805
Manifest Status:	Not reported
Trans1 State ID:	1637983ME
Trans2 State ID:	Not reported
Generator Ship Date:	07/15/2004
Trans1 Recv Date:	07/15/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/02/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000017129
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049836
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00800
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000017129
Facility Name:	NYCTA - 7TH ST FAN PLANT
Facility Address:	N 7TH & KENT ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported

NYCTA - 7TH STREET FAN PLANT (Continued) **1001080005**

Country:	USA
County:	KI
Mailing Name:	NYCTA - 7TH ST FAN PLANT
Mailing Contact:	HOWARD MATZA
Mailing Address:	370 JAY ST/ROOM 809
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-243-4581
Document ID:	NJA2268571
Manifest Status:	Completed copy
Trans1 State ID:	50059
Trans2 State ID:	Not reported
Generator Ship Date:	951228
Trans1 Recv Date:	951228
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960102
Part A Recv Date:	960111
Part B Recv Date:	960111
Generator EPA ID:	NYR000017129
Trans1 EPA ID:	NJD986607380
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00450
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000017129
Facility Name:	NYCTA - 7TH ST FAN PLANT
Facility Address:	N 7TH & KENT ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYCTA - 7TH ST FAN PLANT
Mailing Contact:	HOWARD MATZA
Mailing Address:	370 JAY ST/ROOM 809

NYCTA - 7TH STREET FAN PLANT (Continued) **1001080005**

Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip: Not reported
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 718-243-4581

RCRA-CESQG:
Date form received by agency: 01/01/2006
Facility name: NYCTA - 7TH STREET FAN PLANT
Facility address: N 7TH & KENT ST
BROOKLYN, NY 11212
EPA ID: NYR000017129
Mailing address: JAY ST ROOM 809
BROOKLYN, NY 11201
Contact: -
Contact address: JAY ST ROOM 809
BROOKLYN, NY 11201
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

NYCTA - 7TH STREET FAN PLANT (Continued) **1001080005**

Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: NYCTA - 7TH STREET FAN PLANT
Classification: Not a generator, verified

Date form received by agency: 12/04/1995
Facility name: NYCTA - 7TH STREET FAN PLANT
Classification: Small Quantity Generator

Violation Status: No violations found

V139 **LOT 14,TAXBLOCK 2289** **E DESIGNATION** **S108469795**
ESE **34 BERRY STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1098 ft.

Site 1 of 3 in cluster V

Relative:
Higher

Actual:
18 ft.

E DESIGNATION:

Tax Lot(s):	14
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	1002
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	M1-2
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	M1-2
Split Boundary Indicator:	Y
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	SHARON, ADRIENNE
Lot Area:	000036000
Total Building Floor Area:	00000037700
Commercial Floor Area:	00000037700
Office Floor Area:	00000000000
Retail Floor Area:	00000000000

LOT 14,TAXBLOCK 2289 (Continued) **S108469795**

Garage Floor Area:	00000000000
Storage Floor Area:	00000037700
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0119.67
Lot Depth:	0225.00
Building Frontage:	0055.00
Building Depth:	0200.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000211500
Total Assessed Value:	00000442350
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1900
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.05
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3022890014
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0996238
Y Coordinate:	0202109
Zoning Map:	12C
Sanborn Map:	304 014
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

V140
ESE
1/8-1/4
1098 ft.

Relative:
Higher

Actual:
18 ft.

LOT 5,TAXBLOCK 2290
33 BERRY STREET
BROOKLYN, NY 11211

Site 2 of 3 in cluster V

E DESIGNATION **S108076634**
N/A

E DESIGNATION:

Tax Lot(s):	5
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	517
Census Block:	2001
School District:	14
City Council District:	33
Fire Company:	E229
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	Z9
Land Use Category:	Not reported
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ELROB REALTY LLC
Lot Area:	000012860
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0100.00
Lot Depth:	0125.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0

LOT 5,TAXBLOCK 2290 (Continued) **S108076634**

Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000111150
Total Assessed Value:	00000111150
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3022900005
Condominium Number:	00000
Census Tract 2:	0517
X Coordinate:	0996452
Y Coordinate:	0201978
Zoning Map:	12C
Sanborn Map:	304 014
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

P141 **MANHOLE# 62580** **NY Spills** **S106471115**
NNE **18 FRANKLIN ST** **N/A**
1/8-1/4 **BROOKLYN, NY**
1097 ft.

Site 12 of 13 in cluster P

Relative:
Lower

Actual:
8 ft.

NY Spills:

Site ID:	82230
Facility Addr2:	Not reported
Facility ID:	0404080
Spill Number:	0404080
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	07/15/04
Reported to Dept:	07/16/04
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Responsible Party

MANHOLE# 62580 (Continued) **S106471115**

Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/06/06
Remediation Phase:	0
Date Entered In Computer:	07/16/04
Spill Record Last Update:	10/06/04
Spiller Name:	ERT DESK
Spiller Company:	MANHOLE# 62580
Spiller Address:	18 FRANKLIN ST
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0404080
DER Facility ID:	75900
Site ID:	82230
Operable Unit ID:	887298
Operable Unit:	01
Material ID:	488097
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0404080 1 QUART OF UNKNOWN OIL ON WATER IN A MANHOLE. FOUND AN EARTH AND SUMP IN THE MANHOLE. CON ED # 154348. END CallerRemark - 0404080
Remarks:	Start DECRemark - 0404080 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" e2mis no. 154348: APPROX 1 QT OF AN UNKNOWN OIL ON APPROX 200 GALS OF WATER IN MH62580. CLEANUP PENDING LAB RESULT. FOUND EARTHEN SUMP. LSN 04-05562 PCB 3 PPM. UPDATE 16-JUL-2004 07:56 HRS. FOUND EARTHEN SUMP. UPDATE 16-JUL-2004 08:55 HRS. REMOVED ALL LIQUID WITH VACTOR, DBL. WASHED STRUCTURE WITH BULL-DOG, ENVIR. TAG# 39285 REMOVED, SEALED EARTHEN SUMP REPORTED 07:56HRS. CLEANUP COMPLETE 100 END DECRemark - 0404080

O142 **NORTHSIDE ARTS INDUSTRIES CON** **UST** **U000402800**
SE **119 NORTH 11TH STREET** **HIST UST** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1100 ft.

Site 3 of 6 in cluster O

Relative: Higher

Actual: 19 ft.

UST:

UST:

Facility Id:	2-266787
Region:	STATE
Expiration Date:	10/02/07

NORTHSIDE ARTS INDUSTRIES CON (Continued) **U000402800**

Renewal Date:	06/04/02
Total Capacity:	2000
Facility Type:	Not reported
Mailing Company:	NORTHSIDE ARTS INDUSTRIES CON
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	119 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 388-9627
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	119 NORTH 11TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 388-9627
Owner Company:	NORTHSIDE ARTS INDUSTRIES CON
Emergency Contact:	JOHN MICOFF
Emergency Phone:	(718) 388-1864
Operator:	NORTHSIDE ARTS INDUSTRIES CON
Operator Phone:	(718) 388-9627
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588161.13966
UTM Y:	4508263.20131
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

NORTHSIDE ARTS INDUSTRIES CON (Continued) **U000402800**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	12/27/87
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-266787
SPDES Number:	Not reported
Emergency Contact:	JOHN MICOFF
Emergency Telephone:	(718) 388-1864
Operator:	NORTHSIDE ARTS INDUSTRIES CON
Operator Telephone:	(718) 388-9627
Owner Name:	NORTHSIDE ARTS INDUSTRIES CON
Owner Address:	119 NORTH 11TH STREET
Owner City,St,Zip:	BKLYN, NY 11211
Owner Telephone:	(718) 388-9627
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	NORTHSIDE ARTS INDUSTRIES CON
Mailing Address:	119 NORTH 11TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BKLYN, NY 11211
Mailing Contact:	Not reported
Mailing Telephone:	(718) 388-9627
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	119 NORTH 11TH STREET
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	APARTMENT BUILDING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/21/1997
Expiration Date:	10/02/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61

NORTHSIDE ARTS INDUSTRIES CON (Continued) **U000402800**

Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

O143 **SEAL RITE PAINT & CHEMICAL** **FINDS 1000274879**
SE **119 N 11TH ST** **RCRA-NonGen NYD001280791**
1/8-1/4 **BROOKLYN, NY 11211**
1100 ft.

Site 4 of 6 in cluster O

Relative: Higher

Actual: 19 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	SEAL RITE PAINT & CHEMICAL
Facility address:	119 N 11TH ST BROOKLYN, NY 11211
EPA ID:	NYD001280791
Mailing address:	N 11TH ST BROOKLYN, NY 11211
Contact:	-
Contact address:	N 11TH ST BROOKLYN, NY 11211

SEAL RITE PAINT & CHEMICAL (Continued) **1000274879**

Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: SEAL RITE PAINT & CHEMICAL
Classification: Not a generator, verified

Date form received by agency: 07/03/1980
Facility name: SEAL RITE PAINT & CHEMICAL
Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 06/27/1988
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Q144 **LOT 1,TAXBLOCK 2317** **E DESIGNATION** **S108076130**
SSW **113 KENT AVENUE** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1115 ft.

Site 7 of 10 in cluster Q

Relative: Higher

Actual: 16 ft.

E DESIGNATION:
Tax Lot(s): 1
E-No: E-138
Effective Date: 5/11/2005
Satisfaction Date: Not reported
Ceqr Number: 04DCP003K

LOT 1,TAXBLOCK 2317 (Continued) **S108076130**

Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CARPORT CORP
Lot Area:	000005000
Total Building Floor Area:	00000005000
Commercial Floor Area:	00000005000
Office Floor Area:	00000005000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0050.00
Lot Depth:	0100.00
Building Frontage:	0050.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000029340
Total Assessed Value:	00000080550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1930
Year Built Code:	Not reported
Year Altered1:	0000

LOT 1,TAXBLOCK 2317 (Continued) **S108076130**

Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023170001
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0994952
Y Coordinate:	0201701
Zoning Map:	Not reported
Sanborn Map:	Not reported
Tax Map:	Not reported
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

O145 **LOT 5,TAXBLOCK 2297** **E DESIGNATION** **S108469845**
SE **55 BERRY STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1116 ft.

Site 5 of 6 in cluster O

Relative: Higher

Actual: 22 ft.

E DESIGNATION:

Tax Lot(s):	5
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	517
Census Block:	2002
School District:	14
City Council District:	33
Fire Company:	E229
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8

LOT 5,TAXBLOCK 2297 (Continued) **S108469845**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F2
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BERRY COMPLEX LLC
Lot Area:	000015550
Total Building Floor Area:	00000061270
Commercial Floor Area:	00000061270
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000061270
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	006.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0155.50
Lot Depth:	0100.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000093150
Total Assessed Value:	00000454500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1916
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.94
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3022970005
Condominium Number:	00000
Census Tract 2:	0517
X Coordinate:	0996261
Y Coordinate:	0201761
Zoning Map:	Not reported
Sanborn Map:	Not reported
Tax Map:	Not reported
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 5,TAXBLOCK 2297 (Continued) **S108469845**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 2

O146 **55 BERRY ST** **AST** **A100300717**
SE **55 BERRY ST** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1116 ft.

Site 6 of 6 in cluster O

Relative: Higher

AST:

Actual: 22 ft.

AST:

Region:	STATE
Facility Id:	2-310166
UTM X:	588131.44650
UTM Y:	4508243.36491
Expiration Date:	04/13/09
Renewal Date:	09/03/02
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Unregulated
Mailing Company:	BERRY COMPLEX LLC
Mailing Title:	SECRETARY
Mailing Contact:	LOUIS HANDLER
Mailing Address:	174 BROADWAY, PMB 105
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(917) 213-6815
Mailing Email:	Not reported
Owner Title:	SECRETARY
Owner Name:	LOUIS HANDLER
Owner Address:	174 BROADWAY, PMB 105
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(917) 213-6815
Owner Company:	BERRY COMPLEX LLC
Emergency Contact:	LOUIS HANDLER
Emergency Phone:	(917) 213-6815
Operator:	LOUIS HANDLER
Operator Phone:	(917) 213-6815
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with impervious barrier
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/80
Capacity Gallons:	5000
Material Name:	#6 Fuel Oil

55 BERRY ST (Continued) **A100300717**

Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Not reported
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Not reported
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/18/03

W147 **CON ED - MH 57009** **NY MANIFEST** **1007206404**
SE **55 BERRY ST** **RCRA-NonGen** **NYP004009411**
1/8-1/4 **BROOKLYN, NY 11211**
1118 ft.

Site 1 of 8 in cluster W

Relative: Higher

Actual: 23 ft.

NY MANIFEST:

Document ID:	NYG0097137
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	80680AE
Trans2 State ID:	Not reported
Generator Ship Date:	970717
Trans1 Recv Date:	970717
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970717
Part A Recv Date:	970813
Part B Recv Date:	970814
Generator EPA ID:	NYP004009411
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	01000
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

CON ED - MH 57009 (Continued) **1007206404**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004009411
Facility Name:	CONSOLIDATED EDISON
Facility Address:	MH57009-55 BERRY
Facility City:	QUEENS
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

Document ID:	NYG0096759
Manifest Status:	Completed copy
Trans1 State ID:	20856AD
Trans2 State ID:	Not reported
Generator Ship Date:	970716
Trans1 Recv Date:	970716
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970717
Part A Recv Date:	970813
Part B Recv Date:	970806
Generator EPA ID:	NYP004009411
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980593636
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	01818
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

CON ED - MH 57009 (Continued) **1007206404**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004009411
Facility Name:	CONSOLIDATED EDISON
Facility Address:	MH57009-55 BERRY
Facility City:	QUEENS
Facility Address 2:	Not reported
Country:	USA
County:	QU
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

RCRA-NonGen:

Date form received by agency:	02/27/1998
Facility name:	CON ED - MH 57009
Facility address:	55 BERRY ST BROOKLYN, NY 112110000
EPA ID:	NYP004009411
Mailing address:	CONSOLIDATED EDISON INC 4 IRVING PL RM 300 NEW YORK, NY 100030000
Contact:	ANTHONY - DRUMMINGS
Contact address:	CONSOLIDATED EDISON INC NEW YORK, NY 100030000
Contact country:	US
Contact telephone:	(212) 460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	Unknown
Transporter of hazardous waste:	Unknown
Treater, storer or disposer of HW:	No
Underground injection activity:	Unknown
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	Unknown
Used oil processor:	Unknown
User oil refiner:	Unknown
Used oil fuel marketer to burner:	Unknown
Used oil Specification marketer:	Unknown
Used oil transfer facility:	Unknown

CON ED - MH 57009 (Continued) **1007206404**

Used oil transporter: Unknown
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 02/26/1998
Facility name: CON ED - MH 57009
Classification: Large Quantity Generator

Violation Status: No violations found

W148 **VAULT 2017** **NY Spills** **S102239069**
SE **55 BERRY ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1118 ft.

Site 2 of 8 in cluster W

Relative:
Higher

Actual:
23 ft.

NY Spills:

Site ID:	194948
Facility Addr2:	Not reported
Facility ID:	9514404
Spill Number:	9514404
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	02/11/96
Reported to Dept:	02/11/96
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/07/05
Remediation Phase:	0
Date Entered In Computer:	02/11/96
Spill Record Last Update:	02/07/05
Spiller Name:	PIRMEGGIA
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	001
Spiller Phone:	(212) 580-6763
Contact Name:	PIRMEGGIA
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9514404
DER Facility ID:	162439
Site ID:	194948
Operable Unit ID:	1025390
Operable Unit:	01

VAULT 2017 (Continued) **S102239069**

Material ID: 556539
Material Code: 0020A
Material Name: TRANSFORMER OIL
Case No.: Not reported
Material FA: Petroleum
Quantity: 4.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9514404 transformer is leaking - see 95-14403 also a transformer which is adjacent to this vault - both drain to a sump which goes to a pollution plant not a water way that vault #2476 END CallerRemark - 9514404
Remarks: Start DECRemark - 9514404 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" See also spill #95414403. Steve Zalloughi, Con Ed - both transformers leaking, also fuel oil in vault. Found drip marks on street indicating fuel oil from outside source. Dark stains on wall indicate this may have happened before. Zalloughi feels that could be accidental or intentional dumping. 2 side-by-side transformers in different vaults. Sump pum in vault TM-2476. Sump in TM-2017, which flows to TM-2476. In TM-2017 PCB count >70 ppm (historical). Plan to wait for Chem Lab results on PCBs. Sump pump has been disengaged. Must schedule outage. Transformers are not stock items - wil be removed. Leaks are from corrosion on bottom. 2/21/96: Tony Lebrono, Con Ed Chem Lab - Sump pit - <1 ppm PCB; vault bottom <1 ppm; debris on floor of vault 3 ppm; water/oi 8 ppm; oil from vault <1 ppm. To be cleaned when transformer removed and replaced. 2/7/04: Con Ed inspected vault in 8/04 - no contamiantion present. Close out. (JHO) END DECRemark - 9514404

NY Hist Spills:
Region of Spill: 2
Spill Number: 9514404
Investigator: ENGELHARDT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 02/11/1996 11:10
Reported to Dept Date/Time: 02/11/96 12:39
SWIS: 61
Spiller Name: CON ED
Spiller Contact: PIRMEGGIA
Spiller Phone: (212) 580-6763
Spiller Contact: PIRMEGGIA
Spiller Phone: (212) 580-6763
Spiller Address: 4 IRVING PLACE
Spiller City,St,Zip: MANHATTAN, NY 10003-
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 02
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False

VAULT 2017 (Continued) **S102239069**

Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/11/96
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/21/96
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 4
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: TRANSFORMER OIL
Class Type: TRANSFORMER OIL
Times Material Entry In File: 533
CAS Number: Not reported
Last Date: 19940926
DEC Remarks: See also spill 95414403. Steve Zalloughi, Con Ed - both transformers leaking, also fuel oil in vault. Found drip marks on street indicating fuel oil from outside source. Dark stains on wall indicate this may have happened before. Zalloughi feels that could be accidental or intentional dumping. 2 side-by-side transformers in different vaults. Sump pum in vault TM-2476. Sump in TM-2017, which flows to TM-2476. In TM-2017 PCB count >70 ppm historical). Plan to wait for Chem Lab resultson PCBs. Sump pump has been disengaged. Must schedule outage. Transformers are not stock items - wil be removed. Leaks are from corrosion on bottom. 2/21/96: Tony Lebrono, Con Ed Chem Lab - Sump pit - <1 ppm PCB; vault bottom <1 ppm; debris on floor of vault 3 ppm; water/oi 8 ppm; oil from vault <1 ppm. To be cleaned when transformer removed and replaced.
Remark: transformer is leaking - see 95-14403 also a transformer which is adjacent to this vault - both drain to a sump which goes to a pollution plant not a water way that vault 2476

W149
SE
1/8-1/4
1118 ft.

Relative:
Higher

Actual:
23 ft.

VAULT2476
55 BERRY ST
BROOKLYN, NY

Site 3 of 8 in cluster W

NY Spills **S103035648**
NY Hist Spills **N/A**

NY Spills:

Site ID:	194947
Facility Addr2:	Not reported
Facility ID:	9514403
Spill Number:	9514403
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	02/11/96
Reported to Dept:	02/11/96
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/07/05
Remediation Phase:	0
Date Entered In Computer:	02/11/96
Spill Record Last Update:	02/07/05
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	NEW YORK, NY 10003-
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9514403
DER Facility ID:	162439
Site ID:	194947
Operable Unit ID:	1025388
Operable Unit:	01
Material ID:	354530
Material Code:	0020A
Material Name:	TRANSFORMER OIL
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	4.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9514403 TRANSFORMER LEAKED 4 GALLONS INTO THE HOLE END

VAULT2476 (Continued) **S103035648**

CallerRemark - 9514403
Remarks: Start DECRemark - 9514403 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" See also spill #95414404. Steve Zalloughi, Con Ed - both transformers leaking, also fuel oil in vault. Found drip marks on street indicating fuel oil from outside source. Dark stains on wall indicate this may have happened before. Zalloughi feels that could be accidental or intentional dumping. 2 side-by-side transformers in different vaults. Sump pum in vault TM-2476. Sump in TM-2017, which flows to TM-2476. In TM-2017 PCB count >70 ppm (historical). Plan to wait for Chem Lab results on PCBs. Sump pump has been disengaged. Must schedule outage. Transformers are not stock items - wil be removed. Leaks are from corrosion on bottom. 2/21/96: Tony Lebrono, Con Ed Chem Lab - Sump pit - <1 ppm PCB; vault bottom <1 ppm; debris on floor of vault 3 ppm; water/oi 8 ppm; oil from vault <1 ppm. To be cleaned when transformer removed and replaced. 2/7/05: Con Ed conducted sitevisit in 8/04 - no evidence of residual contamiantion. Sloe out. (JHO) END DECRemark - 9514403

NY Hist Spills:

Region of Spill:	2
Spill Number:	9514403
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/11/1996 10:57
Reported to Dept Date/Time:	02/11/96 11:48
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003-
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	02/11/96
Date Spill Entered In Computer Data File:	Not reported
Update Date:	03/30/98

VAULT2476 (Continued) **S103035648**

Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	4
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	TRANSFORMER OIL
Class Type:	TRANSFORMER OIL
Times Material Entry In File:	533
CAS Number:	Not reported
Last Date:	19940926
DEC Remarks:	See also spill 95414404. Steve Zalloughi, Con Ed - both transformers leaking, also fuel oil in vault. Found drip marks on street indicating fuel oil from outside source. Dark stains on wall indicate this may have happened before. Zalloughi feels that could be accidental or intentional dumping. 2 side-by-side transformers in different vaults. Sump pum in vault TM-2476. Sump in TM-2017, which flows to TM-2476. In TM-2017 PCB count >70 ppm historical). Plan to wait for Chem Lab results on PCBs. Sump pump has been disengaged. Must schedule outage. Transformers are not stock items - wil be removed. Leaks are from corrosion on bottom. 2/21/96: Tony Lebrono, Con Ed Chem Lab - Sump pit - <1 ppm PCB; vault bottom <1 ppm; debris on floor of vault 3 ppm; water/oi 8 ppm; oil from vault <1 ppm. To be cleaned when transformer removed and replaced.
Remark:	TRANSFORMER LEAKED 4 GALLONS INTO THE HOLE

P150 **HARDCHROME ELECTRO PROCESSING CORP** **FINDS** **1000185169**
NNE **8 MESEROLE AVE** **RCRA-LQG** **NYD002020758**
1/8-1/4 **BROOKLYN, NY 11222** **NY MANIFEST**
1127 ft.

Site 13 of 13 in cluster P

Relative:
Lower

FINDS:

Other Pertinent Environmental Activity Identified at Site

Actual:
8 ft.

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

RCRA-LQG:
Date form received by agency: 04/06/2006
Facility name: HARD CHROME ELECTRO PROCESSING CORP
Facility address: 8 MESEROLE AVE
BROOKLYN, NY 11222
EPA ID: NYD002020758
Mailing address: 12 FRANKLIN STREET
BROOKLYN, NY 11222
Contact: SAM BRACH
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: (718) 392-3636
Contact email: KKHALSA@PRIMEENVIRONMENTAL.COM
EPA Region: 02
Land type: Private
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:
Owner/operator name: HARD CHROME ELECTRO PROCESSING CORP
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 05/25/1989
Owner/Op end date: Not reported

Owner/operator name: HARD CHROME ELECTRO PROCESSING CORP
Owner/operator address: 8 MESEROLE AVE
BROOKLYN, NY 11222
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/25/1989
Owner/Op end date: Not reported

Owner/operator name: HARDCHROME ELECTRO PROCESSNG CORPORATION
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: Not reported
Owner/operator telephone: (212) 555-1212

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Lamps
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Pesticides
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Thermostats
Accumulated waste on-site: No
Generated waste on-site: No

Historical Generators:
Date form received by agency: 04/05/2006
Facility name: HARD CHROME ELECTRO PROCESSING CORP
Classification: Small Quantity Generator

Date form received by agency: 07/08/1999
Facility name: HARD CHROME ELECTRO PROCESSING CORP
Site name: HARDCHROME ELECTRO PROCESSING CORP
Classification: Not a generator, verified

Date form received by agency: 11/18/1980
Facility name: HARD CHROME ELECTRO PROCESSING CORP
Site name: HARDCHROME ELECTRO PROCESSING CORP
Classification: Large Quantity Generator

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

Hazardous Waste Summary:
Waste code: D000
Waste name: Not Defined

Waste code: F007
Waste name: SPENT CYANIDE PLATING BATH SOLUTIONS FROM ELECTROPLATING OPERATIONS

Waste code: F008
Waste name: PLATING BATH RESIDUES FROM THE BOTTOM OF PLATING BATHS FROM ELECTROPLATING OPERATIONS WHERE CYANIDES ARE USED IN THE PROCESS.

Waste code: F009
Waste name: SPENT STRIPPING AND CLEANING BATH SOLUTIONS FROM ELECTROPLATING OPERATIONS WHERE CYANIDES ARE USED IN THE PROCESS.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D005
Waste name: BARIUM

Biennial Reports:

Last Biennial Reporting Year: 2005

Annual Waste Handled:
Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
Amount (Lbs): 24019.2

Waste code: D005
Waste name: BARIUM
Amount (Lbs): 50

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 09/23/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/05/1986

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

NY MANIFEST:
Document ID: MIA9667531
Manifest Status: Not reported
Trans1 State ID: NJD054126164
Trans2 State ID: Not reported
Generator Ship Date: 07/08/2005
Trans1 Recv Date: 07/08/2005
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/15/2005
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD002020758
Trans1 EPA ID: 1637916AE
Trans2 EPA ID: Not reported
TSDF ID: MID980991566
Waste Code: D005 - BARIUM 100.0 MG/L TCLP
Quantity: 00050
Units: P - Pounds
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: Not reported
Manifest Tracking Num: Not reported
Import Ind: Not reported
Export Ind: Not reported
Discr Quantity Ind: Not reported
Discr Type Ind: Not reported
Discr Residue Ind: Not reported
Discr Partial Reject Ind: Not reported
Discr Full Reject Ind: Not reported
Manifest Ref Num: Not reported
Alt Fac RCRA Id: Not reported
Alt Fac Sign Date: Not reported
Mgmt Method Type Code: Not reported
EPA ID: NYD002020758
Facility Name: HARCHROME ELECTRO PROCESSING CORP
Facility Address: 8 MESEROLE AVE
Facility City: BROOKLYN
Facility Address 2: Not reported
Country: USA
County: KI
Mailing Name: HARCHROME ELECTRO PROCESSING CORP
Mailing Contact: N/S
Mailing Address: 8 MESEROLE AVE
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip: Not reported
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 973-326-8800

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

Document ID:	MIA9667528
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	06/16/2005
Trans1 Recv Date:	06/16/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/22/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD002020758
Trans1 EPA ID:	1646840ME
Trans2 EPA ID:	Not reported
TSDF ID:	MID980991566
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00330
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	006
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	Not reported
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	Not reported
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	Not reported
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002020758
Facility Name:	HARCHROME ELECTRO PROCESSING CORP
Facility Address:	8 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HARCHROME ELECTRO PROCESSING CORP
Mailing Contact:	N/S
Mailing Address:	8 MESEROLE AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	973-326-8800

Document ID:	MIA9667530
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	07/08/2005
Trans1 Recv Date:	07/08/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	07/15/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD002020758
Trans1 EPA ID:	1637916ME
Trans2 EPA ID:	Not reported
TSDF ID:	MID980991566
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	01625
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	030
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00090
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	Not reported
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00030
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.

HARDCHROME ELECTRO PROCESSING CORP (Continued) **1000185169**

Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00090
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	Not reported
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	Not reported
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD002020758
Facility Name:	HARCHROME ELECTRO PROCESSING CORP
Facility Address:	8 MESEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HARCHROME ELECTRO PROCESSING CORP
Mailing Contact:	N/S
Mailing Address:	8 MESEROLE AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	973-326-8800

R151 **LOT 36,TAXBLOCK 2317** **E DESIGNATION** **S108076554**
SSW **63 NORTH 7 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1133 ft.

Site 4 of 6 in cluster R

Relative:
Higher

Actual:
20 ft.

E DESIGNATION:

Tax Lot(s):	36
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K

LOT 36,TAXBLOCK 2317 (Continued) **S108076554**

Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	M1-2/R6A
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6B/MX-8
All Components2:	M1-2/R6A
Split Boundary Indicator:	Y
Building Class:	Z9
Land Use Category:	Not reported
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CARPORT CORP
Lot Area:	000005000
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0050.00
Lot Depth:	0100.00
Building Frontage:	0010.00
Building Depth:	0010.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000033750
Total Assessed Value:	00000034200
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1950
Year Built Code:	E
Year Altered1:	0000

LOT 36,TAXBLOCK 2317 (Continued) **S108076554**

Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023170036
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995028
Y Coordinate:	0201671
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

X152 **CON EDISON - VS 5778** **NY MANIFEST** **1008195632**
North **40-49 QUAY ST.** **RCRA-NonGen** **NYP004110946**
1/8-1/4 **BROOKLYN, NY 11211**
1134 ft.

Site 1 of 9 in cluster X

Relative:
Lower

Actual:
8 ft.

NY MANIFEST:

Document ID:	NYE1316538
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	05/13/2003
Trans1 Recv Date:	05/13/2003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/13/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004110946
Trans1 EPA ID:	NYD980593636
Trans2 EPA ID:	Not reported
TSDF ID:	46235JM
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	01087
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

CON EDISON - VS 5778 (Continued) **1008195632**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004110946
Facility Name:	CONSOLIDATED EDISON
Facility Address:	40 49 QUAY ST V5778
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

RCRA-NonGen:

Date form received by agency:	02/26/2004
Facility name:	CON EDISON - VS 5778
Facility address:	40-49 QUAY ST. BROOKLYN, NY 11211
EPA ID:	NYP004110946
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	ANTHONY - DRUMMINGS
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	(212) 460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	05/13/2003
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.

CON EDISON - VS 5778 (Continued) **1008195632**

Owner/operator address: 4 IRVING PLACE
NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/13/2003
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Lamps
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Pesticides
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Thermostats
Accumulated waste on-site: No
Generated waste on-site: No

Historical Generators:
Date form received by agency: 02/25/2004
Facility name: CON EDISON - VS 5778
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: B002
Waste name: B002

Violation Status: No violations found

X153
North
1/8-1/4
1134 ft.

Relative:
Lower

Actual:
8 ft.

QUAY STREET SHOP
40-96 QUAY STREET
GREEN POINT, NY 11222

Site 2 of 9 in cluster X

UST **U000402774**
HIST UST **N/A**

UST:

UST:

Facility Id:	2-260428
Region:	STATE
Expiration Date:	11/17/08
Renewal Date:	04/16/03
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	MTA - NYC TRANSIT AUTHORITY
Mailing Title:	Not reported
Mailing Contact:	JOSEPHINE BROWN, OSS
Mailing Address:	2 BROADWAY
Mailing Address 2:	27TH FLOOR
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10004
Mailing Phone No:	(646) 252-5777
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2 BROADWAY
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10004
Owner Phone:	(646) 252-5777
Owner Company:	NYC TRANSIT AUTHORITY
Emergency Contact:	JOSEPHINE BROWN
Emergency Phone:	(646) 252-5777
Operator:	NYC TRANSIT AUTHORITY
Operator Phone:	(718) 243-4581
Owner City:	NEW YORK
Owner Sub Type:	NYS DEPT OF STATE (State Government)
UTM X:	587964.43750
UTM Y:	4508881.50000
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	notified that there is a new owner, record update 11/17/98 (dq) *No EGM* 01/20/99: Eric Jones of NYC Transit called in to notify that there are only TWO tanks at this site. Tank 01L and 01R are the same ones with QUA-1 and QUA-2. Tank 01L and 01R are deleted. updated. PYH Eric @(718)243-4350.
Program Type:	PBS
Tank Number:	QUA-1
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	7500
Material Name:	#2 Fuel Oil
Percentage:	100.00

QUAY STREET SHOP (Continued) **U000402774**

Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	12/03/02
Next Test Date:	/ /
Date Tank Closed:	08/17/05

Tank Number:	QUA-2
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	7500
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	12/03/02
Next Test Date:	/ /

QUAY STREET SHOP (Continued) **U000402774**

Date Tank Closed: 08/17/05

HIST UST:

PBS Number:	2-260428
SPDES Number:	Not reported
Emergency Contact:	HOWARD MATZA
Emergency Telephone:	(718) 243-4581
Operator:	NYC TRANSIT AUTHORITY
Operator Telephone:	(000) 000-0000
Owner Name:	NYC TRANSIT AUTHORITY
Owner Address:	370 JAY STREET, ROOM 319
Owner City,St,Zip:	BROOKLYN, NY 11201
Owner Telephone:	(718) 243-4581
Owner Type:	State Government
Owner Subtype:	NYS Department of State
Mailing Name:	NYC TRANSIT AUTHORITY
Mailing Address:	370 JAY STREET
Mailing Address 2:	ROOM 819
Mailing City,St,Zip:	BROOKLYN, NY 11201
Mailing Contact:	MR. HOWARD MATZA
Mailing Telephone:	(718) 243-4581
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	40 QUAY ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	02/01/1999
Expiration Date:	11/17/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	15000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	QUA-1
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	7500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel

QUAY STREET SHOP (Continued) **U000402774**

Tank Internal:	None
Tank External:	None
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	0
Date Tested:	12/01/1997
Next Test Date:	12/01/2002
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	QUA-2
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	7500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	0
Date Tested:	12/01/1997
Next Test Date:	12/01/2002
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

X154 **LOT 1,TAXBLOCK 2590** **E DESIGNATION** **S108076178**
North **40 QUAY STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1134 ft.

Site 3 of 9 in cluster X

Relative: Lower

Actual: 8 ft.

E DESIGNATION:

Tax Lot(s):	1
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K

LOT 1,TAXBLOCK 2590 (Continued) **S108076178**

Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	M3-1
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	M3-1
Split Boundary Indicator:	Y
Building Class:	E3
Land Use Category:	06
Number of Easements:	1
Owner, Type of Code:	P
Owner Name:	NEW YORK CITY TRANSIT
Lot Area:	000080617
Total Building Floor Area:	00000072600
Commercial Floor Area:	00000072600
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000072600
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0602.25
Lot Depth:	0159.00
Building Frontage:	0570.00
Building Depth:	0140.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000386100
Total Assessed Value:	00001067400
Land Exempt Value:	00000386100
Total Exempt Value:	00001067400
Year Built:	1973
Year Built Code:	Not reported
Year Altered1:	0000

LOT 1,TAXBLOCK 2590 (Continued) **S108076178**

Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900001
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995622
Y Coordinate:	0203734
Zoning Map:	12C
Sanborn Map:	304 004
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	1
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Window Wall Attenuation & Alternate Ventilation
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	M3-1
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	M3-1
Split Boundary Indicator:	Y
Building Class:	E3
Land Use Category:	06
Number of Easements:	1
Owner, Type of Code:	P

LOT 1,TAXBLOCK 2590 (Continued) **S108076178**

Owner Name:	NEW YORK CITY TRANSIT
Lot Area:	000080617
Total Building Floor Area:	00000072600
Commercial Floor Area:	00000072600
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000072600
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0602.25
Lot Depth:	0159.00
Building Frontage:	0570.00
Building Depth:	0140.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000386100
Total Assessed Value:	00001067400
Land Exempt Value:	00000386100
Total Exempt Value:	00001067400
Year Built:	1973
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900001
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995622
Y Coordinate:	0203734
Zoning Map:	12C
Sanborn Map:	304 004
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

X155 **STRUCTURE #5778** **NY Spills** **S106014636**
North **40-96 QUAY STREET** **N/A**
1/8-1/4 **BROOKLYN, NY**
1134 ft.

Site 4 of 9 in cluster X

Relative:
Lower

Actual:
8 ft.

NY Spills:

Site ID:	152295
Facility Addr2:	Not reported
Facility ID:	0302307
Spill Number:	0302307
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	06/03/03
Reported to Dept:	06/04/03
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/26/03
Remediation Phase:	0
Date Entered In Computer:	06/04/03
Spill Record Last Update:	09/29/03
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ -
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	LARRY COSTA
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0302307
DER Facility ID:	88224
Site ID:	152295
Operable Unit ID:	869007
Operable Unit:	01
Material ID:	506782
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0302307 1 pint on 800 gals of water didn't meet the 24hr

STRUCTURE #5778 (Continued) **S106014636**

rule - ref #148578 END CallerRemark - 0302307
Remarks: Start DECRemark - 0302307 E2MIS 148578 6/3/03 - 1120 M. ADAMO - 28458 - BQE, REPORTS FINDING APPROX 1 PT OF AN UNKNOWN OIL ON APPROX 800 GALS OF WATER IN VS5778. SPILL IS CONTAINED. NO SEWERS OR WATERWAYS AFFECTED. NO FIRE OR SMOKE INVOLVED. NOINJURIES RELATED TO THE SPILL. NO PRIVATE PROPERTY AFFECTED. NO SEWER CONNECTIONS OR SUMPS (COMPANY RECORDS VERIFY THIS). TRANSFORMER PRESSURE TESTED AND IT HOLDS PRESSURE. HISTORICAL PCB COUNT OF UNIT IS 77 PPM DTD 10/23/02. NO MOVEMENT IN THE WATER. NO LARGE CRACKS IN THE STRUCTURE. THERE ARE 2 OTHER TRANSFORMERS & A BUSS COMPT ALONGSIDE THIS TRANSFORMER. COMPANY RECORDS SHOW NO CONNECTIONS BETWEEN THEM. PCB SAMPLE TAKEN. CHAIN OF CUSTODY FORM # CC05030 FILLED OUT AND MARKED 'E' (WITHIN8 HRS) PRIORITY. CLEANUP PENDING LAB RESULT. TJ - 50495 UPDATE: 6/3/03 - 1215 M. ADAMO REPORTS THAT HE CHECKED THE OTHER 3 STRUCTURE & FINDS NO OIL IN ANY OF THEM. TJ - 50495 6/3/03=1735HRS LAB RESULT RETURNED < 1.0 ppm 03-04617-001 UPDATE 6/4/03 09:55 HRS. -- J.DEKANCHUK, O.S. BKLYN ENV. OPS., REPORTED TO E.VESCE THAT THE CLEANUP WILL NOT BE COMPLETE BY 11:20 HRS. DUE TO AMOUNT OF WORK 10:00 HRS. -- L.MERCADO OF BROOKLYN ENV. OPS. ALSO REPORTED THE SAME AND ALSO THAT THE TANKERIS CURRENTLY REMOVING WATER FROM STRUCTURE. INCIDENT REMOVED FROM 24-HOUR DEMINIMIS PROGRAM & CIG WILL BE NOTIFIED. 10:09 HRS. -- NOTIFIED L. COSTA OF C.I.G. UPDATE 6/4/03 10:45 HRS. -- L. MERCADO OF ENV. OPS. REPORTS TANKER FILLED UP AND RETURNING TO ASTORIA. STRUCTURE IS STILL FULL OF WATER AND ENV OPS UNABLE TO PROCEED WITH CLEANUP. I CONTACTED O.S. JOHN DEKANCHUK AND HE SAID TO HAVE THEM PACK JOB DOWN IF NETWORKS NOT GOING OUT TODAY. I THEN CONTACTED GUY PALLADINO OF NETWORKS, HE WAS NOT AWARE OF ANY CREW SCHEDULED FOR TODAY. AT 11:15 HRS.) NOTIFIED MERCADO & TRINIDAD TO PACK DOWN. CLEANUP TO BE CONTINUED AT A FUTURE TIME. UPDATE @ 1355 HRS 7/25 M.ADAMO REPORTS TRANSFORMER REMOVED, STRUCTURE READY TO BE CLEANED UP. #12255VDC. 7/25/03 19:00 HRS. -- C. LABARBERA OF BROOKLYN ENV OPS REPORTS HE & P. ROSADO DOUBLE WASHED STRUCTURE WITH SLIX, FOUND SUMP ALREADY CEMENTED AND REMOVED ENV. STOP TAG #36476. TANKER REMOVED 100 GAL. LIQUID. CLEANUP 100 COMPLETE AS OF THISTIME. END DECRemark - 0302307

Q156
SSW
1/8-1/4
1147 ft.

Relative:
Higher

Actual:
16 ft.

C & J COLLISION INC.
115 KENT AVENUE
BROOKLYN, NY 11211

HIST UST **U001835071**
N/A

Site 8 of 10 in cluster Q

HIST UST:

PBS Number:	2-268674
SPDES Number:	Not reported
Emergency Contact:	JOSEPH OLFANO
Emergency Telephone:	(718) 782-6604
Operator:	JOSEPH OLFANO
Operator Telephone:	(718) 782-6604
Owner Name:	C & J COLLISION INC.
Owner Address:	115 KENT AVENUE
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 782-6604
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	C & J COLLISION INC.
Mailing Address:	115 KENT AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	Not reported
Mailing Telephone:	(718) 782-6604
Owner Mark:	First Owner

C & J COLLISION INC. (Continued) **U001835071**

Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	115 KENT AVE
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	06/23/1995
Expiration Date:	07/10/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	1650
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Tank Converted To Non-Regulated Use
Install Date:	Not reported
Capacity (gals):	1080
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	08/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND

C & J COLLISION INC. (Continued) **U001835071**

Tank Status:	Temporarily Out Of Service
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Temporarily Out Of Service
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Temporarily Out Of Service
Install Date:	Not reported
Capacity (gals):	550

C & J COLLISION INC. (Continued) **U001835071**

Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Q157 **TANKS-A-LOT INC** **FINDS** **1000272491**
SSW **115 KENT AVE** **NY MANIFEST** **NYD981488414**
1/8-1/4 **BROOKLYN, NY 11211** **RCRA-NonGen**
1147 ft.

Site 9 of 10 in cluster Q

Relative: Higher

Actual: 16 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA0229549
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861002
Trans1 Recv Date:	861002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861002
Part A Recv Date:	861007
Part B Recv Date:	861008
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988

TANKS-A-LOT INC (Continued) **1000272491**

Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	05000
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0229554
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861007
Trans1 Recv Date:	861007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861007
Part A Recv Date:	861016
Part B Recv Date:	861016
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	05000
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks

TANKS-A-LOT INC (Continued) **1000272491**

Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0217019
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860908
Trans1 Recv Date:	860908
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860908
Part A Recv Date:	860925
Part B Recv Date:	860912
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02300
Units:	T - Tons
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0228896
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860912
Trans1 Recv Date:	860912
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860912
Part A Recv Date:	860919
Part B Recv Date:	861010
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0229550
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861003
Trans1 Recv Date:	861003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861003
Part A Recv Date:	861007
Part B Recv Date:	861009
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	05000
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0228897
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860911
Trans1 Recv Date:	860911
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860911
Part A Recv Date:	860919
Part B Recv Date:	861010
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0228898
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860912
Trans1 Recv Date:	860912
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860912
Part A Recv Date:	860919
Part B Recv Date:	861010
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE

TANKS-A-LOT INC (Continued) **1000272491**

Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0224327
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861017
Trans1 Recv Date:	861017
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861017
Part A Recv Date:	861024
Part B Recv Date:	861023
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	05000
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0200640
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJSWAS751
Trans2 State ID:	Not reported
Generator Ship Date:	870213
Trans1 Recv Date:	870213
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870213
Part A Recv Date:	870327
Part B Recv Date:	870303
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD980650196
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	X726 - MISC OIL/GAS PRODUCTS (NJ ONLY)
Quantity:	12500
Units:	P - Pounds
Number of Containers:	025
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0224326
Manifest Status:	Completed copy

TANKS-A-LOT INC (Continued) **1000272491**

Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861010
Trans1 Recv Date:	861010
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861010
Part A Recv Date:	861022
Part B Recv Date:	861017
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02350
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0228895
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860911
Trans1 Recv Date:	860911
Trans2 Recv Date:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

TSD Site Recv Date:	860911
Part A Recv Date:	860923
Part B Recv Date:	861010
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0200619
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJSWAS751
Trans2 State ID:	Not reported
Generator Ship Date:	860825
Trans1 Recv Date:	860825
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860825
Part A Recv Date:	860929
Part B Recv Date:	860903
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD980650196

TANKS-A-LOT INC (Continued) **1000272491**

Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	X726 - MISC OIL/GAS PRODUCTS (NJ ONLY)
Quantity:	14500
Units:	P - Pounds
Number of Containers:	029
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0252584
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861023
Trans1 Recv Date:	861023
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861023
Part A Recv Date:	861027
Part B Recv Date:	861028
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02350
Units:	G - Gallons (liquids only)* (8.3 pounds)

TANKS-A-LOT INC (Continued) **1000272491**

Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0252586
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861023
Trans1 Recv Date:	861023
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861023
Part A Recv Date:	861027
Part B Recv Date:	861028
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02350
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86

TANKS-A-LOT INC (Continued) **1000272491**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0223900
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	861010
Trans1 Recv Date:	861010
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861010
Part A Recv Date:	861022
Part B Recv Date:	861017
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02500
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0011412
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860908
Trans1 Recv Date:	860908
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860909
Part A Recv Date:	860924
Part B Recv Date:	860912
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02500
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported

TANKS-A-LOT INC (Continued) **1000272491**

Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

Document ID:	NJA0229551
Manifest Status:	Completed copy
Trans1 State ID:	NYJA127NJ
Trans2 State ID:	Not reported
Generator Ship Date:	861024
Trans1 Recv Date:	861024
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861024
Part A Recv Date:	861028
Part B Recv Date:	861106
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	PAD980715692
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	04500
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE

TANKS-A-LOT INC (Continued) **1000272491**

Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0190635
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860805
Trans1 Recv Date:	860805
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860805
Part A Recv Date:	860813
Part B Recv Date:	860813
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC

TANKS-A-LOT INC (Continued) **1000272491**

Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0190634
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860804
Trans1 Recv Date:	860804
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860804
Part A Recv Date:	860813
Part B Recv Date:	860808
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY

TANKS-A-LOT INC (Continued) **1000272491**

Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300
Document ID:	NJA0190636
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS-07
Trans2 State ID:	Not reported
Generator Ship Date:	860804
Trans1 Recv Date:	860804
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860804
Part A Recv Date:	860813
Part B Recv Date:	860808
Generator EPA ID:	NYD981488414
Trans1 EPA ID:	NJD038590725
Trans2 EPA ID:	Not reported
TSDF ID:	NJD064981988
Waste Code:	X722 - WASTE OIL RES FM TANK CLEANING (NJ)
Quantity:	02400
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD981488414
Facility Name:	TANKS A LOT INC
Facility Address:	115 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	TANKS A LOT INC
Mailing Contact:	N/S
Mailing Address:	115 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-387-8300

TANKS-A-LOT INC (Continued) **1000272491**

Click this hyperlink while viewing on your computer to access
2 additional NY_MANIFEST: record(s) in the EDR Site Report.

RCRA-NonGen:
Date form received by agency: 01/01/2006
Facility name: TANKS-A-LOT INC
Facility address: 115 KENT AVE
BROOKLYN, NY 112112813
EPA ID: NYD981488414
Mailing address: KENT AVE
BROOKLYN, NY 11211
Contact: -
Contact address: KENT AVE
BROOKLYN, NY 11211
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: TANKS-A-LOT INC
Classification: Not a generator, verified

Date form received by agency: 06/09/1986
Facility name: TANKS-A-LOT INC
Classification: Large Quantity Generator

Violation Status: No violations found

Q158
SSW
1/8-1/4
1147 ft.

CARPORT CORP.
115 KENT AVENUE
BROOKLYN, NY 11211

UST

U004062226
N/A

Site 10 of 10 in cluster Q

Relative:
Higher

UST:

Actual:
16 ft.

UST:

Facility Id:	2-268674
Region:	STATE
Expiration Date:	09/16/08
Renewal Date:	/ /
Total Capacity:	2730
Facility Type:	Not reported
Mailing Company:	111 NORTH 11TH STREET
Mailing Title:	Not reported
Mailing Contact:	CARPORT CORP.
Mailing Address:	57TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	111 NORTH 11TH ST.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	Not reported
Owner Company:	CARPORT CORP.
Emergency Contact:	ANTHONY FERNICOLA
Emergency Phone:	Not reported
Operator:	ANTHONY FERNICOLA
Operator Phone:	Not reported
Owner City:	BROOKLYN
Owner Sub Type:	Private Resident
UTM X:	587723.17409
UTM Y:	4508210.50805
Site Type Name:	Other
Site Type Status:	Active
Comments:	RIGHTS TO "TANKS A LOT INC", NAME, ETC. WERE TAKEN OVER BY ABC TANK- ROBERT IENGO. THIS PROPERTY, HOWEVER, WAS NOT! NO FURTHER INFORMA- TION IS AVAILABLE FROM ABC TANK. DO NOT SEND ROBERT IENGO/ABC TANK ANY CORRESPONDENCE REGARI THIS PBS FACILITY! SPOKE TO MARK SALAMACK OF ABC TANK ON 11/18/92. HE SAID THAT MICHAE L CALLEIA SOLD TANKS-A-LOT TO ABC TANK BUT NOT THIS PROPERTY OR TANK S. ABC TANKS IS NOT THE OWNER OR MANAGER OF THIS FACILITY. THE MAILING ADDRESS HAS BEEN CHANGED TO THEFAC. ADDRESS TO AVOID FURTHER CONFUSION WITH TANKS. MICHAEL CALLEIA WAS THE OWNER OF TANKS-A-LOT.
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground, vaulted, with access
Tank Status:	Temporarily Out of Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active

CARPORT CORP. (Continued) **U004062226**

Install Date:	/ /
Capacity Gallons:	1080
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Temporarily Out of Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction

CARPORT CORP. (Continued) **U004062226**

Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Temporarily Out of Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Temporarily Out of Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

CARPORT CORP. (Continued) **U004062226**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

U159 **W H CHRISTIAN & SONS INC** **HIST UST** **U001834177**
NNE **22-28 FRANKLIN ST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1150 ft.

Site 2 of 13 in cluster U

Relative:
Lower

Actual:
9 ft.

HIST UST:

PBS Number:	2-233447
SPDES Number:	Not reported
Emergency Contact:	GABRIEL LEONI
Emergency Telephone:	(718) 645-3891
Operator:	W H CHRISTIAN & SONS INC
Operator Telephone:	(718) 389-7000
Owner Name:	W H CHRISTIAN & SONS INC
Owner Address:	2228 FRANKLIN ST
Owner City,St,Zip:	BROOKLYN, NY 11222
Owner Telephone:	(718) 389-7000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	W H CHRISTIAN & SONS INC
Mailing Address:	2228 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Contact:	Not reported
Mailing Telephone:	(718) 389-7000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	22 FRANKLIN ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/07/1998

W H CHRISTIAN & SONS INC (Continued) **U001834177**

Expiration Date:	07/07/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	04/01/1998
Next Test Date:	04/01/2003
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Tank Converted To Non-Regulated Use
Install Date:	Not reported
Capacity (gals):	1080
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None

W H CHRISTIAN & SONS INC (Continued) **U001834177**

Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	08/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

U160 **WH CHRISTIAN & SONS** **FINDS** **1000171080**
NNE **22-28 FRANKLIN STREET** **LTANKS** **NYD013779293**
1/8-1/4 **BROOKLYN, NY 11222** **NY MANIFEST**
1150 ft. **HIST LTANKS**
Site 3 of 13 in cluster U **RCRA-NonGen**

Relative:
Lower

Actual:
9 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LTANKS:

Site ID:	296974
Spill Date:	07/03/97
Facility Addr2:	Not reported
Facility ID:	9704053
Program Number:	9704053
SWIS:	2401
Region of Spill:	2
Investigator:	BKFALVEY
Referred To:	Not reported
Reported to Dept:	07/03/97
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	07/03/97
Spill Record Last Update:	09/26/06
Spille Namer:	BOB
Spiller Company:	WH CHRISTIAN & SONS

WH CHRISTIAN & SONS (Continued) **1000171080**

Spiller Phone:	(718) 389-7000
Spiller Extention:	227
Spiller Address:	22 TO 28 FRANKLIN ST
Spiller City,St,Zip:	BROOKLYN, ZZ
Spiller County:	001
Spiller Contact:	BOB
Spiller Phone:	(718) 389-7000
Spiller Extention:	227
DEC Region:	2
Program Number:	9704053
DER Facility ID:	240308
Site ID:	296974
Operable Unit ID:	1049926
Operable Unit:	01
Material ID:	333312
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	296974
Spill Tank Test:	1545198
Tank Number:	00000000000
Tank Size:	0
Test Method:	20
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	USTest 2000/P/LL plus USTest 2000/U
DEC Memo:	Start DECRemark - 9704053 8/24/05, Dyber: No contact from Konzelman. Referred to region. Next Step: Perform state-funded investigation. 8/3/05, Dyber: I have not received closure report. Left message for Konzelman. If no return call or report, refer to region. 7/21/05, Dyber: Lavin called and said he has no information about any cleanup. His firm just does tank tests. Called WH Christian and talked with Bob Konzelman. He said that the tank was removed in 1997. He will send the closure report. 7/18/05 and 7/21/05, Dyber: Left messages for Tom Lavin. Prior to Sept, 2004 data translation this spill Lead DEC Field was "ROMMEL C" PBS # DOES NOT MATCH FACILITY. PBS RECORD FOR FACILITY2-233447 DOES NOT MATCH TANKS. 4/12/04-Vought-Spill transferred from Mulqueen to Rommel as per Rommel. END DECRemark - 9704053
Remarks:	Start CallerRemark - 9704053 LEAK IS IN THE TANK TOPS ABOVE PRODUCT LEVEL-3 TANKS MAINIFOLDED TOGETHER END CallerRemark - 9704053

NY MANIFEST:

Document ID:	NYC1650633
Manifest Status:	Completed copy
Trans1 State ID:	HW8207NY
Trans2 State ID:	Not reported
Generator Ship Date:	920521
Trans1 Recv Date:	920521
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920521

WH CHRISTIAN & SONS (Continued) **1000171080**

Part A Recv Date:	Not reported
Part B Recv Date:	920611
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC1691471
Manifest Status:	Completed copy
Trans1 State ID:	LP3931NY
Trans2 State ID:	Not reported
Generator Ship Date:	920617
Trans1 Recv Date:	920617
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920618
Part A Recv Date:	920626
Part B Recv Date:	920624
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1572118
Manifest Status:	Completed copy
Trans1 State ID:	LP3931NY
Trans2 State ID:	Not reported
Generator Ship Date:	920421
Trans1 Recv Date:	920421
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920421
Part A Recv Date:	920429
Part B Recv Date:	920429
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003

WH CHRISTIAN & SONS (Continued) **1000171080**

Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC4444413
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYGF2859
Trans2 State ID:	1FS147OK
Generator Ship Date:	970327
Trans1 Recv Date:	970327
Trans2 Recv Date:	970403
TSD Site Recv Date:	970404
Part A Recv Date:	970409
Part B Recv Date:	970423
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00630
Units:	P - Pounds
Number of Containers:	009
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC3270205
Manifest Status:	Completed copy
Trans1 State ID:	NYGF2859
Trans2 State ID:	483341
Generator Ship Date:	970130
Trans1 Recv Date:	970130
Trans2 Recv Date:	970204
TSD Site Recv Date:	970203
Part A Recv Date:	970212
Part B Recv Date:	970221
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYA6902177
Manifest Status:	Completed copy
Trans1 State ID:	NY16549GW
Trans2 State ID:	Not reported
Generator Ship Date:	871207
Trans1 Recv Date:	871207
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871207
Part A Recv Date:	871228
Part B Recv Date:	871215
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYA6677335
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	AP4503
Trans2 State ID:	Not reported
Generator Ship Date:	870824
Trans1 Recv Date:	870824
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870824
Part A Recv Date:	871007
Part B Recv Date:	870903
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00630
Units:	P - Pounds
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN

WH CHRISTIAN & SONS (Continued) **1000171080**

Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1877815
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	921014
Trans1 Recv Date:	921014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921014
Part A Recv Date:	Not reported
Part B Recv Date:	921028
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS

WH CHRISTIAN & SONS (Continued) **1000171080**

Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC2045665
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	921211
Trans1 Recv Date:	921211
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921211
Part A Recv Date:	921221
Part B Recv Date:	921222
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1936574
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	921112
Trans1 Recv Date:	921112
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921112
Part A Recv Date:	921127
Part B Recv Date:	921120
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYA6834947

WH CHRISTIAN & SONS (Continued) **1000171080**

Manifest Status:	Completed copy
Trans1 State ID:	NY16549GW
Trans2 State ID:	Not reported
Generator Ship Date:	871016
Trans1 Recv Date:	871016
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871016
Part A Recv Date:	871020
Part B Recv Date:	871021
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00700
Units:	P - Pounds
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYA8788083
Manifest Status:	Completed copy
Trans1 State ID:	NY16549GW
Trans2 State ID:	Not reported
Generator Ship Date:	880428
Trans1 Recv Date:	880428

WH CHRISTIAN & SONS (Continued) **1000171080**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880428
Part A Recv Date:	880503
Part B Recv Date:	880502
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYA6709015
Manifest Status:	Completed copy
Trans1 State ID:	NY16549GW
Trans2 State ID:	Not reported
Generator Ship Date:	880328
Trans1 Recv Date:	880328
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880328
Part A Recv Date:	880405
Part B Recv Date:	880405
Generator EPA ID:	NYD013779293

WH CHRISTIAN & SONS (Continued) **1000171080**

Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYA8731956
Manifest Status:	Completed copy
Trans1 State ID:	NY16549GW
Trans2 State ID:	Not reported
Generator Ship Date:	880302
Trans1 Recv Date:	880302
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880302
Part A Recv Date:	880318
Part B Recv Date:	880309
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00420

WH CHRISTIAN & SONS (Continued) **1000171080**

Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC2268077
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	930429
Trans1 Recv Date:	930429
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930429
Part A Recv Date:	930507
Part B Recv Date:	930507
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100

WH CHRISTIAN & SONS (Continued) **1000171080**

Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1738686
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	920915
Trans1 Recv Date:	920915
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920915
Part A Recv Date:	Not reported
Part B Recv Date:	920925
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC2135619
Manifest Status:	Completed copy
Trans1 State ID:	DF2859NY
Trans2 State ID:	Not reported
Generator Ship Date:	930205
Trans1 Recv Date:	930205
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930205
Part A Recv Date:	930212
Part B Recv Date:	930219
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171080**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC1801787
Manifest Status:	Completed copy
Trans1 State ID:	MT9351NY
Trans2 State ID:	Not reported
Generator Ship Date:	920821
Trans1 Recv Date:	920821
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920821
Part A Recv Date:	920908
Part B Recv Date:	920901
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS

WH CHRISTIAN & SONS (Continued) **1000171080**

Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC2203885
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	930402
Trans1 Recv Date:	930402
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930402
Part A Recv Date:	930408
Part B Recv Date:	930412
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI

WH CHRISTIAN & SONS (Continued) **1000171080**

Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYA8624632
Manifest Status:	Completed copy
Trans1 State ID:	NY16549GW
Trans2 State ID:	Not reported
Generator Ship Date:	880111
Trans1 Recv Date:	880111
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880111
Part A Recv Date:	880120
Part B Recv Date:	880119
Generator EPA ID:	NYD013779293
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00560
Units:	P - Pounds
Number of Containers:	008
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD013779293
Facility Name:	WH CHRISTIAN AND SONS
Facility Address:	22-28 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN AND SONS
Mailing Contact:	WH CHRISTIAN AND SONS
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN

WH CHRISTIAN & SONS (Continued) **1000171080**

Mailing State: NY
Mailing Zip: Not reported
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 718-389-7000

Click this hyperlink while viewing on your computer to access
82 additional NY_MANIFEST: record(s) in the EDR Site Report.

HIST LTANKS:
Region of Spill: 2
Spill Number: 9704053
Investigator: MULQUEEN
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 07/03/1997
Spill Time: 16:10
Reported to Department Date: 07/03/97
Reported to Department Time: 16:30
SWIS: 61
Spiller Contact: BOB
Spiller Phone: (718) 389-7000
Spiller Extention: 227
Spiller Name: WH CHRISTIAN & SONS
Spiller Address: 22 TO 28 FRANKLIN ST
Spiller City,St,Zip: BROOKLYN
Facility Contact: BOB
Facility Phone: (718) 389-7000
Facility Extention: 227
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Notifier: Tank Tester
PBS Number: 2-233439
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 07/03/97
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 07/20/98

WH CHRISTIAN & SONS (Continued) **1000171080**

Is Updated:	False
PBS Number:	Not reported
Tank Number:	00000000000
Tank Size:	0
Test Method:	USTest 2000
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	GASOLINE
Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	PBS DOES NOT MATCH FACILITY. PBS RECORD FOR FACILITY2-233447 DOES NOT MATCH TANKS.
Spill Cause:	LEAK IS IN THE TANK TOPS ABOVE PRODUCT LEVEL-3 TANKS MAINIFOLDED TOGETHER

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	WH CHRISTIAN & SONS
Facility address:	22-28 FRANKLIN ST BROOKLYN, NY 112222039
EPA ID:	NYD013779293
Mailing address:	FRANKLIN ST BROOKLYN, NY 11222
Contact:	-
Contact address:	FRANKLIN ST BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No

WH CHRISTIAN & SONS (Continued) **1000171080**

Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: WH CHRISTIAN & SONS
Classification: Not a generator, verified

Date form received by agency: 07/31/1987
Facility name: WH CHRISTIAN & SONS
Classification: Small Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/18/2006
Date achieved compliance: Not reported
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 03/28/2007
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 18525
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/18/2006
Date achieved compliance: Not reported
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/12/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 01/28/2007
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 05/18/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 07/06/1999

WH CHRISTIAN & SONS (Continued) **1000171080**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

U161 **W. H. CHRISTIAN & SONS, INC.** **UST** **U004076778**
NNE **22-28 FRANKLIN STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1150 ft.

Site 4 of 13 in cluster U

Relative: Lower

UST:

Actual: 9 ft.

UST:
Facility Id: 2-233447
Region: STATE
Expiration Date: 07/07/12
Renewal Date: 03/06/02
Total Capacity: 1500
Facility Type: INDUSTRIAL LAUNDRY
Mailing Company: W. H. CHRISTIAN & SONS, INC.
Mailing Title: Not reported
Mailing Contact: WILLIAM H. CHRISTIAN
Mailing Address: 22-28 FRANKLIN STREET
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip Code: 11222
Mailing Phone No: (718) 389-7000
Mailing Email: Not reported
Owner Title: VICE PRESIDENT
Owner Name: WILLIAM H. CHRISTIAN
Owner Address: 22-28 FRANKLIN ST
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 11222
Owner Phone: (718) 389-7000
Owner Company: W. H. CHRISTIAN & SONS, INC.
Emergency Contact: BOB KONZELMAN
Emergency Phone: (347) 668-4357
Operator: W H CHRISTIAN & SONS INC
Operator Phone: (718) 389-7000
Owner City: BROOKLYN
Owner Sub Type: Corporate or Commercial
UTM X: 588072.00819
UTM Y: 4508817.21013
Site Type Name: Other
Site Type Status: Active
Comments: Not reported

Program Type: PBS

Tank Number: 001
Tank Location Name: Underground
Tank Status: Closed - In Place
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: / /

W. H. CHRISTIAN & SONS, INC. (Continued) **U004076778**

Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	03/20/03
Next Test Date:	/ /
Date Tank Closed:	08/01/05

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	1080
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported

W. H. CHRISTIAN & SONS, INC. (Continued) **U004076778**

Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	04/05/01

X162 **LOT 25,TAXBLOCK 2590** **E DESIGNATION** **S108076433**
North **56 QUAY STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1150 ft.

Site 5 of 9 in cluster X

Relative:
Lower

Actual:
8 ft.

E DESIGNATION:

Tax Lot(s):	25
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	M3-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M3-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	V1
Land Use Category:	11
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	MOTIVA ENTERPRISES LL
Lot Area:	000076710
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	4
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000

LOT 25,TAXBLOCK 2590 (Continued) **S108076433**

Non and Residential Units:	00000
Lot Frontage:	0422.67
Lot Depth:	0159.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000254700
Total Assessed Value:	00000254700
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3025900025
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995211
Y Coordinate:	0203661
Zoning Map:	12C
Sanborn Map:	304 004
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

U163 **VAULT 5803** **NY Spills** **S104651495**
North **QUAY ST/WEST ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1166 ft.

Site 5 of 13 in cluster U

Relative:
Lower

Actual:
8 ft.

NY Spills:

Site ID:	291406
Facility Addr2:	Not reported
Facility ID:	0000060
Spill Number:	0000060
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/03/00

VAULT 5803 (Continued) **S104651495**

Reported to Dept:	04/03/00
CID:	270
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/22/02
Remediation Phase:	0
Date Entered In Computer:	04/03/00
Spill Record Last Update:	01/24/02
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	CALLER
Contact Phone:	Not reported
DEC Region:	2
Program Number:	0000060
DER Facility ID:	235959
Site ID:	291406
Operable Unit ID:	821801
Operable Unit:	01
Material ID:	288331
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0000060 on 5000 gals water. 130705 clean up pending results END CallerRemark - 0000060
Remarks:	Start DECRemark - 0000060 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" Con Ed e2mis #130705 Notes: 4-3-00 0950hrs 1 pint unknown oil on 5000gal water. Also found 1 pint unknown oil on 500gal water in bus compartment between V5778 and 5761. 2 samples taken. 4-4-00 0820hrs LSN 00-03189 <1ppm PCB 4-6-00 1950hrs Cleanup completed by double washing with slix. Liquids removed by tanker, solids by vactor. Transformer replaced. No leaking equipment.Sump cemented. END DECRemark - 0000060

NY Hist Spills:

Region of Spill:	2
Spill Number:	0000060
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported

VAULT 5803 (Continued) **S104651495**

Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/03/2000 09:50
Reported to Dept Date/Time:	04/03/00 09:50
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	CALLER
Spiller Phone:	( ) -
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/03/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	04/04/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	on 5000 gals water. 130705 clean up pending results

R164 **LOT 18,TAXBLOCK 2317** **E DESIGNATION** **S108076336**
SSW **76 NORTH 8 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1168 ft.

Site 5 of 6 in cluster R

Relative:
Higher

Actual:
24 ft.

E DESIGNATION:

Tax Lot(s):	18
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	557
Census Block:	2006
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6B/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	76 NORTH LLC
Lot Area:	000010000
Total Building Floor Area:	00000010000
Commercial Floor Area:	00000010000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000010000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0075.00
Lot Depth:	0200.00
Building Frontage:	0075.00
Building Depth:	0200.00
Proximity Code:	0

LOT 18,TAXBLOCK 2317 (Continued) **S108076336**

Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000058500
Total Assessed Value:	00000115650
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1950
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023170018
Condominium Number:	00000
Census Tract 2:	0557
X Coordinate:	0995145
Y Coordinate:	0201587
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Y165 **NORTH 7TH ST & KENT AVE** **NY Spills** **S103271745**
SSW **NORTH 7TH ST / KENT AVE** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1180 ft.

Site 1 of 7 in cluster Y

Relative:
Higher

Actual:
16 ft.

NY Spills:

Site ID:	236186
Facility Addr2:	Not reported
Facility ID:	9300512
Spill Number:	9300512
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	04/12/93
Reported to Dept:	04/12/93
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party

NORTH 7TH ST & KENT AVE (Continued) **S103271745**

Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/18/05
Remediation Phase:	0
Date Entered In Computer:	04/13/93
Spill Record Last Update:	05/18/05
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9300512
DER Facility ID:	194567
Site ID:	236186
Operable Unit ID:	979144
Operable Unit:	01
Material ID:	401262
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 9300512 FD ON SITE-REQUESTED CON ED SHUT OFF PIPELINE-PIPELINE SUSPECTED RUPTURED -CON ED MAINT. CREW ENROUTE TO SITE.PETROLEUM TANK CLEANERS ON SITE. CONTACT MADELINE GALLO.PUBLIC AFFAIRS (518)457-2390 END CallerRemark - 9300512

Remarks: Start DECRemark - 9300512 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" WAS A SULLIVAN SPILL. REASSIGNED TO ENGELHARDT ON 4/27/95. NO EVIDENCE OF ANY SUBSURFACE INVESTIGATION AT THIS SITE. 4/2/03: APPENDIX B SITE NO 25/45. TRANSFERRED FROM ENGELHARDT TO O'CONNELL. 1/25/05: Limited Subsurface Investigation Report submitted. This report covers 5 locations where the pipeline is scheduled to be closed in-place as opposed to removed. This spill location(N. 7th and Kent) is one of the locations to be closed in-place. (JHO) 2/23/05: e-mail from Matt Madsen, Con Ed Remediation: "Contaminated soil was found in the excavation for the above referenced project between N6th St. and N7th St. Clayton Group Services will collect samples today or tomorrow. In addition to waste class parameters, I have asked Clayton to have the samples run for Modified 8100 so we can try to fingerprint the material. I will continue to keep you posted as we get additional information." (JHO) 3/10/05: E-mail to Madsen: "Matt: As we discussed on Friday, these are my comments on the "Limited Subsurface Investigation for Pipeline #7". 1. Only one boring location (BH-8, located at North 8th St.) exhibited visible contamination during drilling activities. Lab results for the sample collected at this boring exhibits elevated concentrations of several

NORTH 7TH ST & KENT AVE (Continued) **S103271745**

PAHs. Since this is the location of a know historical release (NYSDEC # 9300512) I think additional sampling is warranted. you indicated that the excavation has reached this intersection, and that additional samples may be collected during the excavation work. Also, this section may be removed, based on field conditions. In either case, an effort should be made to remove any contaminated soil that is encountered. Samples should be collected at the frequency approved in the construction work plan. 2. Please submit revised drawings without the word "Proposed" boring locations. 3. Please submit an electronic copy (PDF format) of the entire document, including Appendices." (JHO) 3/1/05: Response from Madsen: "Jane: Additional samples have been collected - I'll get them tabulated, plotted and over to you as soon as we havethem. I've also asked Clayton to make the requested revs to the figures and provide electronically. I can either have them reissue the original report with the corrected figures (electronically) and issue an addendum for the additional samples orhold the report until we have the new data and issue an entire new report with the additional data. Let me know what you would prefer." (JHO) 4/5/05: Revised Limited Subsurface Investigation Report submitted. (JHO) 5/13/05: Letter to Con Edapproving results of Limited Subsurface Investigation: "The data generated from the initial soil borings indicated only one area of concern (Kent Avenue at North 7th Street). This was the location of an historical release (NYSDEC spill # 9300512,spill date April 12, 1993). The concern at this location was visual evidence of contamination in a soil boring. The corresponding sample from that boring was submitted for lab analysis and the results indicated very low concentrations of several SVOC compounds. Although these concentrations were below the applicable TAGM value of 50 ppm, as a precaution the Department requested additional sampling in this area to confirm that there was no impact from the historical release. Subsequent sampling was completed in February 2005. Two additional soil samples were collected in the vicinity of the southwest corner of Kent Avenue and North 7th St. (the documented location of the historic release). No contamination was observed during collection of these samples. Analytical results of these samples correlate with the initial sample results. Results of soil sampling and analysis for the 5 sections of pipeline scheduled to be closed in-place indicate there is little or no residual contamination in the soil related to the pipeline. While there are low levels of SVOCs in soil surrounding the pipeline, these concentrations do not exceed the TAGM guidance of <50 ppm per constituent. These results are also indicative of urbanfill conditions, as opposed to fuel oil contamination. With the exception of the North 7th St. intersection, there was no visual evidence of contamination observed in the soil borings. Based on these results, the Department concurs that no further remediation is required for these sections of the pipeline to be closed in-place." Close out spill number. (JHO) END DECRemark - 9300512

NY Hist Spills:

Region of Spill:	2
Spill Number:	9300512
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/12/1993 09:19
Reported to Dept Date/Time:	04/12/93 10:01
SWIS:	61

NORTH 7TH ST & KENT AVE (Continued) **S103271745**

Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/13/93
Date Spill Entered In Computer Data File:	Not reported
Update Date:	06/05/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Pounds
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	/ / : WAS A SULLIVAN SPILL. REASSIGNED TO ENGELHARDT ON 4/27/95. NO EVIDENCE OF ANY SUBSURFACE INVESTIGATION AT THIOS SITE.
Remark:	FD ON SITE-REQUESTED CON ED SHUT OFF PIPELINE-PIPELINE SUSPECTED RUPTURED -CON ED MAINT. CREW ENROUTE TO SITE.PETROLEUM TANK CLEANERS ON SITE. CONTACT MADELINE GALLO.PUBLIC AFFAIRS 518)457-2390

Y166
SSW
1/8-1/4
1180 ft.

KENT AVE BETW N 7 & 8TH
KENT AVE / N 7TH ST
BROOKLYN, NY

NY Spills
NY Hist Spills

S102141543
N/A

Site 2 of 7 in cluster Y

Relative:
Higher

Actual:
16 ft.

NY Spills:

Site ID:	323863
Facility Addr2:	Not reported
Facility ID:	9001453
Spill Number:	9001453
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	05/08/90
Reported to Dept:	05/08/90
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/09/06
Remediation Phase:	0
Date Entered In Computer:	05/11/90
Spill Record Last Update:	06/09/06
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9001453
DER Facility ID:	260908
Site ID:	323863
Operable Unit ID:	941256
Operable Unit:	01
Material ID:	439798
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	2500.00
Units:	Gallons
Recovered:	2500.00
Resource Affected:	Groundwater
Oxygenate:	False

DEC Memo: Start CallerRemark - 9001453 PIPELINE 10 FT BELOW GRADE LEAKED OIL ONTO STREET,

KENT AVE BETW N 7 & 8TH (Continued) **S102141543**

SOIL CONTAMINATED AROUND PIPELINE, AAA CONTRACTORS REMOVED OIL SOAKED SOIL. END CallerRemark - 9001453

Remarks: Start DECRemark - 9001453 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" 5/8/90, 11:00 AM; 20" line between N. 7th & N. 8th St. on Kent Ave. #6 oil leaked 10 gallons to street, 800 gallons in vault removed by AAAcontractors by 11:30AM. Upon arrival at 11:00 AM, observed oil in vault, oil surfacing from ground at point of excavation. Con Ed planning to introduce low-pour oil into the line and reduce pressure. Howard Fickerssen, Supt. of Maintenance & Construction for Underground Transmissions (Con Ed) -(718) 706-2077. He reports there sre 230,000 gallons of oil in pipeline (2.5 miles long). Con Ed's North 1st Street terminal started packing the line with low our oil at 9 AM, expect it to be complete in about 2 hours. (AJS) 5/8/90, 2:15 PM: returned to scene. Excavation of line continuing along pipeline sections towards N. 8th St. J&B Waste Oil, working for AAA, is picking up oil. J&B is pumping oil from the ground while Con Edison is excavating pavement area. (AJS) 11/15/94: REASSIGNED FROM SIGONA TO ENGELHARDT ON 11/15/94. APPENDIX B SITE NO 25/45. TRANSFERRED FROM ENGELHARDT TO O'CONNELL. Update 6/9/06 Spill closed based on final site investigation report located ineDocs App. B Site 25. (SKA) END DECRemark - 9001453

NY Hist Spills:

Region of Spill:	2
Spill Number:	9001453
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	05/08/1990 07:50
Reported to Dept Date/Time:	05/08/90 09:07
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	NEW YORK, N.Y.
Spill Cause:	Unknown
Reported to Dept:	Groundwater
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /

KENT AVE BETW N 7 & 8TH (Continued) **S102141543**

Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 05/11/90
Date Spill Entered In Computer Data File: Not reported
Update Date: 08/09/95
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 2500
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 2500
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: 11/15/94: REASSIGNED FROM SIGONA TO ENGELHARDT ON 11/15/94.
Remark: PIPELINE 10 FT BELOW GRADE LEAKED OIL ONTO STREET, SOIL CONTAMINATED AROUND PIPELINE, AAA CONTRACTORS REMOVED OIL SOAKED SOIL.

U167 **NYC TRANSIT - STORAGE FACILITY** **RCRA-LQG** **1010327955**
NNE **90 QUAY ST** **NYR000140814**
1/8-1/4 **BROOKLYN, NY 11222**
1182 ft.

Site 6 of 13 in cluster U

Relative:
Lower

Actual:
8 ft.

RCRA-LQG:
Date form received by agency: 08/01/2006
Facility name: NYC TRANSIT - STORAGE FACILITY
Facility address: 90 QUAY ST
BROOKLYN, NY 11222
EPA ID: NYR000140814
Mailing address: BROADWAY - 27TH FLOOR
NEW YORK, NY 10004
Contact: SHERRY L BULKLEY
Contact address: BROADWAY - 27TH FLOOR
NEW YORK, NY 10004
Contact country: Not reported
Contact telephone: (646) 252-5774
Contact email: SLBULKLEY@NYCT.COM
EPA Region: 02
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely

NYC TRANSIT - STORAGE FACILITY (Continued) **1010327955**

hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	NEW YORK CITY TRANSIT
Owner/operator address:	BROADWAY - 27TH FLOOR
	NEW YORK, NY 10004
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	State
Owner/Operator Type:	Owner
Owner/Op start date:	08/01/1998
Owner/Op end date:	Not reported

Owner/operator name:	NEW YORK CITY TRANSIT
Owner/operator address:	Not reported
	Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	State
Owner/Operator Type:	Operator
Owner/Op start date:	08/01/1998
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	07/31/2006
Facility name:	NYC TRANSIT - STORAGE FACILITY
Classification:	Large Quantity Generator

Hazardous Waste Summary:

Waste code:	D001
Waste name:	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT

NYC TRANSIT - STORAGE FACILITY (Continued) **1010327955**

WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Violation Status: No violations found

U168 **NYC TRANSIT - STORAGE FACILITY** **RCRA-LQG** **1010327956**
NNE **90 QUAY ST** **NYR000140814**
1/8-1/4 **BROOKLYN, NY 11222**
1182 ft.

Site 7 of 13 in cluster U

Relative:
Lower

Actual:
8 ft.

RCRA-LQG:
Date form received by agency: 08/01/2006
Facility name: NYC TRANSIT - STORAGE FACILITY
Facility address: 90 QUAY ST
BROOKLYN, NY 11222
EPA ID: NYR000140814
Mailing address: BROADWAY - 27TH FLOOR
NEW YORK, NY 10004
Contact: SHERRY L BULKLEY
Contact address: BROADWAY - 27TH FLOOR
NEW YORK, NY 10004
Contact country: Not reported
Contact telephone: (646) 252-5774
Contact email: SLBULKLEY@NYCT.COM
EPA Region: 02
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:
Owner/operator name: NEW YORK CITY TRANSIT
Owner/operator address: BROADWAY - 27TH FLOOR
NEW YORK, NY 10004
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: State
Owner/Operator Type: Owner
Owner/Op start date: 08/01/1998
Owner/Op end date: Not reported

NYC TRANSIT - STORAGE FACILITY (Continued) **1010327956**

Owner/operator name: NEW YORK CITY TRANSIT
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: State
Owner/Operator Type: Operator
Owner/Op start date: 08/01/1998
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/31/2006
Facility name: NYC TRANSIT - STORAGE FACILITY
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Violation Status: No violations found

U169
NNE
1/8-1/4
1182 ft.

Relative:
Lower

Actual:
8 ft.

NYC TRANSIT - STORAGE FACILITY
90 QUAY ST
BROOKLYN, NY 11222

Site 8 of 13 in cluster U

NY MANIFEST **S108651229**
N/A

NY MANIFEST:

Document ID:	06
Manifest Status:	001029634JJK
Trans1 State ID:	NYR000140814
Trans2 State ID:	Not reported
Generator Ship Date:	NJD002200046
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJ0000027193
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	5
Number of Containers:	CW
Container Type:	312
Handling Method:	G
Specific Gravity:	1
Waste Code:	B
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000140814
Facility Name:	NYC TRANSIT - STORAGE FACILITY
Facility Address:	90 QUAY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYC TRANSIT - STORAGE FACILITY
Mailing Contact:	NYC TRANSIT - STORAGE FACILITY
Mailing Address:	2 BROADWAY
Mailing Address 2:	27TH FLOOR

NYC TRANSIT - STORAGE FACILITY (Continued) **S108651229**

Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	646-252-5777
Document ID:	06
Manifest Status:	001029634JJK
Trans1 State ID:	NYR000140814
Trans2 State ID:	Not reported
Generator Ship Date:	NJD002200046
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJ0000027193
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	2
Number of Containers:	CW
Container Type:	385
Handling Method:	G
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000140814
Facility Name:	NYC TRANSIT - STORAGE FACILITY
Facility Address:	90 QUAY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYC TRANSIT - STORAGE FACILITY
Mailing Contact:	NYC TRANSIT - STORAGE FACILITY

NYC TRANSIT - STORAGE FACILITY (Continued) **S108651229**

Mailing Address:	2 BROADWAY
Mailing Address 2:	27TH FLOOR
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	646-252-5777
Document ID:	06
Manifest Status:	001029634JJK
Trans1 State ID:	NYR000140814
Trans2 State ID:	Not reported
Generator Ship Date:	NJD002200046
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJ0000027193
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	CW
Container Type:	180
Handling Method:	G
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000140814
Facility Name:	NYC TRANSIT - STORAGE FACILITY
Facility Address:	90 QUAY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI

NYC TRANSIT - STORAGE FACILITY (Continued) **S108651229**

Mailing Name:	NYC TRANSIT - STORAGE FACILITY
Mailing Contact:	NYC TRANSIT - STORAGE FACILITY
Mailing Address:	2 BROADWAY
Mailing Address 2:	27TH FLOOR
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	646-252-5777

Z170 **VAULT VS3184** **NY Spills** **S104192591**
NE **MESEROLE AVE/ GEM ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1184 ft.

Site 1 of 5 in cluster Z

Relative:
Lower

Actual:
9 ft.

NY Spills:

Site ID:	277656
Facility Addr2:	Not reported
Facility ID:	9904235
Spill Number:	9904235
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	07/09/99
Reported to Dept:	07/09/99
CID:	382
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/19/99
Remediation Phase:	0
Date Entered In Computer:	07/09/99
Spill Record Last Update:	06/02/00
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	RICHARD ROACH
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9904235
DER Facility ID:	225690
Site ID:	277656
Operable Unit ID:	1083161

VAULT VS3184 (Continued) **S104192591**

Operable Unit: 01
Material ID: 304126
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 0.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9904235 1 QT OF UNK OIL IN VAULT. CONTAINED CLEAN UP PENDING LAB RESULTS. CON ED 126-317 END CallerRemark - 9904235
Remarks: Start DECRemark - 9904235 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" con ed e2mis notes: 1 pint unknown oil on approx. 3 gal water in VS 3184. Spill appears to be contained. Transformer was pressure-tested on7/8 and held pressure (not leaking). Liquid sample taken. Lab results received lab seq pcb=65ppm-- will use prior epa# from incident to proceed with cleanup. Cleanup completed and tag removed. Double washed and dug out 1/2 drum dirt, no sump.Over 50 ppm cleanup paperwork retained with env.ops. Incident is closed. END DECRemark - 9904235

NY Hist Spills:
Region of Spill: 2
Spill Number: 9904235
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 07/09/1999 17:40
Reported to Dept Date/Time: 07/09/99 18:21
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Contact: RICHARD ROACH
Spiller Phone: (212) 580-6763
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response.

VAULT VS3184 (Continued) **S104192591**

Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/19/99
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 07/09/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 06/02/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: con ed e2mis notes: 1 pint unknown oil on approx. 3 gal water in VS 3184. Spill appears to be contained. Transformer was pressure-tested on 7/8 and held pressure not leaking). Liquid sample taken. Lab results received lab seq pcb=65ppm-- will use prior epa from incident to proceed with cleanup. Cleanup completed and tag removed. Double washed and dug out 1/2 drum dirt, no sump. Over 50 ppm cleanup paperwork retained with env.ops. Incident is closed.
Remark: 1 QT OF UNK OIL IN VAULT. CONTAINED CLEAN UP PENDING LAB RESULTS. CON ED 126-317

Z171 **VS #3184** **NY Spills** **S104509538**
NE **MESEROLE AVE/GEM ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1184 ft.

Site 2 of 5 in cluster Z

Relative:
Lower

Actual:
9 ft.

NY Spills:
Site ID: 168890
Facility Addr2: Not reported
Facility ID: 9912478
Spill Number: 9912478
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 02/01/00
Reported to Dept: 02/01/00
CID: 281
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Std: False

VS #3184 (Continued) **S104509538**

Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 02/26/02
Remediation Phase: 0
Date Entered In Computer: 02/01/00
Spill Record Last Update: 02/26/02
Spiller Name: Not reported
Spiller Company: UNKNOWN
Spiller Address: Not reported
Spiller City,St,Zip: NY
Spiller Company: 999
Spiller Phone: Not reported
Contact Name: MARK SCHLAGEL
Contact Phone: (212) 580-6763
DEC Region: 2
Program Number: 9912478
DER Facility ID: 142237
Site ID: 168890
Operable Unit ID: 1087013
Operable Unit: 01
Material ID: 294362
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 1.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9912478 ABOVE MATERIAL DISCOVERED AT ABOVE LOCATION. SAMPLE TAKEN AND CLEANUP PENDING LAB RESULTS. MATERIAL DISCOVERED ON TOP OF 500 GALLONS OF WATER. CON ED #129815. NO CALL BACK REQEUSTED. END CallerRemark - 9912478
Remarks: Start DECRemark - 9912478 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 9912478

NY Hist Spills:
Region of Spill: 2
Spill Number: 9912478
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 02/01/2000 10:00
Reported to Dept Date/Time: 02/01/00 11:04
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Contact: MARK SCHLAGEL

VS #3184 (Continued) **S104509538**

Spiller Phone: (212) 580-6763
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 02/01/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/01/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: ABOVE MATERIAL DISCOVERED AT ABOVE LOCATION. SAMPLE TAKEN AND CLEANUP PENDING LAB RESULTS. MATERIAL DISCOVERED ON TOP OF 500 GALLONS OF WATER. CON ED 129815. NO CALL BACK REQEUSTED.

Z172 **VAULT VS3184** **NY Spills** **S104192472**
NE **MESEROLE / GEM ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1184 ft.

Site 3 of 5 in cluster Z

Relative:
Lower

Actual:
9 ft.

NY Spills:

Site ID:	189501
Facility Addr2:	Not reported
Facility ID:	9904106
Spill Number:	9904106
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	07/08/99
Reported to Dept:	07/08/99
CID:	255
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/03/07
Remediation Phase:	0
Date Entered In Computer:	07/08/99
Spill Record Last Update:	05/03/07
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	MIKE CESARE
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9904106
DER Facility ID:	158182
Site ID:	189501
Operable Unit ID:	1078527
Operable Unit:	01
Material ID:	303999
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	2.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9904106 2 Gallons on 260 gallons of water in a vault -

VAULT VS3184 (Continued) **S104192472**

clean up pending test results con ed #126235 END CallerRemark - 9904106
Remarks: Start DECRemark - 9904106 05/03/07 - See e-docs for Con Ed report detailing cleanup and closure. Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" END DECRemark - 9904106

NY Hist Spills:

Region of Spill:	2
Spill Number:	9904106
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/08/1999 03:10
Reported to Dept Date/Time:	07/08/99 03:47
SWIS:	61
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	MIKE CESARE
Spiller Phone:	(212) 580-6763
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/08/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	07/08/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	2
Unkonwn Quantity Spilled:	False

VAULT VS3184 (Continued) **S104192472**

Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: 2 Gallons on 260 gallons of water in a vault - clean up pending test results con ed 126235

Z173 **VANAGE SERVICE 3184** **NY Spills** **S104192868**
NE **MESEROLE AVE / GEM ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1184 ft.

Site 4 of 5 in cluster Z

Relative: Lower

Actual: 9 ft.

NY Spills:
Site ID: 172321
Facility Addr2: Not reported
Facility ID: 9904547
Spill Number: 9904547
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 07/16/99
Reported to Dept: 07/16/99
CID: 389
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 04/04/02
Remediation Phase: 0
Date Entered In Computer: 07/16/99
Spill Record Last Update: 04/04/02
Spiller Name: UNKNOWN
Spiller Company: UNKNOWN
Spiller Address: UNKNOWN
Spiller City,St,Zip: UNKNOWN, ZZ
Spiller Company: 001
Spiller Phone: Not reported
Contact Name: Not reported
Contact Phone: Not reported
DEC Region: 2
Program Number: 9904547
DER Facility ID: 145033
Site ID: 172321

VANAGE SERVICE 3184 (Continued) **S104192868**

Operable Unit ID: 1083335
Operable Unit: 01
Material ID: 304424
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 1.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9904547 1 gal of unknown oil leaked into vaultage service clean up is pending sample results no callback necessary END CallerRemark - 9904547
Remarks: Start DECRemark - 9904547 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 9904547

NY Hist Spills:
Region of Spill: 2
Spill Number: 9904547
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 07/16/1999 17:44
Reported to Dept Date/Time: 07/16/99 18:51
SWIS: 61
Spiller Name: UNK
Spiller Contact: UNK
Spiller Phone: (000) 000-0000
Spiller Address: UNK
Spiller City,St,Zip: UNK, NY
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 07/16/99
Date Spill Entered In Computer Data File: Not reported

VANAGE SERVICE 3184 (Continued) **S104192868**

Update Date:	07/20/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	1 gal of unknown oil leaked into vaultage service clean up is pending sample results no callback necessary

---

R174
South
1/8-1/4
1197 ft.

Relative:
Higher

Actual:
29 ft.

PARKED VEHICLE AT **NY Spills** **S108465475**
135 WYTHE AVE **N/A**
BROOKLYN, NY

Site 6 of 6 in cluster R

NY Spills:

Site ID:	376369
Facility Addr2:	Not reported
Facility ID:	0611688
Spill Number:	0611688
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SFRAHMAN
Referred To:	Not reported
Spill Date:	01/21/07
Reported to Dept:	01/21/07
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Passenger Vehicle
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/22/07
Remediation Phase:	0
Date Entered In Computer:	01/21/07
Spill Record Last Update:	01/22/07
Spiller Name:	Not reported

PARKED VEHICLE AT (Continued) **S108465475**

Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	ANTHONY LACHTARA
Contact Phone:	(718) 384-4581
DEC Region:	2
Program Number:	0611688
DER Facility ID:	325952
Site ID:	376369
Operable Unit ID:	1133954
Operable Unit:	01
Material ID:	2123784
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0611688 LEAK FROM PARKED VEHICLE - NO FURTHER INFO - NO PLANS FOR CLEANUP END CallerRemark - 0611688
Remarks:	Start DECRemark - 0611688 01/22/07 Rahman- I notified Sanitation operation to put down sand on it.Spill closed. END DECRemark - 0611688

U175 **LOT 210,TAXBLOCK 2590** **E DESIGNATION** **S108076394**
NNE **27 FRANKLIN STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1200 ft.

Site 9 of 13 in cluster U

Relative:
Lower

Actual:
9 ft.

E DESIGNATION:

Tax Lot(s):	210
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	Not reported
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported

LOT 210,TAXBLOCK 2590 (Continued) **S108076394**

Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G4
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	W H CHRISTIAN & SONS
Lot Area:	000006288
Total Building Floor Area:	00000001800
Commercial Floor Area:	00000001800
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001800
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0096.25
Lot Depth:	0065.33
Building Frontage:	0060.00
Building Depth:	0030.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000035550
Total Assessed Value:	00000051300
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.29
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900210
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995984
Y Coordinate:	0203801
Zoning Map:	12C
Sanborn Map:	304 033
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005

LOT 210,TAXBLOCK 2590 (Continued) **S108076394**

Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	210
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Window Wall Attenuation & Alternate Ventilation
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	577
Census Block:	1010
School District:	14
City Council District:	33
Fire Company:	L106
Health Area:	30
Police Precinct:	094
Zone District 1:	R6
Zone District 2:	Not reported
Commercial Overlay1:	C2-4
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-4/R6
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G4
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	W H CHRISTIAN & SONS
Lot Area:	000006288
Total Building Floor Area:	00000001800
Commercial Floor Area:	00000001800
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001800
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0096.25
Lot Depth:	0065.33
Building Frontage:	0060.00

LOT 210,TAXBLOCK 2590 (Continued) **S108076394**

Building Depth:	0030.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000035550
Total Assessed Value:	00000051300
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.29
Maximum Allowable Far:	02.43
Borough Code:	3
Borough Tax Block And Lot:	3025900210
Condominium Number:	00000
Census Tract 2:	0577
X Coordinate:	0995984
Y Coordinate:	0203801
Zoning Map:	12C
Sanborn Map:	304 033
Tax Map:	30902
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Y176 **LOT 11,TAXBLOCK 2325** **E DESIGNATION** **S108469754**
SSW **66 NORTH 7 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1210 ft.

Site 3 of 7 in cluster Y

Relative:
Higher

Actual:
19 ft.

E DESIGNATION:

Tax Lot(s):	11
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	555
Census Block:	1001

LOT 11,TAXBLOCK 2325 (Continued) **S108469754**

School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6B/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	LEVY REALTY LLC
Lot Area:	000002500
Total Building Floor Area:	00000002500
Commercial Floor Area:	00000002500
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000002500
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0025.00
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000015120
Total Assessed Value:	00000041580
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1950
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023250011
Condominium Number:	00000
Census Tract 2:	0555

LOT 11,TAXBLOCK 2325 (Continued) **S108469754**

X Coordinate:	0994958
Y Coordinate:	0201562
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Y177 **LOT 12,TAXBLOCK 2325** **E DESIGNATION** **S108469760**
SSW **68 NORTH 7 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1216 ft.

Site 4 of 7 in cluster Y

Relative:
Higher

Actual:
20 ft.

E DESIGNATION:

Tax Lot(s):	12
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	555
Census Block:	1001
School District:	14
City Council District:	33
Fire Company:	E221
Health Area:	30
Police Precinct:	094
Zone District 1:	M1-2/R6B
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6B/MX-8
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	LEVY REALTY LLC
Lot Area:	000005000
Total Building Floor Area:	00000005000

LOT 12,TAXBLOCK 2325 (Continued) **S108469760**

Commercial Floor Area:	00000005000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000005000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0050.00
Lot Depth:	0100.00
Building Frontage:	0050.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000029520
Total Assessed Value:	00000104850
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1945
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.00
Maximum Allowable Far:	02.00
Borough Code:	3
Borough Tax Block And Lot:	3023250012
Condominium Number:	00000
Census Tract 2:	0555
X Coordinate:	0994967
Y Coordinate:	0201513
Zoning Map:	12C
Sanborn Map:	304 013
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

U178
NNE
1/8-1/4
1231 ft.

Relative:
Lower

Actual:
9 ft.

PAT & DOMS BODY & FENDER REPAIR
25 FRANKLIN ST
BROOKLYN, NY 11222

NY MANIFEST **1004755884**
RCRA-NonGen **NY0000623140**

Site 10 of 13 in cluster U

NY MANIFEST:

Document ID:	NJA2756828
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	970527
Trans1 Recv Date:	970527
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970529
Part A Recv Date:	970606
Part B Recv Date:	970609
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00100
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Document ID:	NJA2829758
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	970925
Trans1 Recv Date:	970925
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970926
Part A Recv Date:	Not reported
Part B Recv Date:	971015
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00070
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540

Document ID:	NJA2832960
Manifest Status:	Not reported
Trans1 State ID:	NJD986608941
Trans2 State ID:	Not reported
Generator Ship Date:	01/19/1998

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Trans1 Recv Date:	01/19/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/21/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD002454544
Trans2 EPA ID:	Not reported
TSDF ID:	10339
Waste Code:	F003 - UNKNOWN
Quantity:	00065
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540
Document ID:	NJA1987208
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	940914
Trans1 Recv Date:	940914
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940915
Part A Recv Date:	940923
Part B Recv Date:	940923

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00250
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540

Document ID:	NJA1987485
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	941019
Trans1 Recv Date:	941019
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	941020
Part A Recv Date:	941118
Part B Recv Date:	941104
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Quantity:	00205
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540
Document ID:	NJA2182010
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	950829
Trans1 Recv Date:	950829
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950831
Part A Recv Date:	960117
Part B Recv Date:	950914
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00250
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540
Document ID:	NJA2103620
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	950418
Trans1 Recv Date:	950418
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	950420
Part A Recv Date:	Not reported
Part B Recv Date:	950501
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00205
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540
Document ID:	NJA2602052
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	960516
Trans1 Recv Date:	960516
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960517
Part A Recv Date:	960528
Part B Recv Date:	960530
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00180
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540

Document ID:	NJA2282582
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	960103
Trans1 Recv Date:	960103
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960104
Part A Recv Date:	960117
Part B Recv Date:	960112
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540
Document ID:	NJA2678116
Manifest Status:	Completed copy
Trans1 State ID:	10339
Trans2 State ID:	Not reported
Generator Ship Date:	970121
Trans1 Recv Date:	970121
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970122
Part A Recv Date:	970206
Part B Recv Date:	970205
Generator EPA ID:	NY0000623140
Trans1 EPA ID:	NJD986608941
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F003 - UNKNOWN
Quantity:	00160
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NY0000623140
Facility Name:	PAT & DOMS BODY & FENDER REPAIR
Facility Address:	25 FRANKLIN ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

County:	KI
Mailing Name:	PAT & DOMS BODY & FENDER REPAIR
Mailing Contact:	JAMES MOONEY
Mailing Address:	25 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-5540

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	PAT & DOMS BODY & FENDER REPAIR
Facility address:	25 FRANKLIN ST BROOKLYN, NY 11222
EPA ID:	NY0000623140
Mailing address:	FRANKLIN ST BROOKLYN, NY 11222
Contact:	PATRICK - ROMANELLO
Contact address:	FRANKLIN ST BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	(718) 383-5540
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	PATRICK ROMANELLO
Owner/operator address:	25 FRANKLIN ST BROOKLYN, NY 11222
Owner/operator country:	Not reported
Owner/operator telephone:	(718) 383-5540
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No

PAT & DOMS BODY & FENDER REPAIR (Continued) **1004755884**

Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 08/26/1994
Facility name: PAT & DOMS BODY & FENDER REPAIR
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D035
Waste name: METHYL ETHYL KETONE

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

W179 **125 NORTH 10TH STREET LLC** **RCRA-SQG** **1006931253**
SSE **125 N 10TH ST** **NY MANIFEST** **NYR000117317**
1/8-1/4 **BROOKLYN, NY 11211** **NJ MANIFEST**
1236 ft.

Site 4 of 8 in cluster W

Relative: Higher

Actual: 28 ft.

RCRA-SQG:
Date form received by agency: 01/01/2006
Facility name: 125 NORTH 10TH STREET LLC
Facility address: 125 N 10TH ST
BROOKLYN, NY 11211
EPA ID: NYR000117317
Mailing address: LINDEN BLVD

125 NORTH 10TH STREET LLC (Continued) **1006931253**

ELMONT, NY 11003
Contact: JEREMY - FRANKEL
Contact address: LINDEN BLVD
ELMONT, NY 11003
Contact country: US
Contact telephone: (516) 285-3800
Contact email: Not reported
EPA Region: 02
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: J TAKAHASHI INC
Owner/operator address: N 10TH ST
BROOKLYN, NY 11211
Owner/operator country: Not reported
Owner/operator telephone: (718) 721-4711
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1989
Owner/Op end date: Not reported

Owner/operator name: J TAKAHASHI INC
Owner/operator address: N 10TH ST
BROOKLYN, NY 11211
Owner/operator country: Not reported
Owner/operator telephone: (718) 721-4711
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1992
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Historical Generators:
Date form received by agency: 04/22/2004
Facility name: 125 NORTH 10TH STREET LLC
Classification: Large Quantity Generator

Date form received by agency: 07/28/2003
Facility name: 125 NORTH 10TH STREET LLC
Site name: J TAKAHASHI INC
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D008
Waste name: LEAD

Violation Status: No violations found

NY MANIFEST:
Document ID: NYG3227886
Manifest Status: Not reported
Trans1 State ID: NYR000065169
Trans2 State ID: Not reported
Generator Ship Date: 07/30/2003
Trans1 Recv Date: 07/30/2003
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/30/2003
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYR000117317
Trans1 EPA ID: NYD049178296
Trans2 EPA ID: Not reported
TSDF ID: Not reported
Waste Code: D008 - LEAD 5.0 MG/L TCLP
Quantity: 09000
Units: P - Pounds
Number of Containers: 009
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 03
Manifest Tracking Num: Not reported
Import Ind: Not reported
Export Ind: Not reported
Discr Quantity Ind: Not reported
Discr Type Ind: Not reported
Discr Residue Ind: Not reported
Discr Partial Reject Ind: Not reported
Discr Full Reject Ind: Not reported
Manifest Ref Num: Not reported
Alt Fac RCRA Id: Not reported
Alt Fac Sign Date: Not reported
Mgmt Method Type Code: Not reported
EPA ID: NYR000117317
Facility Name: 125 NORTH 10TH STREET LLC
Facility Address: 125 NORTH 10TH STREET
Facility City: BROOKLYN
Facility Address 2: Not reported
Country: USA

125 NORTH 10TH STREET LLC (Continued) **1006931253**

County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060575
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	05/11/2004
Trans1 Recv Date:	05/11/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/11/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	61800
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060576
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	05/11/2004
Trans1 Recv Date:	05/11/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/11/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	62480
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Mailing Phone:	516-285-3800
Document ID:	NJA5060577
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	05/11/2004
Trans1 Recv Date:	05/11/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/11/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	63880
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060578
Manifest Status:	Not reported
Trans1 State ID:	50181

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Trans2 State ID:	Not reported
Generator Ship Date:	05/11/2004
Trans1 Recv Date:	05/11/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/11/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	59200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060579
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	05/11/2004
Trans1 Recv Date:	05/11/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/11/2004

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	54400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060513
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	51120
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060514
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	57540
Units:	P - Pounds
Number of Containers:	001

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060515
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	56140
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060516
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	57900
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060517
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	51940
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060518
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/22/2004
Trans1 Recv Date:	04/22/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/22/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	66420
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060519
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00022
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060520
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	58860
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060521
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	61140
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060522

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	58060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060523
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	56800
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060524
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	54620
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Document ID:	NJA5060525
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	53880

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800
Document ID:	NJA5060526
Manifest Status:	Not reported
Trans1 State ID:	50181
Trans2 State ID:	Not reported
Generator Ship Date:	04/21/2004
Trans1 Recv Date:	04/21/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/21/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000117317
Trans1 EPA ID:	NJR000029967
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	58080
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Year:	04
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000117317
Facility Name:	125 NORTH 10TH STREET LLC
Facility Address:	125 NORTH 10TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	125 NORTH 10TH STREET LLC
Mailing Contact:	JEREMY FRANKEL
Mailing Address:	1975 LINDEN BLVD
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-285-3800

Click this hyperlink while viewing on your computer to access
41 additional NY_MANIFEST: record(s) in the EDR Site Report.

NJ MANIFEST:

Manifest Code:	NJA5060519
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	05110421
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Manifest Code:	NJA5060513
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	05110421
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

Manifest Code:	NJA5060514
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	05110421
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

Manifest Code:	NJA5060515
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060516
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060517
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Manifest Code:	NJA5060520
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	05110421
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

Manifest Code:	NJA5060521
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	05110421
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

Manifest Code:	NJA5060522
EPA ID:	NYR000117317
Date Shipped:	20040421
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	040421
Date Trans2 Transported Waste:	000000
Date TSDF Received Waste:	040421
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060523
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060524
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Manifest Code: NJA5060525
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060526
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060527
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040427
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060528
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060531
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040422
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Manifest Code: NJA5060532
EPA ID: NYR000117317
Date Shipped: 20040421
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040421
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040422
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060518
EPA ID: NYR000117317
Date Shipped: 20040422
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040422
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040422
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110422
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060562
EPA ID: NYR000117317
Date Shipped: 20040422
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040422
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040422
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported

125 NORTH 10TH STREET LLC (Continued) **1006931253**

Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5060529
EPA ID: NYR000117317
Date Shipped: 20040422
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000029967
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040422
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040422
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05110421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

W180
SSE
1/8-1/4
1236 ft.

Relative:
Higher

Actual:
28 ft.

125 NORTH 10TH ST
BROOKLYN, NY

NY Spills **S104649106**
NY Hist Spills **N/A**

Site 5 of 8 in cluster W

NY Spills:
Site ID: 95565
Facility Addr2: Not reported
Facility ID: 9902614
Spill Number: 9902614
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: GWBURKE
Referred To: Not reported
Spill Date: 06/07/99
Reported to Dept: 06/07/99
CID: 14
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Other

(Continued) **S104649106**

Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/18/05
Remediation Phase:	0
Date Entered In Computer:	06/07/99
Spill Record Last Update:	10/18/05
Spiller Name:	STEVE
Spiller Company:	Not reported
Spiller Address:	125 NORTH 10TH ST
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(917) 763-3043
Contact Name:	STEVE
Contact Phone:	(917) 763-3043
DEC Region:	2
Program Number:	9902614
DER Facility ID:	85467
Site ID:	95565
Operable Unit ID:	1077286
Operable Unit:	01
Material ID:	306121
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9902614 during a tank install an old tank was encounterd and there is a slight odor of fuel oil in soil END CallerRemark - 9902614
Remarks:	Start DECRemark - 9902614 10/18/05 - Close - 2004 PBS states tanks removed and closed. GB END DECRemark - 9902614

NY Hist Spills:

Region of Spill:	2
Spill Number:	9902614
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	06/07/1999 12:30
Reported to Dept Date/Time:	06/07/99 13:31
SWIS:	61
Spiller Name:	Not reported
Spiller Contact:	STEVE
Spiller Phone:	(917) 763-3043
Spiller Contact:	STEVE

(Continued) **S104649106**

Spiller Phone:	(917) 763-3043
Spiller Address:	125 NORTH 10TH ST
Spiller City,St,Zip:	BROOKLYN, NY
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	06/07/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	06/07/99
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	1:37 PM SPOKE WITH PAT. CONTAMINATED SOIL WAS FOUND. NO PBS PETER
Remark:	during a tank install an old tank was encounterd and there is a slight odor of fuel oil in soil

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W181 **125 NORTH TENTH ST** **UST** **U003697807**
SSE **125 N. 10TH ST** **HIST UST** **N/A**
1/8-1/4 **BROOKLYN, NY 11201**
1236 ft.

Site 6 of 8 in cluster W

Relative: Higher

UST:

Actual: 28 ft.

UST:

Facility Id:	2-604226
Region:	STATE

125 NORTH TENTH ST (Continued) **U003697807**

Expiration Date:	03/25/09
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	125 NORTH TENTH ST LLC
Mailing Title:	Not reported
Mailing Contact:	JEREMY FRENKEL
Mailing Address:	C/O KAY MGMT
Mailing Address 2:	1975 LINDEN BLVD. SUITE 406
Mailing City:	ELMONT
Mailing State:	NY
Mailing Zip Code:	11003
Mailing Phone No:	(516) 285-3800
Mailing Email:	Not reported
Owner Title:	ATHORNEY
Owner Name:	125 NORTH TENTH STREET LLC
Owner Address:	C/O KAY MGMT - 1975 LINDEN BLVD.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11003
Owner Phone:	(516) 285-3800
Owner Company:	125 NORTH TENTH ST LLC
Emergency Contact:	JEREMY FRENKEL
Emergency Phone:	(516) 285-3800
Operator:	JEREMY FRENKEL
Operator Phone:	(516) 285-3800
Owner City:	ELMONT
Owner Sub Type:	Corporate or Commercial
UTM X:	588122.50153
UTM Y:	4508192.38437
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	1
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	15000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported

125 NORTH TENTH ST (Continued) **U003697807**

Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	07/01/99

Tank Number:	2
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	07/01/99
Capacity Gallons:	4000
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Fiberglass Reinforced Plastic (FRP)
Tank Internal Protection:	Fiberglass Liner (FRP)
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Fiberglass Reinforced Plastic (FRP)
Pipe External Protection 1:	Fiberglass
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	In-Tank System (ATG)
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Catch Basin
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	03/01/04

HIST UST:

PBS Number:	2-604226
SPDES Number:	Not reported
Emergency Contact:	FREDERIC KIM
Emergency Telephone:	(718) 486-8504
Operator:	FREDERIC KIM
Operator Telephone:	(718) 486-8504
Owner Name:	FREDERIC KIM
Owner Address:	125 N. 10TH ST

125 NORTH TENTH ST (Continued) **U003697807**

Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 486-8504
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	TAKAHASHI INC.
Mailing Address:	125 N. 10TH ST.
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	FREDERIC J. KIM
Mailing Telephone:	(718) 486-8504
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	TRUCKING/TRANSPORTATION
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	09/30/1999
Expiration Date:	09/07/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	15000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported

125 NORTH TENTH ST (Continued) **U003697807**

Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	07/01/1999
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19990701
Capacity (gals):	4000
Product Stored:	DIESEL
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	41
Overfill Prot:	High Level Alarm, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

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182 **NEKBOH RECYCLING(5 N. 7TH ST. REGISTRATI** **SWF/LF** **S106615578**
WSW **5 NORTH 7TH STREET (KENT AVE BETWEEN NORTH 6 TO N** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1241 ft.

Relative:
Lower

Actual:
4 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7183845151
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	PHILIP BARRETTI
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported

NEKBOH RECYCLING(5 N. 7TH ST. REGISTRATI (Continued) **S106615578**

Activity Desc:	C&D processing - registered
Activity Number:	24WC3
Active:	No
East Coordinate:	587602
North Coordinate:	4508315
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	None
Authorization Date:	Not reported
Expiration Date:	Not reported

AA183 **REGENT CONTROL CORP** **FINDS** **1000208586**
East **4-6 BERRY ST** **NY MANIFEST** **NYD001235209**
1/8-1/4 **BROOKLYN, NY 11211** **RCRA-NonGen**
1246 ft.

Site 1 of 4 in cluster AA

Relative:
Higher

Actual:
14 ft.

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYB2958588
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	920825
Trans1 Recv Date:	920825
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920827
Part A Recv Date:	Not reported
Part B Recv Date:	920904
Generator EPA ID:	NYD001235209
Trans1 EPA ID:	NYD006801245
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported

REGENT CONTROL CORP (Continued) **1000208586**

Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001235209
Facility Name:	REGENT CONTROL CO
Facility Address:	4 - 6 BERRY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	REGENT CONTROL CO
Mailing Contact:	REGENT CONTROL CO
Mailing Address:	4 - 6 BERRY STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	000-000-0000

Document ID:	NYA5691627
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NY1A8036
Trans2 State ID:	Not reported
Generator Ship Date:	880415
Trans1 Recv Date:	880415
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880415
Part A Recv Date:	880531
Part B Recv Date:	880422
Generator EPA ID:	NYD001235209
Trans1 EPA ID:	NYD082785429
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

REGENT CONTROL CORP (Continued) **1000208586**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001235209
Facility Name:	REGENT CONTROL CO
Facility Address:	4 - 6 BERRY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	REGENT CONTROL CO
Mailing Contact:	REGENT CONTROL CO
Mailing Address:	4 - 6 BERRY STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	000-000-0000

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	REGENT CONTROL CORP
Facility address:	4-6 BERRY ST BROOKLYN, NY 112111024
EPA ID:	NYD001235209
Mailing address:	BERRY ST BROOKLYN, NY 11211
Contact:	-
Contact address:	BERRY ST BROOKLYN, NY 11211
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown

REGENT CONTROL CORP (Continued) **1000208586**

Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	07/08/1999
Facility name:	REGENT CONTROL CORP
Classification:	Not a generator, verified

Date form received by agency:	08/18/1980
Facility name:	REGENT CONTROL CORP
Classification:	Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date:	09/02/1999
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	EPA

Evaluation date:	01/20/1993
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	EPA

V184 **LOT 10,TAXBLOCK 2290** **E DESIGNATION** **S108469746**
ESE **156 NORTH 12 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1260 ft.

Site 3 of 3 in cluster V

Relative:
Higher

Actual:
17 ft.

E DESIGNATION:

Tax Lot(s):	10
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	517
Census Block:	2001
School District:	14
City Council District:	33
Fire Company:	E229
Health Area:	30

LOT 10,TAXBLOCK 2290 (Continued) **S108469746**

Police Precinct:	094
Zone District 1:	M1-2/R6A
Zone District 2:	R6A
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	MX-8
Special Purpose District2:	Not reported
All Components1:	M1-2/R6A/MX-8
All Components2:	R6A
Split Boundary Indicator:	Y
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	135 REALTY CORP
Lot Area:	000025000
Total Building Floor Area:	00000034300
Commercial Floor Area:	00000034300
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000034300
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0125.00
Lot Depth:	0200.00
Building Frontage:	0050.00
Building Depth:	0200.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000147150
Total Assessed Value:	00000346050
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1930
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.37
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3022900010
Condominium Number:	00000
Census Tract 2:	0517
X Coordinate:	0996548
Y Coordinate:	0201920
Zoning Map:	13A
Sanborn Map:	304 014

LOT 10,TAXBLOCK 2290 (Continued) **S108469746**

Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

AB185 **TM 641** **NY Spills** **S104787604**
ENE **BANKER ST / NORMAN AVE** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1265 ft.

Site 1 of 7 in cluster AB

Relative:
Equal

Actual:
10 ft.

NY Spills:

Site ID:	181928
Facility Addr2:	Not reported
Facility ID:	0004919
Spill Number:	0004919
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	07/25/00
Reported to Dept:	07/25/00
CID:	257
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/23/01
Remediation Phase:	0
Date Entered In Computer:	07/25/00
Spill Record Last Update:	10/23/01
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ -
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	STEVE ROMERO
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	0004919
DER Facility ID:	152542
Site ID:	181928

TM 641 (Continued) **S104787604**

Operable Unit ID: 827347
Operable Unit: 01
Material ID: 549654
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 1.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 0004919 CLEANUP PENDING TEST RESULTS - 1 PINT ON 300GAL OF WATER REF #132544 END CallerRemark - 0004919
Remarks: Start DECRemark - 0004919 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" Con Ed e2mis Notes: 7/25/00 1 pint unknown oil on 300gal water in transformer manhole. Liquid sample taken. Historical PCB count is 10ppm.Pressure tested transformer and held pressure. Sample returned <1ppm. Cleanup completed by double washing with slix. Liquids removed by tanker, solids by vactor. No leaking equipment. No sump in hole. END DECRemark - 0004919

NY Hist Spills:
Region of Spill: 2
Spill Number: 0004919
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 07/25/2000 10:00
Reported to Dept Date/Time: 07/25/00 10:48
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Contact: STEVE ROMERO
Spiller Phone: (212) 580-6763
Spiller Address: Not reported
Spiller City,St,Zip: -
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response.

TM 641 (Continued) **S104787604**

Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/23/01
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 07/25/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 10/23/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Con Ed e2mis Notes: 7/25/00 1 pint unknown oil on 300gal water in transformer manhole. Liquid sample taken. Historical PCB count is 10ppm. Pressure tested transformer and held pressure. Sample returned <1ppm. Cleanup completed by double washing with slix. Liquids removed by tanker, solids by vactor. No leaking equipment. No sump in hole.
Remark: CLEANUP PENDING TEST RESULTS - 1 PINT ON 300GAL OF WATER REF 132544

AB186 **MANHOLE 64827** **NY Spills** **S106697696**
ENE **BANKER ST / NORMAN AVE** **N/A**
1/8-1/4 **BROOKLYN, NY**
1267 ft.

Site 2 of 7 in cluster AB

Relative:
Equal

Actual:
10 ft.

NY Spills:
Site ID: 309716
Facility Addr2: Not reported
Facility ID: 0404537
Spill Number: 0404537
Facility Type: ER
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Spill Date: 07/27/04
Reported to Dept: 07/27/04
CID: 405
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /

MANHOLE 64827 (Continued) **S106697696**

Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/19/05
Remediation Phase:	0
Date Entered In Computer:	07/27/04
Spill Record Last Update:	01/19/05
Spiller Name:	ERT DESK
Spiller Company:	MANHOLE 64827
Spiller Address:	BANKER ST. AND NORMAN AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	(212) 580-8383
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0404537
DER Facility ID:	152542
Site ID:	309716
Operable Unit ID:	887635
Operable Unit:	01
Material ID:	488522
Material Code:	0541A
Material Name:	DIELECTRIC FLUID
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	4.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0404537 LEAKED FROM FEEER 38 B 62, NO TO THE 5 QUESTIONS, CLAMPING THE FEEDER TO CONTAIN THE LEAK, PENDING CLEAN UP END CallerRemark - 0404537
Remarks:	Start DECRemark - 0404537 e2mis no. 154533: MH refurbishing broke cable line on 345 KV FDR 62 and leaked an estimate of 4 gallons dielectric fluid on concrete floor and bucket in MH64827. Leak has been stopped by clamping cable. Leon Paretsky's office to have chem lab come to location and take sample and to arrange clean up and to make repairs to feeder. UPDATE 1840HRS - 7/27/04 Sam Walker reports sample has been taken and chain of custody # DD20951 has been dropped off at chemlab. Source of oil spill was not feeder cable it was an oil return line. Lab Sequence Number: 04-05906-001 - TOTAL PCB 2 ppm Source/cause of spill: Feeder 62 started leaking. Trans ops called in for repair. Repair completed on 7/28/04. Nature or repairs: Leak clamped on 7/27/04 and barrel welded in place and complete on 7/28/04 Removed visible traces of oil? yes, 7/27/04 Name of Con Edison employee who inspected manhole and determined that manhole was cleaned and that repairs were adequate - There is no evidence of any leakage on the repair or anywhere else in the manhole: sam walker Cleanup completed on Date : 7/27/04 Time: 1600 hrs END DECRemark - 0404537

AB187
ENE
1/8-1/4
1267 ft.

Relative:
Equal

Actual:
10 ft.

MANHOLE 641
BANKER ST/NORMAN AVE
BROOKLYN, NY

Site 3 of 7 in cluster AB

NY Spills

S106699560
N/A

NY Spills:

Site ID:	251449
Facility Addr2:	Not reported
Facility ID:	0406990
Spill Number:	0406990
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	SKARAKHA
Referred To:	Not reported
Spill Date:	09/23/04
Reported to Dept:	09/23/04
CID:	64
Spill Cause:	Human Error
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/19/04
Remediation Phase:	0
Date Entered In Computer:	09/23/04
Spill Record Last Update:	11/19/04
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
Program Number:	0406990
DER Facility ID:	206090
Site ID:	251449
Operable Unit ID:	889586
Operable Unit:	01
Material ID:	484833
Material Code:	0012
Material Name:	Kerosene
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	4.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0406990 Lab results came back as kerosene on 400 gallons

MANHOLE 641 (Continued) **S106699560**

of water. Less than 5 gallons of kerosene. Con-Ed 155501. No to 5 questions.
END CallerRemark - 0406990

Remarks: Start DECRemark - 0406990 e2mis no 155501 APPROX 5 GAL OF UNKNOWN OIL ON APPROX 400 GAL OF WATER. THIS WAS FOUND AS A RESULT OF A 3RD PARTY SPILL FROM AN OIL TRUCK. 3 LIQUID SAMPLES WERE TAKEN. LSN No. 04-07614. FLASH POINT CAME BACK > 176 DEG F. LSN No. 04-07613. PCBs < 1 PPM. LSN No. 04-07615. OIL I.D. INDICATES THE PRESENCE OF KEROSENE. UPDATE: 9/24/04 - 1850 C. LABARBERA - ENV. OPS, REPORTS CLEANUP COMPLETED BY DOUBLE WASHING STRUCTURE WITH BIO GEN 760. TANKER REMOVED 1688 GALS OF LIQUIDS. NO SUMPS OR DRAINS IN STRUCTURE. TAG #44570 REMOVED. END DECRemark - 0406990

AB188 **NY Spills** **S106699536**
ENE **150 BANKER ST** **N/A**
1/8-1/4 **BROOKLYN, NY**
1271 ft.

Site 4 of 7 in cluster AB

Relative:
Equal

Actual:
10 ft.

NY Spills:

Site ID:	98376
Facility Addr2:	Not reported
Facility ID:	0406925
Spill Number:	0406925
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	MXTIPPLE
Referred To:	Not reported
Spill Date:	09/23/04
Reported to Dept:	09/23/04
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/23/04
Remediation Phase:	0
Date Entered In Computer:	09/23/04
Spill Record Last Update:	09/23/04
Spiller Name:	LADOLCEGTA,JOE
Spiller Company:	MODEL PETROLEUM TRANSPORT
Spiller Address:	150 BANKER ST
Spiller City,St,Zip:	BROOKLYN, NY 11222
Spiller Company:	001
Spiller Phone:	(718) 384-0995
Contact Name:	LADOLCEGTA,JOE
Contact Phone:	(718) 384-0995
DEC Region:	2
Program Number:	0406925
DER Facility ID:	87536
Site ID:	98376
Operable Unit ID:	889518

(Continued) **S106699536**

Operable Unit:	01
Material ID:	484735
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 0406925 gasket broke under dome of a tanker while truck was leaving yard 10 - 15 gallons of diesel fuel spilled on roadway. Fire Department on scene. END CallerRemark - 0406925
Remarks:	Start DECRemark - 0406925 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIPPLE" Street spill NYC FD on site. cleand//nfa END DECRemark - 0406925

AB189 **STRATFORD TOOL** **NY MANIFEST** **1009232162**
ENE **152 BANKER ST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1275 ft.

Site 5 of 7 in cluster AB

Relative:
Equal

Actual:
10 ft.

NY MANIFEST:

Document ID:	NYA3823885
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PLATE#
Trans2 State ID:	Not reported
Generator Ship Date:	860801
Trans1 Recv Date:	860801
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860801
Part A Recv Date:	860829
Part B Recv Date:	860815
Generator EPA ID:	NYP000860486
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F003 - UNKNOWN
Quantity:	01750
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	TP - Tanks, portable
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported

STRATFORD TOOL (Continued) **1009232162**

Mgmt Method Type Code:	Not reported
EPA ID:	NYP000860486
Facility Name:	STRATFORD TOOL
Facility Address:	152 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STRATFORD TOOL
Mailing Contact:	STRATFORD TOOL
Mailing Address:	152 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-8511

Document ID:	NYA3823830
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	57745-GB
Trans2 State ID:	Not reported
Generator Ship Date:	860804
Trans1 Recv Date:	860804
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860804
Part A Recv Date:	860903
Part B Recv Date:	860818
Generator EPA ID:	NYP000860486
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F003 - UNKNOWN
Quantity:	00800
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	TP - Tanks, portable
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP000860486
Facility Name:	STRATFORD TOOL
Facility Address:	152 BANKER ST
Facility City:	BROOKLYN

STRATFORD TOOL (Continued) **1009232162**

Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	STRATFORD TOOL
Mailing Contact:	STRATFORD TOOL
Mailing Address:	152 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-8511

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190 **MANHOLE #39** **NY Spills** **S104510941**
SSE **9TH ST/BERRY ST** **NY Hist Spills** **N/A**
1/8-1/4 **BROOKLYN, NY**
1276 ft.

Relative:
Higher

Actual:
35 ft.

NY Spills:

Site ID:	205941
Facility Addr2:	Not reported
Facility ID:	9914258
Spill Number:	9914258
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	03/17/00
Reported to Dept:	03/17/00
CID:	281
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Affected Persons
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/26/02
Remediation Phase:	0
Date Entered In Computer:	03/17/00
Spill Record Last Update:	03/26/02
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	MARK SCHLAGEL
Contact Phone:	(212) 580-6765
DEC Region:	2
Program Number:	9914258
DER Facility ID:	171012

MANHOLE #39 (Continued) **S104510941**

Site ID: 205941
Operable Unit ID: 1092426
Operable Unit: 01
Material ID: 555873
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 5.00
Units: Gallons
Recovered: 0.00
Resource Affected: Soil
Oxygenate: False
DEC Memo: Start CallerRemark - 9914258 ABOVE MATERIAL DISCOVERED AT ABOVE LOCATION. SAMPLE HAS BEEN TAKEN AND CLEANUP IS PENDING TEST RESULTS. CON ED # 130447. NO CALL BACK REQEUSTED. END CallerRemark - 9914258
Remarks: Start DECRemark - 9914258 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 9914258

NY Hist Spills:
Region of Spill: 2
Spill Number: 9914258
Investigator: O'CONNELL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 03/17/2000 09:50
Reported to Dept Date/Time: 03/17/00 11:54
SWIS: 61
Spiller Name: UNKNOWN
Spiller Contact: Not reported
Spiller Phone: ( ) -
Spiller Contact: MARK SCHLAGEL
Spiller Phone: (212) 580-6765
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /

MANHOLE #39 (Continued) **S104510941**

Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 03/17/00
Date Spill Entered In Computer Data File: Not reported
Update Date: 03/20/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 5
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: ABOVE MATERIAL DISCOVERED AT ABOVE LOCATION. SAMPLE HAS BEEN TAKEN AND CLEANUP IS PENDING TEST RESULTS. CON ED 130447. NO CALL BACK REQEUSTED.

X191 **CONSOLIDATED FREIGHTWAYS** **UST** **U003652035**
North **11 WEST STREET** **HIST UST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1279 ft.

Site 6 of 9 in cluster X

Relative: Lower

UST:

Actual: 9 ft.

UST:
Facility Id: 2-603899
Region: STATE
Expiration Date: 01/20/04
Renewal Date: / /
Total Capacity: 0
Facility Type: Not reported
Mailing Company: CONSOLIDATED FREIGHTWAYS
Mailing Title: Not reported
Mailing Contact: LYNNE CARLSON
Mailing Address: P.O. BOX 3010
Mailing Address 2: Not reported
Mailing City: MENLO PARK
Mailing State: CA
Mailing Zip Code: 94026-3010
Mailing Phone No: Not reported
Mailing Email: Not reported
Owner Title: Not reported
Owner Name: Not reported
Owner Address: 11 WEST STREET
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 11222-2091
Owner Phone: Not reported

CONSOLIDATED FREIGHTWAYS (Continued) **U003652035**

Owner Company:	P. CHIMENTO
Emergency Contact:	JOHN BEAUCHAMP
Emergency Phone:	Not reported
Operator:	CONSOLIDATED FREIGHTWAYS
Operator Phone:	Not reported
Owner City:	BROOKLYN
Owner Sub Type:	Private Resident
UTM X:	587963.76819
UTM Y:	4508885.70121
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Unregulated
Comments:	Not reported

Program Type:	PBS

Tank Number:	HO-1
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/99

HIST UST:

PBS Number:	2-603899
SPDES Number:	Not reported
Emergency Contact:	JOHN BEAUCHAMP
Emergency Telephone:	(718) 383-3355
Operator:	CONSOLIDATED FREIGHTWAYS
Operator Telephone:	(718) 383-3355
Owner Name:	P. CHIMENTO

CONSOLIDATED FREIGHTWAYS (Continued) **U003652035**

Owner Address:	11 WEST STREET
Owner City,St,Zip:	BROOKLYN, NY 11222-2091
Owner Telephone:	(718) 383-3355
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Name:	CONSOLIDATED FREIGHTWAYS
Mailing Address:	P.O. BOX 3010
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MENLO PARK, CA 94026-3010
Mailing Contact:	LYNNE CARLSON
Mailing Telephone:	(650) 326-1700
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	Not reported
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	TRUCKING/TRANSPORTATION
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	02/01/1999
Expiration Date:	01/20/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	HO-1
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	0
Date Tested:	Not reported

CONSOLIDATED FREIGHTWAYS (Continued) **U003652035**

Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	06/01/1999
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

X192 **P. CHIMENTO TRUCKING, INC** **UST** **U003074667**
North **11 WEST ST** **AST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222** **HIST AST**
1279 ft. **HIST UST**

Site 7 of 9 in cluster X

Relative: Lower

UST:

Actual: 9 ft.

UST:

Facility Id:	2-032816
Region:	STATE
Expiration Date:	10/29/02
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	P. CHIMENTO TRUCKING, INC
Mailing Title:	Not reported
Mailing Contact:	JOHN J. CHIMENTO
Mailing Address:	11 WEST ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 389-0570
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	11 WEST ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 389-1335
Owner Company:	P. CHIMENTO TRUCKING, INC
Emergency Contact:	JOHN J. CHIMENTO
Emergency Phone:	(718) 389-0570
Operator:	P. CHIMENTO TRUCKING, INC
Operator Phone:	(718) 389-0570
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	587963.76819
UTM Y:	4508885.70121
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Administratively Closed
Comments:	06/16/1999 - This site has been declared ADMINISTRATIVELY CLOSED. It has been removed from active status. (Please specify why below) duplicated with PBS#2-603899. pyh
Program Type:	PBS
Tank Number:	001

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/89
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	005
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Date Tank Closed: 09/01/92

Tank Number: 006
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 09/01/92
Capacity Gallons: 550
Material Name: Diesel
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: None
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: Not reported
Tank Leak Detection 1: None
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Not reported
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: None
Type Of Overfill Prevention 2: Not reported
Dispenser Method: Suction
Spill Prevention: Not reported
Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: 09/01/92

Tank Number: 007
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 09/01/92
Capacity Gallons: 550
Material Name: Diesel
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: None
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	008
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	009
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	010
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	011
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	012
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	013
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	014
Tank Location Name:	Underground

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	09/01/92
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	09/01/92

Tank Number:	015
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	10/01/88
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/88

Tank Number:	020
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	10/01/88

Tank Number:	021
Tank Location Name:	Underground
Tank Status:	Administratively Closed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	10/01/88
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Original Sacrificial Anode
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Original Sacrificial Anode
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Double-Walled (Underground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Interstitial - Electronic Monitoring
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	06/01/99

AST:

AST:

Region:	STATE
Facility Id:	2-032816
UTM X:	587963.76819
UTM Y:	4508885.70121
Expiration Date:	10/29/02
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Administratively Closed
Mailing Company:	P. CHIMENTO TRUCKING, INC
Mailing Title:	Not reported
Mailing Contact:	JOHN J. CHIMENTO
Mailing Address:	11 WEST ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 389-0570
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	11 WEST ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 389-1335
Owner Company:	P. CHIMENTO TRUCKING, INC
Emergency Contact:	JOHN J. CHIMENTO
Emergency Phone:	(718) 389-0570
Operator:	P. CHIMENTO TRUCKING, INC

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Operator Phone:	(718) 389-0570
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	016
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	017
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	018
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	019
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	275
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-032816
SWIS Code:	6101
Operator:	P. CHIMENTO TRUCKING, INC
Facility Phone:	(718) 389-0570
Facility Addr2:	11 WEST ST
Facility Type:	TRUCKING/TRANSPORTATION
Emergency:	JOHN J. CHIMENTO
Emergency Tel:	(718) 389-0570
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	P. CHIMENTO TRUCKING, INC
Owner Address:	11 WEST ST
Owner City,St,Zip:	BROOKLYN, NY 11222
Federal ID:	Not reported
Owner Tel:	(718) 389-1335
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	JOHN J. CHIMENTO
Mailing Name:	P. CHIMENTO TRUCKING, INC
Mailing Address:	11 WEST ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Telephone:	(718) 389-0570
Owner Mark:	First Owner

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Facility Status:	3 - Administratively closed (reasons include business is closed and/or mail is undeliverable, and staff cannot check if tanks were removed; or a duplicate registration was generated).
Certification Flag:	False
Certification Date:	10/03/1997
Expiration:	10/29/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2

Tank ID:	016
Tank Location:	ABOVEGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	Not reported
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	017
Tank Location:	ABOVEGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	Not reported
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	018
Tank Location:	ABOVEGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	Not reported
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	019
Tank Location:	ABOVEGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	Not reported
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

HIST UST:

PBS Number:	2-032816
SPDES Number:	Not reported
Emergency Contact:	JOHN J. CHIMENTO
Emergency Telephone:	(718) 389-0570
Operator:	P. CHIMENTO TRUCKING, INC
Operator Telephone:	(718) 389-0570
Owner Name:	P. CHIMENTO TRUCKING, INC
Owner Address:	11 WEST ST
Owner City,St,Zip:	BROOKLYN, NY 11222
Owner Telephone:	(718) 389-1335
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	P. CHIMENTO TRUCKING, INC
Mailing Address:	11 WEST ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Contact:	JOHN J. CHIMENTO
Mailing Telephone:	(718) 389-0570
Owner Mark:	First Owner
Facility Status:	3 - Administratively closed (reasons include business is closed and/or mail is undeliverable, and staff cannot check if tanks were removed; or a duplicate registration was generated).
Facility Addr2:	11 WEST ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	TRUCKING/TRANSPORTATION
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/03/1997
Expiration Date:	10/29/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19890901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	006
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	007
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	009
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	010
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	011
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	012
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	013
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	014
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19920901
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	09/01/1992
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	015
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19881001
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Overfill Prot:	Not reported
Dispenser:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	10/01/1988
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	020
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	10/01/1988
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	021
Tank Location:	UNDERGROUND
Tank Status:	Undefined
Install Date:	19881001
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	21
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported

P. CHIMENTO TRUCKING, INC (Continued) **U003074667**

Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	06/01/1999
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

X193 **CONSOLIDATED FREIGHTWAYS** **FINDS** **1004757943**
North **11 WEST ST** **NY MANIFEST** **NYD986966075**
1/8-1/4 **BROOKLYN, NY 11222** **RCRA-NonGen**
1279 ft.

Site 8 of 9 in cluster X

Relative:
Lower

Actual:
9 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYB4550508
Manifest Status:	Completed copy
Trans1 State ID:	T973LGNY
Trans2 State ID:	Not reported
Generator Ship Date:	920121
Trans1 Recv Date:	920121
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920123
Part A Recv Date:	Not reported
Part B Recv Date:	920210
Generator EPA ID:	NYD986966075
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	NYD057770109
Waste Code:	U162 - METHYL METHACRYLATE(L,T)
Quantity:	00085
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported

CONSOLIDATED FREIGHTWAYS (Continued) **1004757943**

Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986966075
Facility Name:	CONSOLIDATED FREIGHTWAY
Facility Address:	11 WEST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED FREIGHTWAY
Mailing Contact:	CONSOLIDATED FREIGHTWAY
Mailing Address:	11 WEST STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3355

Document ID:	NJA2295806
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	S50060
Generator Ship Date:	970128
Trans1 Recv Date:	970128
Trans2 Recv Date:	970205
TSD Site Recv Date:	970206
Part A Recv Date:	Not reported
Part B Recv Date:	970227
Generator EPA ID:	NYD986966075
Trans1 EPA ID:	NYD980761191
Trans2 EPA ID:	NYD980761191
TSDF ID:	NJD002200046
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00030
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported

CONSOLIDATED FREIGHTWAYS (Continued) **1004757943**

Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986966075
Facility Name:	CONSOLIDATED FREIGHTWAY
Facility Address:	11 WEST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED FREIGHTWAY
Mailing Contact:	CONSOLIDATED FREIGHTWAY
Mailing Address:	11 WEST STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3355

Document ID:	NJA2009267
Manifest Status:	Completed copy
Trans1 State ID:	50060
Trans2 State ID:	Not reported
Generator Ship Date:	941013
Trans1 Recv Date:	941013
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	941013
Part A Recv Date:	Not reported
Part B Recv Date:	941028
Generator EPA ID:	NYD986966075
Trans1 EPA ID:	NYD980761191
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00030
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00015
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94
Manifest Tracking Num:	Not reported

CONSOLIDATED FREIGHTWAYS (Continued) **1004757943**

Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986966075
Facility Name:	CONSOLIDATED FREIGHTWAY
Facility Address:	11 WEST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CONSOLIDATED FREIGHTWAY
Mailing Contact:	CONSOLIDATED FREIGHTWAY
Mailing Address:	11 WEST STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-3355

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	CONSOLIDATED FREIGHTWAYS
Facility address:	11 WEST ST BROOKLYN, NY 11222
EPA ID:	NYD986966075
Mailing address:	WEST ST BROOKLYN, NY 11222
Contact:	ROBERT - HOSKINSON
Contact address:	WEST ST BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	(718) 383-3355
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED FREIGHTWAYS
Owner/operator address:	11 WEST ST BROOKLYN, NY 11222
Owner/operator country:	Not reported
Owner/operator telephone:	(718) 383-3355
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported

CONSOLIDATED FREIGHTWAYS (Continued) **1004757943**

Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	07/29/1994
Facility name:	CONSOLIDATED FREIGHTWAYS
Classification:	Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:

Waste code:	D001
Waste name:	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Waste code:	D018
Waste name:	BENZENE

Violation Status: No violations found

X194 **11 WEST STREET** **LTANKS** **S100145616**
North **11 WEST STREET** **NY Spills** **N/A**
1/8-1/4 **BROOKLYN, NY** **NY Hist Spills**
1279 ft. **HIST LTANKS**

Site 9 of 9 in cluster X

Relative: Lower

Actual: 9 ft.

LTANKS:

Site ID:	158803
Spill Date:	10/02/89
Facility Addr2:	Not reported
Facility ID:	8906488
Program Number:	8906488
SWIS:	2401
Region of Spill:	2
Investigator:	ADMIN. CLOSED
Referred To:	Not reported

11 WEST STREET (Continued) **S100145616**

Reported to Dept:	10/02/89
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/06/03
Remediation Phase:	0
Date Entered In Computer:	10/03/89
Spill Record Last Update:	03/19/03
Spille Namer:	Not reported
Spiller Company:	P. SHIMENTO TRUCKING INC.
Spiller Phone:	(718) 389-0570
Spiller Extention:	Not reported
Spiller Address:	11 WEST STREET
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8906488
DER Facility ID:	134195
Site ID:	158803
Operable Unit ID:	934258
Operable Unit:	01
Material ID:	446899
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	158803
Spill Tank Test:	1536129
Tank Number:	015
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 8906488 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ADMIN.CLOSED" 03/06/2003 Closed Due To The Nature / Extent Of The Spill Report END DECRemark - 8906488
Remarks:	Start CallerRemark - 8906488 4K PETROTITE.VISIBLE GROSS LEAK. TO REPAIR AND

11 WEST STREET (Continued) **S100145616**

RETEST.CLOSED DUE TO LACK OF ANY RECENT INFO- DOES NOT MEET ANY CLEAN UP REQUIREMENTS. END CallerRemark - 8906488

NY Spills:

Site ID:	158804
Facility Addr2:	Not reported
Facility ID:	9614166
Spill Number:	9614166
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	03/06/97
Reported to Dept:	03/06/97
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Fire Department
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/12/03
Remediation Phase:	0
Date Entered In Computer:	03/06/97
Spill Record Last Update:	02/12/03
Spiller Name:	UNKNOWN
Spiller Company:	CONSOLIDATED FREIGHTWAY
Spiller Address:	11 WEST STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	CHIEF DIV 11
Contact Phone:	(917) 769-0506
DEC Region:	2
Program Number:	9614166
DER Facility ID:	134195
Site ID:	158804
Operable Unit ID:	1041702
Operable Unit:	01
Material ID:	339275
Material Code:	0035A
Material Name:	NITRIC ACID
Case No.:	07697372
Material FA:	Hazardous Material
Quantity:	11.00
Units:	Gallons
Recovered:	11.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9614166 SPILL IS IN TRUCKING TERMINAL VERY LITTLE INFO AT THIS TIME HAZ MAT UNIT 84 ON THE WAY END CallerRemark - 9614166

11 WEST STREET (Continued) **S100145616**

Remarks: Start DECRemark - 9614166 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" 2/12/2003 - Closed Due To The Nature / Extent Of The Spill Report END DECRemark - 9614166

NY Hist Spills:

Region of Spill:	2
Spill Number:	9614166
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	03/06/1997 00:45
Reported to Dept Date/Time:	03/06/97 01:22
SWIS:	61
Spiller Name:	CONSOLIDATED FREIGHTWAY
Spiller Contact:	UNKNOWN
Spiller Phone:	Not reported
Spiller Contact:	CHIEF DIV 11
Spiller Phone:	(917) 769-0506
Spiller Address:	11 WEST STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	03/06/97
Date Spill Entered In Computer Data File:	Not reported
Update Date:	03/07/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Nonpetroleum/Nonhazardous
Quantity Spilled:	11
Unkonwn Quantity Spilled:	False
Units:	Gallons

11 WEST STREET (Continued) **S100145616**

Quantity Recovered: 11
Unkonwn Quantity Recovered: False
Material: NITRIC ACID
Class Type: NITRIC ACID
Times Material Entry In File: 0
CAS Number: 07697372
Last Date: Not reported
DEC Remarks: Not reported
Remark: SPILL IS IN TRUCKING TERMINAL VERY LITTLE INFO AT THIS TIME HAZ MAT UNIT 84 ON THE WAY

HIST LTANKS:
Region of Spill: 2
Spill Number: 8906488
Investigator: BATTISTA
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 10/02/1989
Spill Time: 13:45
Reported to Department Date: 10/02/89
Reported to Department Time: 15:13
SWIS: 61
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: P. SHIMENTO TRUCKING INC.
Spiller Address: 11 WEST STREET
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: (718) 389-0570
Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: Groundwater
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Notifier: Tank Tester
PBS Number: 2-032816
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 10/03/89

11 WEST STREET (Continued) **S100145616**

Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/18/96
Is Updated:	False
PBS Number:	Not reported
Tank Number:	015
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Pounds
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	4K PETROTITE.VISIBLE GROSS LEAK. TO REPAIR AND RETEST.

AB195 **CORZO CONTRACTING CO INC** **UST** **U000394646**
ENE **190 BANKER STREET** **AST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222** **HIST UST**
1282 ft.

Site 6 of 7 in cluster AB

Relative:
Equal

UST:

Actual:
10 ft.

UST:

Facility Id:	2-085251
Region:	STATE
Expiration Date:	06/24/08
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	CORZO CONTRACTING CO. INC.
Mailing Title:	Not reported
Mailing Contact:	JAMES M. LEMA
Mailing Address:	78 RICHFIELD STREET
Mailing Address 2:	Not reported
Mailing City:	PLAINVIEW
Mailing State:	NY
Mailing Zip Code:	11803
Mailing Phone No:	(516) 349-0061
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	78 RICHFIELD STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11803
Owner Phone:	(516) 349-0061
Owner Company:	CORZO MAINTENANCE CO INC.
Emergency Contact:	JAMES M LEMA
Emergency Phone:	(917) 417-3227

CORZO CONTRACTING CO INC (Continued) **U000394646**

Operator:	CORZO CONTRACTING CO INC
Operator Phone:	(718) 349-3580
Owner City:	PLANIVIEW
Owner Sub Type:	Corporate or Commercial
UTM X:	588236.14878
UTM Y:	4508719.59138
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	01/01/93

AST:

AST:

Region:	STATE
Facility Id:	2-085251
UTM X:	588236.14878
UTM Y:	4508719.59138
Expiration Date:	06/24/08
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported

CORZO CONTRACTING CO INC (Continued) **U000394646**

Site Type Name:	Other
Site Type Status:	Unregulated
Mailing Company:	CORZO CONTRACTING CO. INC.
Mailing Title:	Not reported
Mailing Contact:	JAMES M. LEMA
Mailing Address:	78 RICHFIELD STREET
Mailing Address 2:	Not reported
Mailing City:	PLAINVIEW
Mailing State:	NY
Mailing Zip Code:	11803
Mailing Phone No:	(516) 349-0061
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	78 RICHFIELD STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11803
Owner Phone:	(516) 349-0061
Owner Company:	CORZO MAINTENANCE CO INC.
Emergency Contact:	JAMES M LEMA
Emergency Phone:	(917) 417-3227
Operator:	CORZO CONTRACTING CO INC
Operator Phone:	(718) 349-3580
Owner City:	PLANIVIEW
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	100
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	Empty
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported

CORZO CONTRACTING CO INC (Continued) **U000394646**

Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: 05/17/03

HIST UST:
PBS Number: 2-085251
SPDES Number: Not reported
Emergency Contact: HARNDEN INC
Emergency Telephone: (718) 383-6700
Operator: HARNDEN INC
Operator Telephone: (718) 383-6700
Owner Name: HARNDEN INC
Owner Address: 190 BANKER ST
Owner City,St,Zip: BROOKLYN, NY 11222
Owner Telephone: (718) 383-6700
Owner Type: Not reported
Owner Subtype: Not reported
Mailing Name: ELSNER ENG.
Mailing Address: 475 FAME AVE.
Mailing Address 2: Not reported
Mailing City,St,Zip: HANOVER, PENN 17331
Mailing Contact: Not reported
Mailing Telephone: (000) 000-0000
Owner Mark: First Owner
Facility Status: 2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2: 190 BANKER ST
SWIS ID: 6101
Old PBS Number: Not reported
Facility Type: Not reported
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 08/28/1987
Expiration Date: 08/28/1992
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 0
FAMT: True
Facility Screen: Minor Data Missing
Owner Screen: Minor Data Missing
Tank Screen: 0
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City: 01
Region: 2

Tank Id: 001
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 3000

CORZO CONTRACTING CO INC (Continued) **U000394646**

Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Other
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	01/01/1993
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AB196 **CORZO CONTRACTING CO INC** **SWF/LF** **S105842426**
ENE **190 BANKER STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 0**
1282 ft.

Site 7 of 7 in cluster AB

Relative:
Equal

Actual:
10 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7183493580
Owner Name:	Corzo Contracting Co Inc
Owner Type:	Not reported
Owner Address:	190 Banker Street
Owner Addr2:	Not reported
Owner City,St,Zip:	Brooklyn, NY 11222
Owner Email:	Not reported
Owner Phone:	7183493580
Contact Name:	Not reported
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Landfill - industrial/commercial
Activity Number:	24WE1
Active:	No
East Coordinate:	Not reported
North Coordinate:	Not reported
Accuracy Code:	Not reported
Regulatory Status:	Registration
Waste Type:	Asphalt;Concrete;Brick;Soil (Clean)
Authorization #:	None
Authorization Date:	Not reported
Expiration Date:	Not reported

AA197
East
1/8-1/4
1287 ft.

Relative:
Higher

Actual:
14 ft.

NASH METALWARE CO.
1 NASSAU AVE.
BROOKLYN, NY 11222

Site 2 of 4 in cluster AA

CBS AST
LTANKS
CBS

S104073387
N/A

CBS AST:

CBS Number:	2-000025
Region:	STATE
ICS Number:	2-125091
PBS Number:	Not reported
MOSF Number:	Not reported
Telephone:	(718) 922-9777
Facility Town:	NEW YORK CITY
Operator:	BEN CLARK
Emrgncy Contact:	STEPHANIE EISENBERG
Emrgncy Phone:	(212) 431-8660
Expiration Date:	03/17/1997
Owner Name:	NASH METALWARE CO.
Owner Address:	1 NASSAU AVE.
Owner City,St,Zip:	BROOKLYN, NY 11222
Owner Telephone:	(718) 384-1500
Owner type:	Corporate/Commercial
Facility Type:	MANUFACTURING
Mail Name:	NASH METALWARE CO.
Mail Contact Addr:	1 NASSAU AVE.
Mail Contact Addr2:	Not reported
Mail Contact Contact:	STEPHANIE EISENBERG
Mail Contact City,St,Zip:	BROOKLYN, NY 11222
Mail Phone:	(718) 384-1500
SPDES Number:	Not reported
Facility Status:	ACTIVE FACILITY
Owner Sub Type:	Not reported

Tank Id:	001
Date Entered:	03/17/1989
Capacity (Gal):	500
Chemical:	Trichloroethene
Tank Closed:	00/00
Tank Status:	0
Tank Type:	Steel/carbon steel
Install Date:	06/83
Certified Date:	03/20/1995
CAS Number:	79016
Substance:	Single Hazardous Substance on DEC List
Tank Location:	ABOVEGROUND
Intrnl Protection:	None
Extrnl Protection:	None
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	0
Pipe Containment:	None
Tank Containment:	None
Leak Detection:	Other
Overfill Protection:	High Level Alarm
Haz Percent:	100
Total Tanks:	0
Tank Secret:	False

NASH METALWARE CO. (Continued) **S104073387**

Last Test:	Not reported
Due Date:	Not reported
Tank Error Status:	No Missing Data
SWIS Code:	6101
Lat/Long:	Not reported
Pipe Flag:	False
Federal ID:	Not reported
Is Updated:	F
Renew Date:	04/19/93
Is it There:	F
Deliquent:	F
Date Expired:	03/17/95
Owner Mark:	1
Certificate Needs to be Printed:	False
Fiscal Amt for Registration Fee Correct:	True
Renewal Has Been Printed for Facility:	True
Pre-Printed Renewal App Last Printed:	10/09/1998
Total Capacity of All Active Tanks(gal):	0

LTANKS:

Site ID:	332794
Spill Date:	10/22/04
Facility Addr2:	Not reported
Facility ID:	0408142
Program Number:	0408142
SWIS:	2401
Region of Spill:	2
Investigator:	BKFALVEY
Referred To:	Not reported
Reported to Dept:	10/22/04
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	10/22/04
Spill Record Last Update:	11/03/06
Spille Namer:	STEHPANIE EISENBERG
Spiller Company:	Not reported
Spiller Phone:	(718) 384-1500
Spiller Extention:	Not reported
Spiller Address:	1 NASSAU AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	STEHPANIE EISENBERG
Spiller Phone:	(718) 384-1500
Spiller Extention:	Not reported
DEC Region:	2

NASH METALWARE CO. (Continued) **S104073387**

Program Number:	0408142
DER Facility ID:	15779
Site ID:	Not reported
Operable Unit ID:	Not reported
Operable Unit:	Not reported
Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	Not reported
Site ID:	332794
Spill Tank Test:	1548276
Tank Number:	1
Tank Size:	10000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	10/22/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0408142 8/05-Spoke with A-1 Crown leak. Will get back to me with the owner information. 9/05-Spoke to Stephanie Eisenberg. tank is no longer in use. Will send in paperwork. S. Scharf 4/06- Called stepahnie Eisenberg- reminded her to send in the paperwork that tanks is empty and building now uses gas. 9/14/06 called Stephanie Eisenberg (owner) - left message. bf 9/21/06 ttf letter sent to S. Eisenberg. bf END DECRemark - 0408142
Remarks:	Start CallerRemark - 0408142 PBS No: 2-333166 END CallerRemark - 0408142

CBS:

CBS Number:	2-000025
Program Type:	CBS
Dec Region:	2
Expiration Date:	N/A
UTMX:	0.0000
UTMY:	0.0000

AA198 **NASH METAL WARE CO, INC** **UST** **U001840125**
East **1 NASSAU AVENUE** **HIST UST** **N/A**
1/8-1/4 **BROOKLYN, NY 11222**
1287 ft.

Site 3 of 4 in cluster AA

Relative: Higher

Actual: 14 ft.

UST:

UST:

Facility Id:	2-333166
Region:	STATE
Expiration Date:	07/15/08
Renewal Date:	/ /
Total Capacity:	10000
Facility Type:	Not reported
Mailing Company:	EISENBERG, STEPHANIE

NASH METAL WARE CO, INC (Continued) **U001840125**

Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	1 NASSAU AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 384-1500
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1 NASSAU AVE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 384-1500
Owner Company:	EISENBERG, STEPHANIE
Emergency Contact:	COASTAL PETROLEUM TANK CO
Emergency Phone:	(212) 475-4263
Operator:	JOHN DI FALCO
Operator Phone:	(718) 384-1500
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588304.00863
UTM Y:	4508454.87388
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Active
Comments:	Duplicated registr. at 2-361364 which was deleted on 07/09/93
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	10000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)

NASH METAL WARE CO, INC (Continued) **U001840125**

Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	09/22/99
Next Test Date:	09/22/04
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-333166
SPDES Number:	Not reported
Emergency Contact:	COASTAL PETROLEUM TANK CO
Emergency Telephone:	(212) 475-4263
Operator:	JOHN DI FALCO
Operator Telephone:	(718) 384-1500
Owner Name:	EISENBERG, STEPHANIE
Owner Address:	1 NASSAU AV
Owner City,St,Zip:	BKLN, NY 11222
Owner Telephone:	(718) 384-1500
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	EISENBERG, STEPHANIE
Mailing Address:	1 NASSAU AV
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BKLN, NY 11222
Mailing Contact:	Not reported
Mailing Telephone:	(718) 384-1500
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	1 NASSAU AV
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/15/2000
Expiration Date:	07/28/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	10000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001

NASH METAL WARE CO, INC (Continued) **U001840125**

Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	09/22/1999
Next Test Date:	09/22/2004
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

AA199 **NASHMATEL WARE** **FINDS** **1000242734**
East **1 NASSAU AVE** **NY MANIFEST** **NYD001338631**
1/8-1/4 **BROOKLYN, NY 11222** **RCRA-NonGen**
1287 ft.

Site 4 of 4 in cluster AA

Relative: Higher

Actual: 14 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NASHMATEL WARE (Continued) **1000242734**

NY MANIFEST:

Document ID:	NJA0173458
Manifest Status:	Completed copy
Trans1 State ID:	NJDEP#S06
Trans2 State ID:	NJDEP#806
Generator Ship Date:	860814
Trans1 Recv Date:	860814
Trans2 Recv Date:	860815
TSD Site Recv Date:	860815
Part A Recv Date:	860820
Part B Recv Date:	860822
Generator EPA ID:	NYD001338631
Trans1 EPA ID:	NJD981138324
Trans2 EPA ID:	NJD981138324
TSDF ID:	NJD002454544
Waste Code:	F001 - UNKNOWN
Quantity:	00330
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001338631
Facility Name:	NASH METALWARE CO
Facility Address:	1 NASSAU AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NASH METALWARE CO
Mailing Contact:	NASH METALWARE CO
Mailing Address:	1 NASSAU AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-384-1500

Document ID:	NYA4170870
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	23000-GU
Trans2 State ID:	Not reported

NASHMATEL WARE (Continued) **1000242734**

Generator Ship Date:	870722
Trans1 Recv Date:	870722
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870723
Part A Recv Date:	870831
Part B Recv Date:	870803
Generator EPA ID:	NYD001338631
Trans1 EPA ID:	NYD057722258
Trans2 EPA ID:	Not reported
TSDF ID:	NYD057722258
Waste Code:	F001 - UNKNOWN
Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001338631
Facility Name:	NASH METALWARE CO
Facility Address:	1 NASSAU AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NASH METALWARE CO
Mailing Contact:	NASH METALWARE CO
Mailing Address:	1 NASSAU AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-384-1500
Document ID:	NJA0009765
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	JA-195NJS
Trans2 State ID:	Not reported
Generator Ship Date:	850326
Trans1 Recv Date:	850326
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	850326
Part A Recv Date:	850405

NASHMATEL WARE (Continued) **1000242734**

Part B Recv Date:	850523
Generator EPA ID:	NYD001338631
Trans1 EPA ID:	NJD048810279
Trans2 EPA ID:	Not reported
TSDF ID:	NJD048810279
Waste Code:	F001 - UNKNOWN
Quantity:	00050
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	85
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001338631
Facility Name:	NASH METALWARE CO
Facility Address:	1 NASSAU AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NASH METALWARE CO
Mailing Contact:	NASH METALWARE CO
Mailing Address:	1 NASSAU AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-384-1500

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	NASHMATEL WARE
Facility address:	1 NASSAU AVE BROOKLYN, NY 112223115
EPA ID:	NYD001338631
Mailing address:	NASSAU AVE BROOKLYN, NY 11222
Contact:	-
Contact address:	NASSAU AVE BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported

NASHMATEL WARE (Continued) **1000242734**

EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: NASHMATEL WARE
Classification: Not a generator, verified

Date form received by agency: 12/07/1984
Facility name: NASHMATEL WARE
Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 09/01/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 12/11/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

U200
NNE
1/8-1/4
1312 ft.

Relative:
Equal

Actual:
10 ft.

W. H. CHRISTIAN & SONS INC
31 FRANKLIN ST
BROOKLYN, NY 11222

Site 11 of 13 in cluster U

UST
HIST UST

U000416953
N/A

UST:

UST:

Facility Id:	2-233439
Region:	STATE
Expiration Date:	07/07/97
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	W H CHRISTIAN & SONS INC
Mailing Title:	Not reported
Mailing Contact:	WILLIAM CHIRSTIAN
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 389-7000
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	22-28 FRANKLIN ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 389-7000
Owner Company:	W. H. CHRISTIAN & SONS, INC.
Emergency Contact:	GABRIEL LEONI
Emergency Phone:	(718) 345-3891
Operator:	Not reported
Operator Phone:	(718) 389-7000
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588074.78411
UTM Y:	4508867.23659
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/97

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/97

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/97

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/97

Tank Number:	005
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/97

Tank Number:	006
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/97

Tank Number:	007
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Next Test Date: / /
Date Tank Closed: 11/01/97

HIST UST:

PBS Number:	2-233439
SPDES Number:	Not reported
Emergency Contact:	GABRIEL LEONI
Emergency Telephone:	(718) 345-3891
Operator:	W H CHRISTIAN & SONS INC
Operator Telephone:	(718) 389-7000
Owner Name:	W H CHRISTIAN & SONS INC
Owner Address:	22-28 FRANKLIN ST
Owner City,St,Zip:	BROOKLYN, NY 11222
Owner Telephone:	(718) 389-7000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	W H CHRISTIAN & SONS INC
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Contact:	WILLIAM CHIRSTIAN
Mailing Telephone:	(718) 389-7000
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	31 FRANKLIN ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	06/22/1992
Expiration Date:	07/07/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: None
Second Containment: None
Leak Detection: None
Overfill Prot: None
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 11/01/1997
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 002
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: None
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: None
Second Containment: None
Leak Detection: None
Overfill Prot: None
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: 11/01/1997
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 003
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: None
Pipe Location: Underground

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Second Containment: None
Leak Detection: None
Overfill Prot: None
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: 11/01/1997
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 006
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: None
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: None
Second Containment: None
Leak Detection: None
Overfill Prot: None
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: 11/01/1997
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 007
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: None
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: None
Second Containment: None
Leak Detection: None
Overfill Prot: None

W. H. CHRISTIAN & SONS INC (Continued) **U000416953**

Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

U201 **WH CHRISTIAN & SONS** **LTANKS** **S102960155**
NNE **31 FRANKLIN ST** **HIST LTANKS** **N/A**
1/8-1/4 **BROOKLYN, NY**
1312 ft.

Site 12 of 13 in cluster U

Relative:
Equal

Actual:
10 ft.

LTANKS:

Site ID:	81346
Spill Date:	12/10/97
Facility Addr2:	Not reported
Facility ID:	9710386
Program Number:	9710386
SWIS:	2401
Region of Spill:	2
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	12/10/97
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/03/03
Remediation Phase:	0
Date Entered In Computer:	12/10/97
Spill Record Last Update:	03/03/03
Spille Namer:	BOB
Spiller Company:	WH CHRISTIAN & SONS
Spiller Phone:	(718) 389-7000
Spiller Extention:	227
Spiller Address:	31 FRANKLIN ST
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	ROBERT KONZELMAN
Spiller Phone:	(718) 389-7000
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9710386
DER Facility ID:	75275
Site ID:	81346
Operable Unit ID:	1056759

WH CHRISTIAN & SONS (Continued) **S102960155**

Operable Unit:	01
Material ID:	328688
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9710386 during tank removal contaminated soil found END CallerRemark - 9710386

HIST LTANKS:

Region of Spill:	2
Spill Number:	9710386
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/10/1997
Spill Time:	08:00
Reported to Department Date:	12/10/97
Reported to Department Time:	13:08
SWIS:	61
Spiller Contact:	ROBERT KONZELMAN
Spiller Phone:	(718) 389-7000
Spiller Extention:	Not reported
Spiller Name:	WH CHRISTIAN & SONS
Spiller Address:	31 FRANKLIN ST
Spiller City,St,Zip:	BROOKLYN, NY
Facility Contact:	BOB
Facility Phone:	(718) 389-7000
Facility Extention:	227
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported

WH CHRISTIAN & SONS (Continued) **S102960155**

Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 12/10/97
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 12/15/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: during tank removal contaminated soil found

U202 **W H CHRISTIAN & SONS INC** **FINDS** **1001215590**
NNE **31 FRANKLIN ST** **RCRA-NonGen** **NYR000047563**
1/8-1/4 **BROOKLYN, NY 11222**
1312 ft.

Site 13 of 13 in cluster U

Relative:
Equal

Actual:
10 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RCRA-NonGen:
Date form received by agency: 01/01/2006
Facility name: W H CHRISTIAN & SONS INC

W H CHRISTIAN & SONS INC (Continued) **1001215590**

Facility address: 31 FRANKLIN ST
BROOKLYN, NY 112222007
EPA ID: NYR000047563
Mailing address: FRANKLIN ST
BROOKLYN, NY 11222
Contact: -
Contact address: FRANKLIN ST
BROOKLYN, NY 11222
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: W H CHRISTIAN & SONS INC
Classification: Not a generator, verified

Date form received by agency: 12/08/1997
Facility name: W H CHRISTIAN & SONS INC
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 07/06/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/17/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported

W H CHRISTIAN & SONS INC (Continued) **1001215590**

Date achieved compliance: Not reported
Evaluation lead agency: EPA

W203 **LOT 10,TAXBLOCK 2304** **E DESIGNATION** **S108076190**
SSE **136 NORTH 10 STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1313 ft.

Site 7 of 8 in cluster W

Relative:
Higher

Actual:
28 ft.

E DESIGNATION:

Tax Lot(s):	10
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Underground Gasoline Storage Tanks* Testing Protocol
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	517
Census Block:	2003
School District:	14
City Council District:	33
Fire Company:	E229
Health Area:	30
Police Precinct:	094
Zone District 1:	R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	R6A
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	C&L TRADING USA INC
Lot Area:	000004375
Total Building Floor Area:	00000005833
Commercial Floor Area:	00000005833
Office Floor Area:	00000001458
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000004375
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0043.75
Lot Depth:	0100.00

LOT 10,TAXBLOCK 2304 (Continued) **S108076190**

Building Frontage:	0043.75
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000025965
Total Assessed Value:	00000076500
Land Exempt Value:	00000000000
Total Exempt Value:	00000026550
Year Built:	1930
Year Built Code:	E
Year Altered1:	1997
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.33
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023040010
Condominium Number:	00000
Census Tract 2:	0517
X Coordinate:	0996168
Y Coordinate:	0201534
Zoning Map:	12C
Sanborn Map:	304 014
Tax Map:	30804
E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	10
E-No:	E-138
Effective Date:	5/11/2005
Satisfaction Date:	Not reported
Ceqr Number:	04DCP003K
Ulurp Number:	050110 ZRK, 050111 ZMK, 050415 MMK, 040416 MMK, 040417 MMK, 040418 MMK, 050110 (A) ZRK, 050111 (A) ZMK
Zoning Map No:	12c, 12d, 13a, 13b
Description:	Window Wall Attenuation & Alternate Ventilation
Description 2:	Not reported
Borough Code:	BK
Community District:	301
Census Tract:	517
Census Block:	2003
School District:	14
City Council District:	33
Fire Company:	E229
Health Area:	30
Police Precinct:	094

LOT 10,TAXBLOCK 2304 (Continued) **S108076190**

Zone District 1:	R6A
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	R6A
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	C&L TRADING USA INC
Lot Area:	000004375
Total Building Floor Area:	00000005833
Commercial Floor Area:	00000005833
Office Floor Area:	00000001458
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000004375
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0043.75
Lot Depth:	0100.00
Building Frontage:	0043.75
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000025965
Total Assessed Value:	00000076500
Land Exempt Value:	00000000000
Total Exempt Value:	00000026550
Year Built:	1930
Year Built Code:	E
Year Altered1:	1997
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.33
Maximum Allowable Far:	03.00
Borough Code:	3
Borough Tax Block And Lot:	3023040010
Condominium Number:	00000
Census Tract 2:	0517
X Coordinate:	0996168
Y Coordinate:	0201534
Zoning Map:	12C
Sanborn Map:	304 014
Tax Map:	30804

LOT 10,TAXBLOCK 2304 (Continued) **S108076190**

E Designation No:	E-138
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

W204 **NATIONAL PAPER STOCK; INC.** **SWF/LF** **S105841743**
SSE **136 NORTH 10TH STREET** **N/A**
1/8-1/4 **BROOKLYN, NY 11211**
1313 ft.

Site 8 of 8 in cluster W

Relative:
Higher

Actual:
28 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7180000000
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	LOU MANZIONE; OWNER
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - regulated
Activity Number:	24T91
Active:	No
East Coordinate:	590200
North Coordinate:	4506000
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	2-6104-00184
Authorization Date:	Not reported
Expiration Date:	Not reported

AC205
NE
1/4-1/2
1324 ft.

Relative:
Equal

Actual:
10 ft.

X
211 BANKER STREET
BROOKLYN, NY

Site 1 of 3 in cluster AC

LTANKS **S105998453**
N/A

LTANKS:

Site ID:	110211
Spill Date:	03/20/03
Facility Addr2:	Not reported
Facility ID:	0212557
Program Number:	0212557
SWIS:	2401
Region of Spill:	2
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	03/20/03
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/26/05
Remediation Phase:	0
Date Entered In Computer:	03/20/03
Spill Record Last Update:	05/26/05
Spille Namer:	Not reported
Spiller Company:	SAME
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NN
Spiller County:	999
Spiller Contact:	BOB
Spiller Phone:	(718) 389-7000
Spiller Extention:	227
DEC Region:	2
Program Number:	0212557
DER Facility ID:	96623
Site ID:	110211
Operable Unit ID:	866012
Operable Unit:	01
Material ID:	512290
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

X (Continued) **S105998453**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0212557 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SAWYER" 3/20/03 - AUSTIN, DDO - SENT OUT TTF LETTER TO BOB KNOZELMAN OF WH CHRISTIAN & sONS 1/7/04-Vought-Spill transferred from Vought to Austin. 1/27/04 - Sawyer - Spill transferred from Austin to Sawyer. 10/5/04 - Sawyer - Received another failed tank test from Pro Test with a letter informing the Department of repair attemps made and the ultimate removal of tank from service. Pro Test will update on further action, investigation and remediation. 03/04/05 - Sawyer - Jim from Protest called me about begining excavation at the above site 0n 3/08/05. They are going to remove the tank an about 60 cubic yards of contamination. 03/30/05 - Sawyer - Met Tom Leddy and Ted Dros of Protest Environmental at excavation. They will pump and pad the pit to clean sheen off water in pit. Clean endpoint samples and a ground water sample will then be needed. 5/26/05 - Sawyer- Received endpoint samples from Protest on 4/12/05 and though some of the groundwater samples were above ground water criteria, this property was included in the Greenpoint Plume. This is the reason there are gasoline constituents in the gw sample. The groundwater is between 12-15 and this is an industrial area. No further action required. Closed. END DECRemark - 0212557
Remarks:	Start CallerRemark - 0212557 tank failure, possible bad vent line END CallerRemark - 0212557

AC206 **WH CHRISTIAN & SONS** **RCRA-SQG** **1000171081**
NE **211-217 BANKER ST** **FINDS** **NYD986899425**
1/4-1/2 **BROOKLYN, NY 11222** **UST**
1325 ft. **AST**
Site 2 of 3 in cluster AC **NY MANIFEST**
Relative: **HIST UST**
Equal

RCRA-SQG:

Actual: **10 ft.**

Date form received by agency:	01/01/2006
Facility name:	WH CHRISTIAN & SONS
Facility address:	211-217 BANKER ST BROOKLYN, NY 11222
EPA ID:	NYD986899425
Mailing address:	BANKER ST BROOKLYN, NY 11222
Contact:	-
Contact address:	BANKER ST BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous

WH CHRISTIAN & SONS (Continued) **1000171081**

waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/14/1999
Facility name: WH CHRISTIAN & SONS
Classification: Small Quantity Generator

Date form received by agency: 04/30/1990
Facility name: WH CHRISTIAN & SONS
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/18/2006
Date achieved compliance: Not reported
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/12/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 372.2(a)2,8,(c)3, 373-3.3(b),g
Area of violation: Generators - General
Date violation determined: 07/06/1999
Date achieved compliance: 09/24/1999
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/24/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA

WH CHRISTIAN & SONS (Continued) **1000171081**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 05/18/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 07/06/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 09/24/1999
Evaluation lead agency: EPA

Evaluation date: 12/29/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and its Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

UST:

UST:
Facility Id: 2-117080
Region: STATE
Expiration Date: 06/05/12
Renewal Date: 02/05/02
Total Capacity: 2500

WH CHRISTIAN & SONS (Continued) **1000171081**

Facility Type:	INDUSTRIAL LAUNDRY
Mailing Company:	W H CHRISTIAN & SONS INC
Mailing Title:	Not reported
Mailing Contact:	WILLIAM H. CHRISTIAN
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 389-7000
Mailing Email:	Not reported
Owner Title:	VICE PRESIDENT
Owner Name:	WILLIAM H. CHRISTIAN
Owner Address:	22-28 FRANKLIN ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 389-7000
Owner Company:	W. H. CHRISTIAN & SONS, INC.
Emergency Contact:	BOB KONZELMAN
Emergency Phone:	(347) 668-4357
Operator:	W.H.CHRISTAIN & SON, INC.
Operator Phone:	(718) 389-7000
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588213.12770
UTM Y:	4508769.80497
Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping

WH CHRISTIAN & SONS (Continued) **1000171081**

Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	04/01/98
Next Test Date:	/ /
Date Tank Closed:	10/25/05

AST:

AST:

Region:	STATE
Facility Id:	2-117080
UTM X:	588213.12770
UTM Y:	4508769.80497
Expiration Date:	06/05/12
Renewal Date:	02/05/02
Total Capacity:	2500
Facility Type:	INDUSTRIAL LAUNDRY
Site Type Name:	Other
Site Type Status:	Active
Mailing Company:	W H CHRISTIAN & SONS INC
Mailing Title:	Not reported
Mailing Contact:	WILLIAM H. CHRISTIAN
Mailing Address:	22-28 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 389-7000
Mailing Email:	Not reported
Owner Title:	VICE PRESIDENT
Owner Name:	WILLIAM H. CHRISTIAN
Owner Address:	22-28 FRANKLIN ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 389-7000
Owner Company:	W. H. CHRISTIAN & SONS, INC.
Emergency Contact:	BOB KONZELMAN
Emergency Phone:	(347) 668-4357
Operator:	W.H.CHRISTAIN & SON, INC.
Operator Phone:	(718) 389-7000
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	002
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	10/25/05
Capacity Gallons:	2500

WH CHRISTIAN & SONS (Continued) **1000171081**

Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel Tank Encased in Concrete
Tank Internal Protection:	None
Tank Internal Protection 1:	Jacketed
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Diking (Aboveground)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Diking (Aboveground)
Tank Leak Detection 1:	Impervious Barrier/Concrete Pad (A/G)
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

NY MANIFEST:

Document ID:	NYC1691504
Manifest Status:	Completed copy
Trans1 State ID:	LP3931NY
Trans2 State ID:	Not reported
Generator Ship Date:	920617
Trans1 Recv Date:	920617
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920618
Part A Recv Date:	920629
Part B Recv Date:	920624
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00040
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC4777773
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	AM6252NY
Trans2 State ID:	1GT281OK
Generator Ship Date:	970717
Trans1 Recv Date:	970717
Trans2 Recv Date:	970722
TSD Site Recv Date:	970723
Part A Recv Date:	970814
Part B Recv Date:	970814
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	MOD095038998
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425

WH CHRISTIAN & SONS (Continued) **1000171081**

Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC3270194
Manifest Status:	Completed copy
Trans1 State ID:	NYGF2859
Trans2 State ID:	483341
Generator Ship Date:	970130
Trans1 Recv Date:	970130
Trans2 Recv Date:	970204
TSD Site Recv Date:	970205
Part A Recv Date:	970212
Part B Recv Date:	970221
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00350
Units:	P - Pounds
Number of Containers:	005
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA

WH CHRISTIAN & SONS (Continued) **1000171081**

County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC5751527
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	Not reported
Generator Ship Date:	05/17/2001
Trans1 Recv Date:	05/17/2001
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/25/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NYCGF1411
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01560
Units:	P - Pounds
Number of Containers:	008
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC6368455
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	NJD071679576
Generator Ship Date:	03/20/2001
Trans1 Recv Date:	03/20/2001
Trans2 Recv Date:	03/23/2001
TSD Site Recv Date:	03/27/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NYCGF1411
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00780
Units:	P - Pounds
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

WH CHRISTIAN & SONS (Continued) **1000171081**

Mailing Phone:	718-389-7000
Document ID:	NYC7035794
Manifest Status:	Not reported
Trans1 State ID:	TXR000050930
Trans2 State ID:	MOR000505347
Generator Ship Date:	05/14/2003
Trans1 Recv Date:	05/14/2003
Trans2 Recv Date:	05/23/2003
TSD Site Recv Date:	05/27/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NYAT8305
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00585
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC7252830
Manifest Status:	Not reported
Trans1 State ID:	TXR000050930

WH CHRISTIAN & SONS (Continued) **1000171081**

Trans2 State ID:	MOR000505347
Generator Ship Date:	12/30/2003
Trans1 Recv Date:	12/30/2003
Trans2 Recv Date:	01/02/2004
TSD Site Recv Date:	01/05/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NYAT8011
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01950
Units:	P - Pounds
Number of Containers:	010
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1650666
Manifest Status:	Completed copy
Trans1 State ID:	HW8207NY
Trans2 State ID:	Not reported
Generator Ship Date:	920521
Trans1 Recv Date:	920521
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920521

WH CHRISTIAN & SONS (Continued) **1000171081**

Part A Recv Date:	Not reported
Part B Recv Date:	920611
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC1854707
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	920915
Trans1 Recv Date:	920915
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920915
Part A Recv Date:	Not reported
Part B Recv Date:	920925
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00175
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC4706414
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYGF2859
Trans2 State ID:	M0001
Generator Ship Date:	970611
Trans1 Recv Date:	970611
Trans2 Recv Date:	970619
TSD Site Recv Date:	970620
Part A Recv Date:	970715
Part B Recv Date:	970723
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	002

WH CHRISTIAN & SONS (Continued) **1000171081**

Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC4444402
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYGF2859
Trans2 State ID:	1FS147OK
Generator Ship Date:	970327
Trans1 Recv Date:	970327
Trans2 Recv Date:	970403
TSD Site Recv Date:	970404
Part A Recv Date:	970409
Part B Recv Date:	970423
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC6561090
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	SCR000074591
Generator Ship Date:	09/07/2001
Trans1 Recv Date:	09/07/2001
Trans2 Recv Date:	09/17/2001
TSD Site Recv Date:	09/18/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	GF1411NY
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00780
Units:	P - Pounds
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC7110562
Manifest Status:	Not reported
Trans1 State ID:	TXR000050930
Trans2 State ID:	MOR000505347
Generator Ship Date:	08/29/2003
Trans1 Recv Date:	08/29/2003
Trans2 Recv Date:	09/04/2003
TSD Site Recv Date:	09/05/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	NY58468JH
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	02535
Units:	P - Pounds
Number of Containers:	013
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC2268088
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	930429
Trans1 Recv Date:	930429
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930429
Part A Recv Date:	930507
Part B Recv Date:	930507
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00120
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN

WH CHRISTIAN & SONS (Continued) **1000171081**

Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC2187663
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	930303
Trans1 Recv Date:	930303
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930303
Part A Recv Date:	930311
Part B Recv Date:	930311
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE

WH CHRISTIAN & SONS (Continued) **1000171081**

Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1877837
Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	921014
Trans1 Recv Date:	921014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921014
Part A Recv Date:	921104
Part B Recv Date:	921028
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00140
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC1801809
Manifest Status:	Completed copy
Trans1 State ID:	MT9351NY
Trans2 State ID:	Not reported
Generator Ship Date:	920821
Trans1 Recv Date:	920821
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	920821
Part A Recv Date:	920909
Part B Recv Date:	920901
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00175
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC2306867

WH CHRISTIAN & SONS (Continued) **1000171081**

Manifest Status:	Completed copy
Trans1 State ID:	JE4550NY
Trans2 State ID:	Not reported
Generator Ship Date:	930527
Trans1 Recv Date:	930527
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930527
Part A Recv Date:	930618
Part B Recv Date:	930608
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Document ID:	NYC4566723
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYGF2859
Trans2 State ID:	12071PNY
Generator Ship Date:	971105
Trans1 Recv Date:	971105

WH CHRISTIAN & SONS (Continued) **1000171081**

Trans2 Recv Date:	971112
TSD Site Recv Date:	971117
Part A Recv Date:	971124
Part B Recv Date:	971218
Generator EPA ID:	NYD986899425
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	NYD980769947
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000
Document ID:	NYC6582723
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	SCR000074591
Generator Ship Date:	07/12/2001
Trans1 Recv Date:	07/12/2001
Trans2 Recv Date:	07/19/2001
TSD Site Recv Date:	07/19/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986899425

WH CHRISTIAN & SONS (Continued) **1000171081**

Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00780
Units:	P - Pounds
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986899425
Facility Name:	WH CHRISTIAN & SONS INC
Facility Address:	211-217 BANKER ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WH CHRISTIAN & SONS INC
Mailing Contact:	MARIA GEORGE
Mailing Address:	211-217 BANKER STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-389-7000

Click this hyperlink while viewing on your computer to access
123 additional NY_MANIFEST: record(s) in the EDR Site Report.

HIST UST:

PBS Number:	2-117080
SPDES Number:	Not reported
Emergency Contact:	BOB KNOZELMAN
Emergency Telephone:	(718) 317-0619
Operator:	W H CHRISTIAN & SONS INC
Operator Telephone:	(718) 389-7000
Owner Name:	W H CHRISTIAN & SONS INC
Owner Address:	22-28 FRANKLIN ST
Owner City,St,Zip:	BROOKLYN, NY 11222
Owner Telephone:	(718) 389-7000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported

WH CHRISTIAN & SONS (Continued) **1000171081**

Mailing Name:	W H CHRISTIAN & SONS INC
Mailing Address:	22-28 FRANKLIN ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Contact:	Not reported
Mailing Telephone:	(718) 389-7000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	211 BANKER ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/07/1998
Expiration Date:	06/05/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	04/01/1998
Next Test Date:	04/01/2003
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check

WH CHRISTIAN & SONS (Continued) **1000171081**

Deleted: False
Updated: True
Lat/long: Not reported

AD207 **ERDE BAKERY** **UST** **U003074939**
SSW **170 WYTHE AVENUE** **AST** **N/A**
1/4-1/2 **BROOKLYN, NY 11211** **HIST AST**
1341 ft. **HIST UST**

Site 1 of 5 in cluster AD

Relative: Higher

UST:

Actual: 26 ft.

UST:

Facility Id:	2-600319
Region:	STATE
Expiration Date:	09/06/01
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	CECILE FARKAS
Mailing Title:	Not reported
Mailing Contact:	EMILY YAEGEL
Mailing Address:	170 WYTHE STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 387-5816
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	377 RECTOR PLACE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10006
Owner Phone:	(718) 387-5816
Owner Company:	CECILE FARKAS
Emergency Contact:	EMILY YAEGEL
Emergency Phone:	(718) 387-5816
Operator:	EMILY YAEGEL
Operator Phone:	(718) 387-5816
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
UTM X:	587819.96848
UTM Y:	4508107.19602
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Tank Converted to Non-Regulated Use
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /

ERDE BAKERY (Continued) **U003074939**

Capacity Gallons:	1080
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Vent Whistle
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	08/01/96

AST:

AST:

Region:	STATE
Facility Id:	2-600319
UTM X:	587819.96848
UTM Y:	4508107.19602
Expiration Date:	09/06/01
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Unregulated
Mailing Company:	CECILE FARKAS
Mailing Title:	Not reported
Mailing Contact:	EMILY YAEGEL
Mailing Address:	170 WYTHE STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 387-5816
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	377 RECTOR PLACE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10006
Owner Phone:	(718) 387-5816

ERDE BAKERY (Continued) **U003074939**

Owner Company:	CECILE FARKAS
Emergency Contact:	EMILY YAEGEL
Emergency Phone:	(718) 387-5816
Operator:	EMILY YAEGEL
Operator Phone:	(718) 387-5816
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	002
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Tank Converted to Non-Regulated Use
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	275
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	08/01/96

Tank Number:	003
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Tank Converted to Non-Regulated Use
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	275
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None

ERDE BAKERY (Continued) **U003074939**

Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Vent Whistle
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	08/01/96

HIST AST:

PBS Number:	2-600319
SWIS Code:	6101
Operator:	EMILY YAEGEL
Facility Phone:	(718) 387-5816
Facility Addr2:	170 WYTHE AVE
Facility Type:	MANUFACTURING
Emergency:	EMILY YAEGEL
Emergency Tel:	(718) 387-5816
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	CECILE FARKAS
Owner Address:	377 RECTOR PLACE
Owner City,St,Zip:	NEW YORK, NY 10006
Federal ID:	Not reported
Owner Tel:	(718) 387-5816
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	EMILY YAEGEL
Mailing Name:	CECILE FARKAS
Mailing Address:	170 WYTHE STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Telephone:	(718) 387-5816
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Certification Flag:	False
Certification Date:	07/08/1996
Expiration:	09/06/2001
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	0
FAMT:	True

ERDE BAKERY (Continued) **U003074939**

Facility Screen: No Missing Data
Owner Screen: Minor Data Missing
Tank Screen: 0
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City Code: 01
Region: 2

Tank ID: 002
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Tank Converted To Non-Regulated Use
Install Date: Not reported
Capacity (Gal): 275
Product Stored: NOS 1,2, OR 4 FUEL OIL
Tank Type: Steel/carbon steel
Tank Internal: 0
Tank External: 0
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: 0
Tank Containment: None
Leak Detection: 0
Overfill Protection: 46
Dispenser Method: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: 08/01/1996
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

Tank ID: 003
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Tank Converted To Non-Regulated Use
Install Date: Not reported
Capacity (Gal): 275
Product Stored: NOS 1,2, OR 4 FUEL OIL
Tank Type: Steel/carbon steel
Tank Internal: 0
Tank External: 0
Pipe Location: Underground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: 0
Tank Containment: None
Leak Detection: 0
Overfill Protection: 46
Dispenser Method: Suction
Date Tested: Not reported
Next Test Date: Not reported

ERDE BAKERY (Continued) **U003074939**

Missing Data for Tank: No Missing Data
Date Closed: 08/01/1996
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

HIST UST:
PBS Number: 2-600319
SPDES Number: Not reported
Emergency Contact: EMILY YAEGEL
Emergency Telephone: (718) 387-5816
Operator: EMILY YAEGEL
Operator Telephone: (718) 387-5816
Owner Name: CECILE FARKAS
Owner Address: 377 RECTOR PLACE
Owner City,St,Zip: NEW YORK, NY 10006
Owner Telephone: (718) 387-5816
Owner Type: Corporate/Commercial
Owner Subtype: Not reported
Mailing Name: CECILE FARKAS
Mailing Address: 170 WYTHE STREET
Mailing Address 2: Not reported
Mailing City,St,Zip: BROOKLYN, NY 11211
Mailing Contact: EMILY YAEGEL
Mailing Telephone: (718) 387-5816
Owner Mark: First Owner
Facility Status: 2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2: 170 WYTHE AVE
SWIS ID: 6101
Old PBS Number: Not reported
Facility Type: MANUFACTURING
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 07/08/1996
Expiration Date: 09/06/2001
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 0
FAMT: True
Facility Screen: No Missing Data
Owner Screen: Minor Data Missing
Tank Screen: 0
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City: 01
Region: 2

Tank Id: 001
Tank Location: UNDERGROUND

ERDE BAKERY (Continued) **U003074939**

Tank Status:	Tank Converted To Non-Regulated Use
Install Date:	Not reported
Capacity (gals):	1080
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AC208 **ARTHUR J EVERS CORP** **FINDS** **1000458309**
NE **221 BANKER ST** **NY MANIFEST** **NYD986936995**
1/4-1/2 **BROOKLYN, NY 11222** **RCRA-NonGen**
1354 ft.

Site 3 of 3 in cluster AC

Relative:
Equal

FINDS:
Other Pertinent Environmental Activity Identified at Site

Actual:
10 ft.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYB2239227
Manifest Status:	Completed copy
Trans1 State ID:	NJXK18WY
Trans2 State ID:	Not reported
Generator Ship Date:	910308
Trans1 Recv Date:	910308
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910308
Part A Recv Date:	910318
Part B Recv Date:	910322
Generator EPA ID:	NYD986936995
Trans1 EPA ID:	NYD000691949
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000691949
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES

ARTHUR J EVERS CORP (Continued) **1000458309**

Quantity:	00100
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00150
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00750
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986936995
Facility Name:	ARTHUR J EVERS CORP
Facility Address:	221 BANKERS ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	ARTHUR J EVERS CORP
Mailing Contact:	CATHERINE PARDERLIKES
Mailing Address:	221 BANKERS STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-383-7191

ARTHUR J EVERS CORP (Continued) **1000458309**

RCRA-NonGen:
Date form received by agency: 01/01/2006
Facility name: ARTHUR J EVERS CORP
Facility address: 221 BANKER ST
BROOKLYN, NY 112222844
EPA ID: NYD986936995
Mailing address: PO BOX 381 GREENPOINT STATION
BROOKLYN, NY 11222
Contact: -
Contact address: PO BOX 381 GREENPOINT STATION
BROOKLYN, NY 11222
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: ARTHUR J EVERS CORP
Classification: Not a generator, verified

Date form received by agency: 01/17/1991
Facility name: ARTHUR J EVERS CORP
Classification: Small Quantity Generator

Violation Status: No violations found

AD209
South
1/4-1/2
1389 ft.

Relative:
Higher

Actual:
29 ft.

MARGARITA SLAVIK
95 NORTH 7TH STREET
BROOKLYN, NY 11211

Site 2 of 5 in cluster AD

AST
HIST AST

U003386724
N/A

AST:

AST:

Region:	STATE
Facility Id:	2-246379
UTM X:	587862.07656
UTM Y:	4508089.00126
Expiration Date:	09/15/08
Renewal Date:	/ /
Total Capacity:	2000
Facility Type:	Not reported
Site Type Name:	Apartment Building/Office Building
Site Type Status:	Active
Mailing Company:	BILL LIKA
Mailing Title:	Not reported
Mailing Contact:	BILL LIKA
Mailing Address:	133 N 4TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	Not reported
Mailing Email:	Not reported
Owner Title:	OWNER
Owner Name:	BILL LIKA
Owner Address:	133 NORTH 4TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	Not reported
Owner Company:	BILL LIKA
Emergency Contact:	BILL LIKA
Emergency Phone:	Not reported
Operator:	BILL LIKA
Operator Phone:	Not reported
Owner City:	BROOKLYN
Owner Sub Type:	Private Resident
Program Type:	PBS
Tank Number:	209
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

MARGARITA SLAVIK (Continued) **U003386724**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-246379
SWIS Code:	6101
Operator:	BILL LIKA
Facility Phone:	(718) 963-1592
Facility Addr2:	95 NORTH 7TH STREET
Facility Type:	APARTMENT BUILDING
Emergency:	BILL LIKA
Emergency Tel:	(718) 963-1592
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	BILL LIKA
Owner Address:	133 NORTH 4TH STREET
Owner City,St,Zip:	BROOKLYN, NY 11211
Federal ID:	Not reported
Owner Tel:	(718) 963-1592
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Contact:	BILL LIKA
Mailing Name:	BILL LIKA
Mailing Address:	133 N 4TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Telephone:	(718) 963-1592
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	09/15/1998
Expiration:	09/15/2003
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data

MARGARITA SLAVIK (Continued) **U003386724**

Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2
Tank ID:	209
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

Z210 **MESEROLE AVENUE LLC** **AST** **A100194250**
NE **239 BANKER STREET** **N/A**
1/4-1/2 **BROOKLYN, NY 11222**
1412 ft.

Site 5 of 5 in cluster Z

Relative:
Equal

AST:

Actual:
10 ft.

AST:

Region:	STATE
Facility Id:	2-607228
UTM X:	588157.03391
UTM Y:	4508863.56719
Expiration Date:	12/03/06
Renewal Date:	/ /
Total Capacity:	5000
Facility Type:	Not reported
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Active
Mailing Company:	MESEROLE AVENUE LLC
Mailing Title:	Not reported
Mailing Contact:	JERRY LEBEDOWICZ

MESEROLE AVENUE LLC (Continued) **A100194250**

Mailing Address:	P.O. BOX 22-0434
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222-0434
Mailing Phone No:	(371) 229-7111
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	P.O. BOX 22-0434
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222-0434
Owner Phone:	(718) 229-7111
Owner Company:	MESEROLE AVENUE LLC
Emergency Contact:	JERRY LEBEDOWICZ
Emergency Phone:	(718) 229-7111
Operator:	JERRY LEBEDOWICZ
Operator Phone:	(718) 229-7111
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

211
SE
1/4-1/2
1417 ft.

139 NORTH 10TH STREET
139 NORTH 10TH STREET
BROOKLYN, NY 11211

UST
HIST UST

U003418596
N/A

Relative:
Higher

Actual:
27 ft.

UST:

UST:

Facility Id:	2-603708
Region:	STATE
Expiration Date:	04/16/08
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Mailing Company:	SAN TEN RAZ LLC
Mailing Title:	Not reported
Mailing Contact:	SANDRA MAISLEN
Mailing Address:	120 PLEASANT STREET
Mailing Address 2:	APT. #2
Mailing City:	BROOKLINE
Mailing State:	MA
Mailing Zip Code:	02446
Mailing Phone No:	(617) 232-7213
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	120 PLEASANT STREET
Owner Address 2:	Not reported
Owner State:	MA
Owner Zip Code:	02446
Owner Phone:	(617) 355-4218
Owner Company:	SAN TEN RAZ LLC % SANDRA MAISLEN
Emergency Contact:	SANDRA MAISLEN
Emergency Phone:	(617) 232-7213
Operator:	FRANK DROSS
Operator Phone:	(718) 384-5751
Owner City:	BROOKLINE
Owner Sub Type:	Corporate or Commercial
UTM X:	588159.80044
UTM Y:	4508161.67146
Site Type Name:	Other
Site Type Status:	Active
Comments:	9/22/06 open spill case at this site (#0306649). bf
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported

139 NORTH 10TH STREET (Continued) **U003418596**

Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZY3/EZY3 Locator Plus
Date Tested:	12/11/03
Next Test Date:	12/11/08
Date Tank Closed:	/ /

HIST UST:

PBS Number:	2-603708
SPDES Number:	Not reported
Emergency Contact:	SANJER PAZ
Emergency Telephone:	(305) 661-6096
Operator:	FRANK
Operator Telephone:	(718) 384-5751
Owner Name:	SANJER RAZ
Owner Address:	1501 VENERA AVENUE, SUITE 225
Owner City,St,Zip:	CORAL GABLES, FL 33146
Owner Telephone:	(305) 661-6096
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	C/O SANJER RAZ
Mailing Address:	1501 VENERA AVENUE
Mailing Address 2:	SUITE 225
Mailing City,St,Zip:	CORAL GABLES, FL 33146
Mailing Contact:	JEROME POLIACOF
Mailing Telephone:	(305) 661-6096
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/29/1998
Expiration Date:	10/27/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000

139 NORTH 10TH STREET (Continued) **U003418596**

FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AE212 **WASTE MANAGEMENT OF NEW YORK** **FINDS** **1004762937**
SW **144-162 KENT AVE** **NY MANIFEST** **NYR000101972**
1/4-1/2 **BROOKLYN, NY 11211** **RCRA-NonGen**
1437 ft.

Site 1 of 2 in cluster AE

Relative:
Lower

Actual:
9 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYG3071736
Manifest Status:	Not reported

WASTE MANAGEMENT OF NEW YORK (Continued) **1004762937**

Trans1 State ID:	CTD983896341
Trans2 State ID:	Not reported
Generator Ship Date:	12/06/2001
Trans1 Recv Date:	12/06/2001
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	12/07/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000101972
Trans1 EPA ID:	NYD049836679
Trans2 EPA ID:	Not reported
TSDF ID:	0239478ME
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01045
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	019
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00030
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00007
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00500
Units:	P - Pounds
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000101972
Facility Name:	WASTE MANAGEMENT OF NY
Facility Address:	144 162 KENT AVE
Facility City:	BROOKLYN

WASTE MANAGEMENT OF NEW YORK (Continued) **1004762937**

Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	WASTE MANAGEMENT OF NY
Mailing Contact:	JAY KAPLAN
Mailing Address:	123 VARICK AVENUE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-533-5310

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	WASTE MANAGEMENT OF NEW YORK
Facility address:	144-162 KENT AVE BROOKLYN, NY 11211
EPA ID:	NYR000101972
Mailing address:	VARICK AVE BROOKLYN, NY 11237
Contact:	-
Contact address:	VARICK AVE BROOKLYN, NY 11237
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	12/27/2001
Facility name:	WASTE MANAGEMENT OF NEW YORK
Classification:	Not a generator, verified

WASTE MANAGEMENT OF NEW YORK (Continued) **1004762937**

Date form received by agency: 11/16/2001
Facility name: WASTE MANAGEMENT OF NEW YORK
Classification: Small Quantity Generator

Violation Status: No violations found

AE213 **4 GS TRUCK RENTING CO.** **AST** **A100292298**
SW **150 KENT AVENUE** **N/A**
1/4-1/2 **BROOKLYN, NY 11211**
1437 ft.

Site 2 of 2 in cluster AE

Relative: Lower

AST:

Actual: 9 ft.

AST:

Region:	STATE
Facility Id:	2-608050
UTM X:	587618.45986
UTM Y:	4508148.15111
Expiration Date:	10/01/07
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Active
Mailing Company:	TAMS CONSULTANTS,AN EARTHTECH COMPANY
Mailing Title:	Not reported
Mailing Contact:	THEODORE J. YEN, P.E.
Mailing Address:	655 THRID AVENUE
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10017
Mailing Phone No:	(212) 867-1777
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	150 KENT AVNEUE
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 388-4100
Owner Company:	ALLAN SILVERMAN
Emergency Contact:	ALLAN SILVERMAN
Emergency Phone:	(718) 388-4100
Operator:	ALLAN SILVERMAN
Operator Phone:	(718) 388-4100
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Temporarily Out of Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	4000

4 GS TRUCK RENTING CO. (Continued) **A100292298**

Material Name:	Empty
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Y214 **CLEANERS SALES & EQUIPMENT** **FINDS** **1006810542**
SW **135 KENT AVE** **NY MANIFEST** **NYR000113480**
1/4-1/2 **BROOKLYN, NY 11211** **RCRA-CESQG**
1442 ft.

Site 5 of 7 in cluster Y

Relative:
Higher

Actual:
14 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYC6939516
Manifest Status:	Not reported
Trans1 State ID:	TXR000050930
Trans2 State ID:	NJD071629976
Generator Ship Date:	02/24/2003
Trans1 Recv Date:	02/24/2003
Trans2 Recv Date:	02/28/2003
TSD Site Recv Date:	03/03/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000113480
Trans1 EPA ID:	KYD053348108
Trans2 EPA ID:	Not reported

CLEANERS SALES & EQUIPMENT (Continued) **1006810542**

TSDF ID:	NY55817JL
Waste Code:	U210 - TETRACHLOROETHYLENE
Quantity:	00920
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000113480
Facility Name:	CLEANERS SALES AND EQUIPMENT
Facility Address:	135 KENT AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	CLEANERS SALES AND EQUIPMENT
Mailing Contact:	LESTER COHEN
Mailing Address:	135 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-782-2400

RCRA-CESQG:

Date form received by agency:	01/01/2006
Facility name:	CLEANERS SALES & EQUIPMENT
Facility address:	135 KENT AVE BROOKLYN, NY 11211
EPA ID:	NYR000113480
Mailing address:	KENT AVE BROOKLYN, NY 11211
Contact:	LESTER - COHEN
Contact address:	KENT AVE BROOKLYN, NY 11211
Contact country:	US
Contact telephone:	(718) 782-2400
Contact email:	Not reported
EPA Region:	02
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time;

CLEANERS SALES & EQUIPMENT (Continued) **1006810542**

or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	CLEANERS SALES & EQUIPMENT
Owner/operator address:	KENT AVE BROOKLYN, NY 11211
Owner/operator country:	US
Owner/operator telephone:	(718) 782-2400
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	02/21/2003
Owner/Op end date:	Not reported

Owner/operator name:	CLEANERS SALES & EQUIPMENT
Owner/operator address:	KENT AVE BROOKLYN, NY 11211
Owner/operator country:	US
Owner/operator telephone:	(718) 782-2400
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	02/21/2003
Owner/Op end date:	Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	02/21/2003
Facility name:	CLEANERS SALES & EQUIPMENT

CLEANERS SALES & EQUIPMENT (Continued) **1006810542**

Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D007
Waste name: CHROMIUM

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

Y215 **135 KENT AVE. MGMT. CORP.** **UST** **U004044997**
SW **135 KENT AVENUE** **N/A**
1/4-1/2 **NEW YORK, NY 11211**
1442 ft.

Site 6 of 7 in cluster Y

Relative: Higher

UST:

Actual: 14 ft.

UST:
Facility Id: 2-608579
Region: STATE
Expiration Date: 03/14/08
Renewal Date: / /
Total Capacity: 0
Facility Type: Not reported
Mailing Company: 135 KENT AVE. MGMT. CORP.
Mailing Title: Not reported
Mailing Contact: LESTER COHEN
Mailing Address: 167 COWPENS DRIVE
Mailing Address 2: Not reported
Mailing City: ORANGEBURG
Mailing State: NY
Mailing Zip Code: 10962
Mailing Phone No: (845) 359-7152
Mailing Email: Not reported
Owner Title: Not reported
Owner Name: Not reported
Owner Address: 167 COWPENS DRIVE
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 10962
Owner Phone: (845) 359-7152
Owner Company: 135 KENT AVE. MGMT. CORP.
Emergency Contact: LESTER COHEN
Emergency Phone: (845) 359-7152
Operator: 135 KENT AVE. MGMT.
Operator Phone: (718) 782-2401
Owner City: ORANGEBURG
Owner Sub Type: Corporate or Commercial
UTM X: 587640.07663

135 KENT AVE. MGMT. CORP. (Continued) **U004044997**

UTM Y:	4508155.95602
Site Type Name:	Other
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	05/01/03

Y216 **CLEANER SALES & EQUIPMENT CORP.** **CBS AST** **S103942699**
SW **135 KENT AVENUE** **CBS** **N/A**
1/4-1/2 **BROOKLYN, NY 11211**
1442 ft.

Site 7 of 7 in cluster Y

Relative:
Higher

Actual:
14 ft.

CBS AST:

CBS Number:	2-000353
Region:	STATE
ICS Number:	Not reported
PBS Number:	Not reported
MOSF Number:	Not reported
Telephone:	(718) 782-2400
Facility Town:	NEW YORK CITY
Operator:	LESTER COHEN
Emrgncy Contact:	LESTER COHEN
Emrgncy Phone:	(914) 359-7152

CLEANER SALES & EQUIPMENT CORP. (Continued) **S103942699**

Expiration Date:	05/27/2003
Owner Name:	CLEANER SALES & EQUIPMENT CORP.
Owner Address:	135 KENT AVENUE
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 782-2400
Owner type:	Corporate/Commercial
Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Mail Name:	CLEANER SALES & EQUIPMENT CORP.
Mail Contact Addr:	135 KENT AVENUE
Mail Contact Addr2:	Not reported
Mail Contact Contact:	MR. LESTER COHEN
Mail Contact City,St,Zip:	BROOKLYN, NY 11211
Mail Phone:	(718) 782-2400
SPDES Number:	Not reported
Facility Status:	ACTIVE FACILITY
Owner Sub Type:	Not reported

Tank Id:	01
Date Entered:	05/27/1999
Capacity (Gal):	5000
Chemical:	Tetrachloroethylene
Tank Closed:	Not reported
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Install Date:	00/00
Certified Date:	09/26/2001
CAS Number:	127184
Substance:	Single Hazardous Substance on DEC List
Tank Location:	ABOVEGROUND
Intrnl Protection:	None
Extrnl Protection:	None,None
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	Epoxy Liner
Pipe External:	00
Pipe Containment:	None,None
Tank Containment:	None,Painted/Asphalt Coating
Leak Detection:	None,None
Overfill Protection:	High Level Alarm,Jacketed
Haz Percent:	100
Total Tanks:	1
Tank Secret:	False
Last Test:	Not reported
Due Date:	Not reported
Tank Error Status:	No Missing Data
SWIS Code:	6101
Lat/Long:	40|43|11 / 73|57|43
Pipe Flag:	False
Federal ID:	Not reported
Is Updated:	F
Renew Date:	Not reported
Is it There:	F
Deliquent:	F
Date Expired:	Not reported
Owner Mark:	1
Certificate Needs to be Printed:	False
Fiscal Amt for Registration Fee Correct:	True

CLEANER SALES & EQUIPMENT CORP. (Continued) **S103942699**

Renewal Has Been Printed for Facility: True
Pre-Printed Renewal App Last Printed: 08/16/2001
Total Capacity of All Active Tanks(gal): 5000

CBS:
CBS Number: 2-000353
Program Type: CBS
Dec Region: 2
Expiration Date: N/A
UTMX: 587641.1286
UTMY: 4508127.7255

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217 NNE 1/4-1/2 1450 ft. **S & B CAAMANO** **UST** **U003127560**
54 FRANKLIN ST **HIST UST** **N/A**
BROOKLYN, NY 11222

Relative: Higher

Actual: 11 ft.

UST:

UST:
Facility Id: 2-110795
Region: STATE
Expiration Date: 05/07/02
Renewal Date: / /
Total Capacity: 0
Facility Type: Not reported
Mailing Company: BUDD WOODWORK
Mailing Title: Not reported
Mailing Contact: SERAFIN CAAMANO
Mailing Address: 54 FRANKLIN STREET
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip Code: 11222
Mailing Phone No: Not reported
Mailing Email: Not reported
Owner Title: Not reported
Owner Name: Not reported
Owner Address: 53-29 80TH ST
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 11373
Owner Phone: Not reported
Owner Company: SERAFIN & BELEN J CAAMANO
Emergency Contact: SERAFIN & BELEN J CAAMANO
Emergency Phone: Not reported
Operator: BUDD WOODWORK INC
Operator Phone: Not reported
Owner City: ELMHURST
Owner Sub Type: Private Resident
UTM X: 588084.23212
UTM Y: 4508913.91188
Site Type Name: Manufacturing (Other than Chemical)/Processing
Site Type Status: Unregulated
Comments: Not reported

Program Type: PBS

S & B CAAMANO (Continued) **U003127560**

Tank Number:	100
Tank Location Name:	Underground
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	2000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/98

HIST UST:

PBS Number:	2-110795
SPDES Number:	Not reported
Emergency Contact:	SERAFIN & BELEN J CAAMANO
Emergency Telephone:	(718) 639-6354
Operator:	BUDD WOODWORK INC
Operator Telephone:	(718) 389-1111
Owner Name:	SERAFIN & BELEN J CAAMANO
Owner Address:	53-29 80TH ST
Owner City,St,Zip:	ELMHURST, NY 11373
Owner Telephone:	(718) 639-6354
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Name:	BUDD WOODWORK
Mailing Address:	54 FRANKLIN STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Contact:	SERAFIN CAAMANO
Mailing Telephone:	(718) 689-1110
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	54 FRANKLIN ST

S & B CAAMANO (Continued) **U003127560**

SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	MANUFACTURING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/05/1997
Expiration Date:	05/07/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	100
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	11/01/1998
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AD218
SSW
1/4-1/2
1535 ft.

MONTROSE SUPPLY & EQUIP CO
71 NORTH 6TH ST
BROOKLYN, NY 11211

UST

U004063625
N/A

Site 3 of 5 in cluster AD

Relative:
Higher

UST:

Actual:
21 ft.

UST:

Facility Id:	2-031712
Region:	STATE
Expiration Date:	12/02/96
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Mailing Company:	MONTROSE SUPPLY & EQUIP CO
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	71 NORTH 6TH ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 263-4000
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	71 NORTH 6TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 263-4000
Owner Company:	MONTROSE SUPPLY & EQUIP CO
Emergency Contact:	NATHAN OR JERRY MUCHNICK
Emergency Phone:	(718) 263-5000
Operator:	MONTROSE SUPPLY & EQUIP CO
Operator Phone:	(718) 263-4000
Owner City:	BROOKLYN
Owner Sub Type:	Not reported
UTM X:	587775.48727
UTM Y:	4508058.35034
Site Type Name:	Unknown
Site Type Status:	Active
Comments:	Not reported
Program Type:	PBS
Tank Number:	008
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	03/01/71
Capacity Gallons:	2000
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None

MONTROSE SUPPLY & EQUIP CO (Continued) **U004063625**

Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown
Date Tested:	/ /
Next Test Date:	12/27/87
Date Tank Closed:	/ /

AD219 **MONTROSE TEXTILE MACHINERY CO** **FINDS** **1000554339**
SSW **71 N 6TH ST** **NY MANIFEST** **NYD986968006**
1/4-1/2 **BROOKLYN, NY 11211** **RCRA-NonGen**
1535 ft.

Site 4 of 5 in cluster AD

Relative: Higher

Actual: 21 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NJA1178938
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS581
Trans2 State ID:	Not reported
Generator Ship Date:	910920
Trans1 Recv Date:	910920
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910920
Part A Recv Date:	Not reported
Part B Recv Date:	911004
Generator EPA ID:	NYD986968006
Trans1 EPA ID:	NJD982281016
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	U188 - PHENOL
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001

MONTROSE TEXTILE MACHINERY CO (Continued) **1000554339**

Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD986968006
Facility Name:	MONTROSE
Facility Address:	71 NORTH 6TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	MONTROSE
Mailing Contact:	FRED
Mailing Address:	71 NORTH 6TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-963-4000

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	MONTROSE TEXTILE MACHINERY CO
Facility address:	71 N 6TH ST BROOKLYN, NY 112113089
EPA ID:	NYD986968006
Mailing address:	N 6TH ST BROOKLYN, NY 112113089
Contact:	-
Contact address:	N 6TH ST BROOKLYN, NY 112113089
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown

MONTROSE TEXTILE MACHINERY CO (Continued) **1000554339**

Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	03/29/1995
Facility name:	MONTROSE TEXTILE MACHINERY CO
Classification:	Unverified
Date form received by agency:	08/20/1991
Facility name:	MONTROSE TEXTILE MACHINERY CO
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

AD220 **MONTROSE SUPPLY & EQUIP CO** **AST** **U003074279**
SSW **71 NORTH 6TH ST** **HIST AST** **N/A**
1/4-1/2 **BROOKLYN, NY 11211** **HIST UST**
1537 ft.

Site 5 of 5 in cluster AD

Relative: Higher

Actual: 21 ft.

AST:

AST:

Region:	STATE
Facility Id:	2-031712
UTM X:	587775.48727
UTM Y:	4508058.35034
Expiration Date:	12/02/96
Renewal Date:	/ /
Total Capacity:	4000
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Active
Mailing Company:	MONTROSE SUPPLY & EQUIP CO
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	71 NORTH 6TH ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 263-4000
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	71 NORTH 6TH ST
Owner Address 2:	Not reported

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 263-4000
Owner Company:	MONTROSE SUPPLY & EQUIP CO
Emergency Contact:	NATHAN OR JERRY MUCHNICK
Emergency Phone:	(718) 263-5000
Operator:	MONTROSE SUPPLY & EQUIP CO
Operator Phone:	(718) 263-4000
Owner City:	BROOKLYN
Owner Sub Type:	Not reported
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	03/01/71
Capacity Gallons:	2000
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	002
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed Prior to Micro Conversion, 03/91
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	05/01/66
Capacity Gallons:	1000
Material Name:	Other
Percentage:	100.00

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	003
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed Prior to Micro Conversion, 03/91
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	05/01/66
Capacity Gallons:	1000
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Date Tank Closed: / /

Tank Number: 004
Tank Location Name: Aboveground on crib, rack, or cradle
Tank Status: Closed Prior to Micro Conversion, 03/91
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 05/01/66
Capacity Gallons: 1000
Material Name: Other
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: None
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: Not reported
Tank Leak Detection 1: None
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Not reported
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: None
Type Of Overfill Prevention 2: Not reported
Dispenser Method: Not reported
Spill Prevention: Not reported
Tightness Test Method: Testing Not Required
Date Tested: / /
Next Test Date: / /
Date Tank Closed: / /

Tank Number: 005
Tank Location Name: Aboveground on crib, rack, or cradle
Tank Status: Closed Prior to Micro Conversion, 03/91
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: 05/01/66
Capacity Gallons: 1000
Material Name: Other
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: None
Tank Internal Protection 2: Not reported
Pipe Location Name: No Piping
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	006
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed Prior to Micro Conversion, 03/91
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	05/01/66
Capacity Gallons:	1000
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

Tank Number:	007
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed Prior to Micro Conversion, 03/91
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Install Date:	05/01/66
Capacity Gallons:	1000
Material Name:	Other
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Not reported
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-031712
SWIS Code:	6101
Operator:	MONTROSE SUPPLY & EQUIP CO
Facility Phone:	(718) 263-4000
Facility Addr2:	71 NORTH 6TH ST
Facility Type:	Not reported
Emergency:	NATHAN OR JERRY MUCHNICK
Emergency Tel:	(718) 263-5000
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	MONTROSE SUPPLY & EQUIP CO
Owner Address:	71 NORTH 6TH ST
Owner City,St,Zip:	BROOKLYN, NY 11211
Federal ID:	Not reported
Owner Tel:	(718) 263-4000
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	MONTROSE SUPPLY & EQUIP CO
Mailing Address:	71 NORTH 6TH ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Telephone:	(718) 263-4000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

	or not at the facility.
Certification Flag:	False
Certification Date:	05/29/1992
Expiration:	12/02/1996
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19710301
Capacity (Gal):	2000
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	None
Leak Detection:	0
Overfill Protection:	Not reported
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	002
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	Closed Before April 1, 1991
Install Date:	19660501
Capacity (Gal):	1000
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Pipe Internal: Not reported
Pipe External: Not reported
Tank Containment: None
Leak Detection: 0
Overfill Protection: Not reported
Dispenser Method: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

Tank ID: 003
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Closed Before April 1, 1991
Install Date: 19660501
Capacity (Gal): 1000
Product Stored: UNKNOWN
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported
Tank Containment: None
Leak Detection: 0
Overfill Protection: Not reported
Dispenser Method: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

Tank ID: 004
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Closed Before April 1, 1991
Install Date: 19660501
Capacity (Gal): 1000
Product Stored: UNKNOWN
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Pipe External: Not reported
Tank Containment: None
Leak Detection: 0
Overfill Protection: Not reported
Dispenser Method: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

Tank ID: 005
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Closed Before April 1, 1991
Install Date: 19660501
Capacity (Gal): 1000
Product Stored: UNKNOWN
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported
Tank Containment: None
Leak Detection: 0
Overfill Protection: Not reported
Dispenser Method: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

Tank ID: 006
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Closed Before April 1, 1991
Install Date: 19660501
Capacity (Gal): 1000
Product Stored: UNKNOWN
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Tank Containment: None
Leak Detection: 0
Overfill Protection: Not reported
Dispenser Method: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

Tank ID: 007
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Closed Before April 1, 1991
Install Date: 19660501
Capacity (Gal): 1000
Product Stored: UNKNOWN
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported
Tank Containment: None
Leak Detection: 0
Overfill Protection: Not reported
Dispenser Method: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

HIST UST:
PBS Number: 2-031712
SPDES Number: Not reported
Emergency Contact: NATHAN OR JERRY MUCHNICK
Emergency Telephone: (718) 263-5000
Operator: MONTROSE SUPPLY & EQUIP CO
Operator Telephone: (718) 263-4000
Owner Name: MONTROSE SUPPLY & EQUIP CO
Owner Address: 71 NORTH 6TH ST
Owner City,St,Zip: BROOKLYN, NY 11211
Owner Telephone: (718) 263-4000
Owner Type: Not reported
Owner Subtype: Not reported
Mailing Name: MONTROSE SUPPLY & EQUIP CO
Mailing Address: 71 NORTH 6TH ST

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	Not reported
Mailing Telephone:	(718) 263-4000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	71 NORTH 6TH ST
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/29/1992
Expiration Date:	12/02/1996
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19710301
Capacity (gals):	2000
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True

MONTROSE SUPPLY & EQUIP CO (Continued) **U003074279**

Lat/long: Not reported

AF221
SE
1/4-1/2
1553 ft.

Relative: Higher

Actual: 18 ft.

HORSE HEAD INDUSTRIES **NY MANIFEST** **1007205022**
105 BEDFORD AVENUE **RCRA-NonGen** **NYP000891556**
BROOKLYN, NY 11211

Site 1 of 3 in cluster AF

NY MANIFEST:

Document ID:	NJA0662048
Manifest Status:	Completed copy
Trans1 State ID:	NJSWAS300
Trans2 State ID:	Not reported
Generator Ship Date:	890815
Trans1 Recv Date:	890815
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890815
Part A Recv Date:	890823
Part B Recv Date:	890824
Generator EPA ID:	NYP000891556
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	27500
Units:	P - Pounds
Number of Containers:	055
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP000891556
Facility Name:	HORSE HEAD INDUSTRIES
Facility Address:	105 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	HORSE HEAD INDUSTRIES
Mailing Contact:	HORSE HEAD INDUSTRIES
Mailing Address:	613 THIRD STREET
Mailing Address 2:	Not reported
Mailing City:	PALMERTON
Mailing State:	PA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

HORSE HEAD INDUSTRIES (Continued) **1007205022**

Mailing Country:	USA
Mailing Phone:	215-525-5927
Document ID:	NJA0662050
Manifest Status:	Completed copy
Trans1 State ID:	NJSWAS300
Trans2 State ID:	Not reported
Generator Ship Date:	890815
Trans1 Recv Date:	890815
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890815
Part A Recv Date:	890823
Part B Recv Date:	890824
Generator EPA ID:	NYP000891556
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00550
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP000891556
Facility Name:	HORSE HEAD INDUSTRIES
Facility Address:	105 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA

HORSE HEAD INDUSTRIES (Continued) **1007205022**

County:	KI
Mailing Name:	HORSE HEAD INDUSTRIES
Mailing Contact:	HORSE HEAD INDUSTRIES
Mailing Address:	613 THIRD STREET
Mailing Address 2:	Not reported
Mailing City:	PALMERTON
Mailing State:	PA
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	215-525-5927

RCRA-NonGen:

Date form received by agency:	03/02/1990
Facility name:	HORSE HEAD INDUSTRIES
Facility address:	105 BEDFORD AVENUE BROOKLYN, NY 11211
EPA ID:	NYP000891556
Mailing address:	613 THIRD STREET PALMERTON, NY 18071
Contact:	UNKNOWN - UNKNOWN
Contact address:	613 THIRD STREET PALMERTON, NY 18071
Contact country:	US
Contact telephone:	(215) 525-5927
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste
Handler accessibilty indicator:	Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	Unknown
Transporter of hazardous waste:	Unknown
Treater, storer or disposer of HW:	No
Underground injection activity:	Unknown
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	Unknown
Used oil processor:	Unknown
User oil refiner:	Unknown
Used oil fuel marketer to burner:	Unknown
Used oil Specification marketer:	Unknown
Used oil transfer facility:	Unknown
Used oil transporter:	Unknown
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	03/01/1990
Facility name:	HORSE HEAD INDUSTRIES
Classification:	Large Quantity Generator
Violation Status:	No violations found

AF222
SE
1/4-1/2
1553 ft.

Relative:
Higher

Actual:
18 ft.

NJZ COLORS INC.
105 BEDFORD AVENUE
BROOKLYN, NY 11211

Site 2 of 3 in cluster AF

AST
HIST AST

U003383287
N/A

AST:

AST:

Region:	STATE
Facility Id:	2-001554
UTM X:	588279.07958
UTM Y:	4508197.07960
Expiration Date:	04/15/01
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Unregulated
Mailing Company:	HORSEHEAD INDUSTRIES, INC.
Mailing Title:	Not reported
Mailing Contact:	ROBERT M. KUBA
Mailing Address:	110 EAST 59TH STREET
Mailing Address 2:	34TH FLOOR
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip Code:	10022
Mailing Phone No:	(212) 527-3000
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	110 EAST 59TH STREET, 34TH FLOOR
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	10022
Owner Phone:	(212) 527-3000
Owner Company:	HORSEHEAD INDUSTRIES, INC.
Emergency Contact:	ROBERT M. KUBA
Emergency Phone:	(610) 826-8714
Operator:	ALFREO QUEALLY
Operator Phone:	(718) 384-1943
Owner City:	NEW YORK
Owner Sub Type:	Corporate or Commercial
Program Type:	PBS
Tank Number:	101
Tank Location Name:	Aboveground - in contact with soil
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/73
Capacity Gallons:	20000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

NJZ COLORS INC. (Continued) **U003383287**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Wrapped
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/31/97

HIST AST:

PBS Number:	2-001554
SWIS Code:	6101
Operator:	ALFREO QUEALLY
Facility Phone:	(718) 384-1943
Facility Addr2:	105 BEDFORD AVE
Facility Type:	MANUFACTURING
Emergency:	ROBERT M. KUBA
Emergency Tel:	(610) 826-8714
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	HORSEHEAD INDUSTRIES, INC.
Owner Address:	110 EAST 59TH STREET, 34TH FLOOR
Owner City,St,Zip:	NEW YORK, NY 10022
Federal ID:	Not reported
Owner Tel:	(212) 527-3000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ROBERT M. KUBA
Mailing Name:	HORSEHEAD INDUSTRIES, INC.
Mailing Address:	110 EAST 59TH STREET
Mailing Address 2:	34TH FLOOR
Mailing City,St,Zip:	NEW YORK, NY 10022
Mailing Telephone:	(212) 527-3000
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Certification Flag:	False
Certification Date:	05/20/1996
Expiration:	04/15/2001
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data

NJZ COLORS INC. (Continued) **U003383287**

Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2
Tank ID:	101
Tank Location:	ABOVEGROUND
Tank Status:	Closed-Removed
Install Date:	19731201
Capacity (Gal):	20000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	06
Tank Containment:	Diking
Leak Detection:	09
Overfill Protection:	04
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/31/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

AF223 **N J Z COLORS INC** **NY MANIFEST** **1000137099**
SE **105 BEDFORD AVE** **RCRA-NonGen** **NYD103671723**
1/4-1/2 **BROOKLYN, NY 11211**
1553 ft.

Site 3 of 3 in cluster AF

Relative:
Higher

Actual:
18 ft.

NY MANIFEST:

Document ID:	MIA4421018
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	TM48689
Trans2 State ID:	Not reported
Generator Ship Date:	970812
Trans1 Recv Date:	970812
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970813
Part A Recv Date:	Not reported
Part B Recv Date:	970910
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	PAD146714878
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	40000

N J Z COLORS INC (Continued) **1000137099**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714
Document ID:	MIA4421016
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	970812
Trans1 Recv Date:	970812
Trans2 Recv Date:	970812
TSD Site Recv Date:	970813
Part A Recv Date:	Not reported
Part B Recv Date:	970910
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	PAD146714878
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	30000
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

N J Z COLORS INC (Continued) **1000137099**

Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714
Document ID:	MIA4421017
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	970812
Trans1 Recv Date:	970812
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970813
Part A Recv Date:	Not reported
Part B Recv Date:	970910
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	PAD146714878
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	39800
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported

N J Z COLORS INC (Continued) **1000137099**

Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714

Document ID:	MIA4044287
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	T561JEOH
Trans2 State ID:	Not reported
Generator Ship Date:	960411
Trans1 Recv Date:	960411
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960412
Part A Recv Date:	960422
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	25220
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported

N J Z COLORS INC (Continued) **1000137099**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714

Document ID:	MIA4044288
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	T739KCOH
Trans2 State ID:	Not reported
Generator Ship Date:	960411
Trans1 Recv Date:	960411
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960412
Part A Recv Date:	960422
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	36800
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS

N J Z COLORS INC (Continued) **1000137099**

Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714

Document ID:	MIA4044290
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	T789KBOH
Trans2 State ID:	Not reported
Generator Ship Date:	960411
Trans1 Recv Date:	960411
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960412
Part A Recv Date:	960422
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	40000
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI

N J Z COLORS INC (Continued) **1000137099**

Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714
Document ID:	MIA4044293
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	T231KFOH
Trans2 State ID:	Not reported
Generator Ship Date:	960411
Trans1 Recv Date:	960411
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960412
Part A Recv Date:	960422
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	00066
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	022
Container Type:	CW - Wooden boxes
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK

N J Z COLORS INC (Continued) **1000137099**

Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714
Document ID:	MIA4044295
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	960418
Trans1 Recv Date:	960418
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960419
Part A Recv Date:	960503
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	00066
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CW - Wooden boxes
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714

N J Z COLORS INC (Continued) **1000137099**

Document ID:	MIA4044296
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	960418
Trans1 Recv Date:	960418
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960419
Part A Recv Date:	Not reported
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	00016
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CW - Wooden boxes
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714

Document ID:	MIA4044301
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	T231KFOH
Trans2 State ID:	Not reported
Generator Ship Date:	960515

N J Z COLORS INC (Continued) **1000137099**

Trans1 Recv Date:	960515
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960516
Part A Recv Date:	960531
Part B Recv Date:	960926
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	00028
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	006
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	L Landfill.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00018
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	006
Container Type:	CW - Wooden boxes
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714
Document ID:	MIA4044289
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	T736KCOH

N J Z COLORS INC (Continued) **1000137099**

Trans2 State ID:	Not reported
Generator Ship Date:	960411
Trans1 Recv Date:	960411
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960412
Part A Recv Date:	960422
Part B Recv Date:	960712
Generator EPA ID:	NYD103671723
Trans1 EPA ID:	OHD009865825
Trans2 EPA ID:	Not reported
TSDF ID:	MID096963194
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	40760
Units:	P - Pounds
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD103671723
Facility Name:	NJZ COLORS
Facility Address:	105 BEDFORD AVENUE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NJZ COLORS
Mailing Contact:	GEORGE MARTINO
Mailing Address:	110 EAST 59TH ST-34TH FLOOR
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	610-826-8714

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	N J Z COLORS INC
Facility address:	105 BEDFORD AVE BROOKLYN, NY 11211
EPA ID:	NYD103671723
Mailing address:	BEDFORD AVE BROOKLYN, NY 11211

N J Z COLORS INC (Continued) **1000137099**

Contact: F - SCHANSTINE
Contact address: BEDFORD AVE
BROOKLYN, NY 11211
Contact country: US
Contact telephone: (215) 826-8943
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: HORSEHEAD INDUSTRIES
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: Not reported
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/09/1998
Facility name: N J Z COLORS INC
Site name: NJZ COLORS INC
Classification: Large Quantity Generator

Date form received by agency: 08/29/1989
Facility name: N J Z COLORS INC
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D000
Waste name: Not Defined

N J Z COLORS INC (Continued) **1000137099**

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/22/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/10/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

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224 East 1/4-1/2 1605 ft. **JOHN ORAVECZ CHILD CARE** **AST U003391690**
25 NASSAU AVE **HIST AST N/A**
BROOKLYN, NY 11222

Relative: Higher

Actual: 13 ft.

AST:

AST:
Region: STATE
Facility Id: 2-361224
UTM X: 588407.73512
UTM Y: 4508497.19085
Expiration Date: 10/06/12
Renewal Date: 06/04/02
Total Capacity: 4000
Facility Type: Not reported
Site Type Name: School
Site Type Status: Active
Mailing Company: HOLY FAMILY CHURCH
Mailing Title: Not reported
Mailing Contact: PASTOR
Mailing Address: 21 NASSAU AVE
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip Code: 11222
Mailing Phone No: Not reported
Mailing Email: Not reported
Owner Title: PASTOR
Owner Name: REV JOSE PANTHAPLAMTHOTTIYIL
Owner Address: HOLY FAMILTY CHURCH 21 NASSAU
Owner Address 2: Not reported
Owner State: NY
Owner Zip Code: 11222
Owner Phone: Not reported

JOHN ORAVECZ CHILD CARE (Continued) **U003391690**

Owner Company:	REV JOSE PANTHAPLAMTHOTTIYIL
Emergency Contact:	REV JOSE PANTHAPLAMTHOTTIYIL
Emergency Phone:	Not reported
Operator:	REV JOSE PANTHAPLAMTHOTTIYIL
Operator Phone:	Not reported
Owner City:	BROOKLYN
Owner Sub Type:	Private Resident
Program Type:	PBS

Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	07/31/74
Capacity Gallons:	4000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Fiberglass Coated Steel
Tank Internal Protection:	None
Tank Internal Protection 1:	Fiberglass
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

HIST AST:

PBS Number:	2-361224
SWIS Code:	6101
Operator:	REV SEBASTIAN
Facility Phone:	(718) 782-2727
Facility Addr2:	25 NASSAU AVE
Facility Type:	SCHOOL
Emergency:	REV SEBASTIAN
Emergency Tel:	(718) 388-5145
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	REV SEBASTIAN KOCHUPURACKAL

JOHN ORAVECZ CHILD CARE (Continued) **U003391690**

Owner Address:	HOLY FAMILTY CHURCH 21 NASSAU
Owner City,St,Zip:	BROOKLYN, NY 11222
Federal ID:	Not reported
Owner Tel:	(718) 388-5145
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	PASTOR
Mailing Name:	HOLY FAMILY CHURCH
Mailing Address:	21 NASSAU AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11222
Mailing Telephone:	(718) 388-5145
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/10/1997
Expiration:	10/06/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	4000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Fiberglass coated steel
Tank Internal:	Not reported
Tank External:	4
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False

JOHN ORAVECZ CHILD CARE (Continued) **U003391690**

SPDES Number: Not reported
Lat/Long: Not reported

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225 South 1/4-1/2 1615 ft.

S.C. TRUCK & AUTO REPAIR INC
125 BERRY STREET
BROOKLYN, NY 11211

UST **U001841387**
HIST UST **N/A**

Relative: Higher

Actual: 33 ft.

UST:

UST:

Facility Id:	2-600302
Region:	STATE
Expiration Date:	09/04/01
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Mailing Company:	S.C. TRUCK & AUTO REPAIR INC
Mailing Title:	Not reported
Mailing Contact:	CHARLES GOODMAN
Mailing Address:	125 BERRY STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 388-9050
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	125 BERRY STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 388-9050
Owner Company:	S.C. TRUCK & AUTO REPAIR INC
Emergency Contact:	CHARLES GOODMAN
Emergency Phone:	(718) 388-9050
Operator:	CHARLES GOODMAN
Operator Phone:	(718) 388-9050
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	587948.45908
UTM Y:	4508020.54515
Site Type Name:	Retail Gasoline Sales
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Other
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	03/01/97
Next Test Date:	/ /
Date Tank Closed:	03/16/00

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Gasoline
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Other
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	03/01/97

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Next Test Date: / /
Date Tank Closed: 03/16/00

Tank Number: 003
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: / /
Capacity Gallons: 550
Material Name: Gasoline
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: Other
Tank Internal Protection 2: Not reported
Pipe Location Name: Underground/On-ground
Pipe Type Name: Galvanized Steel
Pipe External Protection 1: None
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: Not reported
Tank Leak Detection 1: Other
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Not reported
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: None
Type Of Overfill Prevention 2: Not reported
Dispenser Method: Suction
Spill Prevention: Not reported
Tightness Test Method: Horner EZ Check I or II
Date Tested: 03/01/97
Next Test Date: / /
Date Tank Closed: 03/16/00

Tank Number: 004
Tank Location Name: Underground
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Inactive
Install Date: / /
Capacity Gallons: 550
Material Name: Diesel
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: Other
Tank Internal Protection 2: Not reported
Pipe Location Name: Underground/On-ground
Pipe Type Name: Galvanized Steel
Pipe External Protection 1: None
Pipe External Protection 2: Not reported

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	03/01/97
Next Test Date:	/ /
Date Tank Closed:	03/16/00

Tank Number:	005
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Other
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	03/01/97
Next Test Date:	/ /
Date Tank Closed:	03/16/00

Tank Number:	006
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Other
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Underground/On-ground
Pipe Type Name:	Galvanized Steel
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	None
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Horner EZ Check I or II
Date Tested:	03/01/97
Next Test Date:	/ /
Date Tank Closed:	03/16/00

HIST UST:

PBS Number:	2-600302
SPDES Number:	Not reported
Emergency Contact:	CHARLES GOODMAN
Emergency Telephone:	(201) 263-2465
Operator:	CHARLES GOODMAN
Operator Telephone:	(718) 388-9050
Owner Name:	S.C. TRUCK & AUTO REPAIR INC
Owner Address:	125 BERRY STREET
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 388-9050
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	S.C. TRUCK & AUTO REPAIR INC
Mailing Address:	125 BERRY STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	CHARLES GOODMAN
Mailing Telephone:	(718) 388-9050
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	125 BERRY STREET
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	04/17/1997
Expiration Date:	09/04/2001
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Other
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	03/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/16/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Other
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Pipe Internal:	None
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	03/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/16/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Other
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	03/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/16/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Other
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Not reported
Second Containment:	None

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Leak Detection: Other
Overfill Prot: None
Dispenser: Suction
Date Tested: 03/01/1997
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 03/16/2000
Test Method: Horner EZ Check
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 005
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: DIESEL
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: Other
Pipe Location: Underground
Pipe Type: GALVANIZED STEEL
Pipe Internal: None
Pipe External: Not reported
Second Containment: None
Leak Detection: Other
Overfill Prot: None
Dispenser: Suction
Date Tested: 03/01/1997
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 03/16/2000
Test Method: Horner EZ Check
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 006
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: DIESEL
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: Other
Pipe Location: Underground
Pipe Type: GALVANIZED STEEL
Pipe Internal: None
Pipe External: Not reported
Second Containment: None
Leak Detection: Other
Overfill Prot: None
Dispenser: Suction

S.C. TRUCK & AUTO REPAIR INC (Continued) **U001841387**

Date Tested:	03/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/16/2000
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

AG226 **NYNEX-MANHOLE** **NY MANIFEST** **1007205202**
SW **KENT AVE & N 5TH ST** **RCRA-NonGen** **NYP000920330**
1/4-1/2 **BROOKLYN, NY 11201**
1698 ft.

Site 1 of 3 in cluster AG

Relative:
Higher

Actual:
12 ft.

NY MANIFEST:

Document ID:	MIA4133677
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	950522
Trans1 Recv Date:	950522
Trans2 Recv Date:	950522
TSD Site Recv Date:	950526
Part A Recv Date:	Not reported
Part B Recv Date:	950614
Generator EPA ID:	NYP000920330
Trans1 EPA ID:	NYD010951986
Trans2 EPA ID:	NYD046765574
TSDF ID:	MID096963194
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	04000
Units:	P - Pounds
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	95
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP000920330
Facility Name:	NYNEX
Facility Address:	KENT AVE & N 5TH ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYNEX

NYNEX-MANHOLE (Continued) **1007205202**

Mailing Contact:	SUSHMITA BISWAS
Mailing Address:	221 EAST 37TH ST
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-338-7126

RCRA-NonGen:

Date form received by agency:	03/26/1996
Facility name:	NYNEX-MANHOLE
Facility address:	KENT AVE & N 5TH ST BROOKLYN, NY 112010000
EPA ID:	NYP000920330
Mailing address:	221 E 37TH ST 4TH FLR NEW YORK, NY 100160000
Contact:	JOHN - QUATRALE
Contact address:	221 E 37TH ST 4TH FLR NEW YORK, NY 100160000
Contact country:	US
Contact telephone:	(212) 338-7141
Telephone ext.:	9999
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	Unknown
Transporter of hazardous waste:	Unknown
Treater, storer or disposer of HW:	No
Underground injection activity:	Unknown
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	Unknown
Used oil processor:	Unknown
User oil refiner:	Unknown
Used oil fuel marketer to burner:	Unknown
Used oil Specification marketer:	Unknown
Used oil transfer facility:	Unknown
Used oil transporter:	Unknown
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	03/25/1996
Facility name:	NYNEX-MANHOLE
Classification:	Large Quantity Generator

Violation Status: No violations found

AG227
SW
1/4-1/2
1698 ft.

Relative:
Higher

Actual:
12 ft.

FNW REALTY
151 KENT AVENUE
BROOKLYN, NY 11211

Site 2 of 3 in cluster AG

AST
HIST AST

U003385256
N/A

AST:

AST:

Region:	STATE
Facility Id:	2-064165
UTM X:	587611.69122
UTM Y:	4508076.49506
Expiration Date:	06/05/92
Renewal Date:	/ /
Total Capacity:	0
Facility Type:	Not reported
Site Type Name:	Unknown
Site Type Status:	Unregulated
Mailing Company:	MOR WEISS
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	1651 50TH ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11204
Mailing Phone No:	(718) 851-8606
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	1651 50TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11204
Owner Phone:	(718) 851-8606
Owner Company:	MOR WEISS
Emergency Contact:	MOR WEISS
Emergency Phone:	(718) 851-8606
Operator:	MOR WEISS
Operator Phone:	(718) 851-8606
Owner City:	BROOKLYN
Owner Sub Type:	Not reported
Program Type:	PBS
Tank Number:	293
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	12/01/57
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping

FNW REALTY (Continued) **U003385256**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Other
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	None
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	12/01/57

HIST AST:

PBS Number:	2-064165
SWIS Code:	6101
Operator:	MOR WEISS
Facility Phone:	(718) 851-8606
Facility Addr2:	151 KENT AVENUE
Facility Type:	Not reported
Emergency:	MOR WEISS
Emergency Tel:	(718) 851-8606
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	MOR WEISS
Owner Address:	1651 50TH ST
Owner City,St,Zip:	BROOKLYN, NY 11204
Federal ID:	Not reported
Owner Tel:	(718) 851-8606
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	MOR WEISS
Mailing Address:	1651 50TH ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11204
Mailing Telephone:	(718) 851-8606
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Certification Flag:	False
Certification Date:	02/12/1992
Expiration:	06/05/1992
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing

FNW REALTY (Continued) **U003385256**

Tank Screen: 0
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City Code: 01
Region: 2

Tank ID: 293
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status: Closed-Removed
Install Date: 19571201
Capacity (Gal): 5000
Product Stored: NOS 1,2, OR 4 FUEL OIL
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: STEEL/IRON
Pipe Internal: Not reported
Pipe External: Not reported
Tank Containment: Other
Leak Detection: 0
Overfill Protection: 4
Dispenser Method: Not reported
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 12/01/1957
Test Method: Not reported
Deleted: False
Updated: True
SPDES Number: Not reported
Lat/Long: Not reported

AH228 **USA WASTE SERVICES, INC.** **UST** **U003153163**
SW **2 NORTH FIFTH STREET** **HIST UST** **N/A**
1/4-1/2 **BROOKLYN, NY 11211**
1725 ft.

Site 1 of 4 in cluster AH

Relative: Lower

Actual: 3 ft.

UST:

UST:
Facility Id: 2-602533
Region: STATE
Expiration Date: 11/08/00
Renewal Date: / /
Total Capacity: 0
Facility Type: Not reported
Mailing Company: USA WASTE OF NEW YORK CITY
Mailing Title: Not reported
Mailing Contact: MR. RODNEY L. WOOSTER
Mailing Address: 2 NORTH FIFTH STREET
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip Code: 11211

USA WASTE SERVICES, INC. (Continued) **U003153163**

Mailing Phone No:	(718) 384-5151
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	2 NORTH 5TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 384-5151
Owner Company:	MEKBOH RECYCLING, INC.
Emergency Contact:	RODNEY L. WOOSTER
Emergency Phone:	(201) 228-7063
Operator:	USA WASTE SERVICES
Operator Phone:	(718) 384-5151
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	587615.76421
UTM Y:	4508075.83819
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/96

USA WASTE SERVICES, INC. (Continued) **U003153163**

Tank Number:	002
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/96

Tank Number:	003
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None

USA WASTE SERVICES, INC. (Continued) **U003153163**

Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/96

Tank Number:	004
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	/ /
Capacity Gallons:	550
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground/Underground Combination
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Automatic Shut-Off
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Submersible
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	11/01/96

HIST UST:

PBS Number:	2-602533
SPDES Number:	Not reported
Emergency Contact:	RODNEY L. WOOSTER
Emergency Telephone:	(201) 228-7063
Operator:	USA WASTE SERVICES
Operator Telephone:	(718) 384-5151
Owner Name:	MEKBOH RECYCLING, INC.
Owner Address:	2 NORTH 5TH STREET
Owner City,St,Zip:	BROOKLYN, NY 11211

USA WASTE SERVICES, INC. (Continued) **U003153163**

Owner Telephone:	(718) 384-5151
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	USA WASTE OF NEW YORK CITY
Mailing Address:	2 NORTH FIFTH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	MR. RODNEY L. WOOSTER
Mailing Telephone:	(718) 384-5151
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	Not reported
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	TRUCKING/TRANSPORTATION
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/15/1995
Expiration Date:	11/08/2000
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Not reported
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Automatic Shut-Off
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing

USA WASTE SERVICES, INC. (Continued) **U003153163**

Date Closed: 11/01/1996
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 002
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: DIESEL
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: Not reported
Pipe Location: Aboveground/Underground Combination
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: Not reported
Second Containment: None
Leak Detection: None
Overfill Prot: Automatic Shut-Off
Dispenser: Submersible
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 11/01/1996
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 003
Tank Location: UNDERGROUND
Tank Status: Closed-Removed
Install Date: Not reported
Capacity (gals): 550
Product Stored: DIESEL
Tank Type: Steel/carbon steel
Tank Internal: None
Tank External: Not reported
Pipe Location: Aboveground/Underground Combination
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: Not reported
Second Containment: None
Leak Detection: None
Overfill Prot: Automatic Shut-Off
Dispenser: Submersible
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 11/01/1996
Test Method: Not reported
Deleted: False

USA WASTE SERVICES, INC. (Continued) **U003153163**

Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Not reported
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Automatic Shut-Off
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	11/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AH229 **DEMICCO BROS. INC.** **SWF/LF** **S105841744**
SW **2 NORTH 5TH STREET** **SWRCY** **N/A**
1/4-1/2 **BROOKLYN, NY 11111**
1727 ft.

Site 2 of 4 in cluster AH

Relative:
Lower

Actual:
3 ft.

SWF/LF:

Flag:	ACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7188922505
Owner Name:	Frank DeMicco
Owner Type:	Private
Owner Address:	1580 Stillwel Ave
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY 10461
Owner Email:	Not reported
Owner Phone:	7188922505
Contact Name:	Not reported
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	0
Contact Email:	Not reported
Contact Phone:	0
Activity Desc:	C&D processing - registered
Activity Number:	24WF6
Active:	Yes
East Coordinate:	587485

DEMICCO BROS. INC. (Continued) **S105841744**

North Coordinate: 4508167
Accuracy Code: 4.3 - Utilization of Digital Orthophoto Quads
Regulatory Status: Consent Order
Waste Type: Concrete;Rock;Soil (Clean)
Authorization #: None
Authorization Date: Not reported
Expiration Date: Not reported

Flag: INACTIVE
Secondary Addr: Not reported
Region Code: 2
Phone Number: 7183845151
Owner Name: Not reported
Owner Type: Not reported
Owner Address: Not reported
Owner Addr2: Not reported
Owner City,St,Zip: Not reported
Owner Email: Not reported
Owner Phone: Not reported
Contact Name: PHILIP BARRETTI;PRESIDENT
Contact Address: Not reported
Contact Addr2: Not reported
Contact City,St,Zip: Not reported
Contact Email: Not reported
Contact Phone: Not reported
Activity Desc: C&D processing - registered
Activity Number: 24W63
Active: No
East Coordinate: 587500
North Coordinate: 4508000
Accuracy Code: Not reported
Regulatory Status: Not reported
Waste Type: Not reported
Authorization #: 2-6101-00013
Authorization Date: Not reported
Expiration Date: Not reported

Flag: INACTIVE
Secondary Addr: Not reported
Region Code: 2
Phone Number: 7183845151
Owner Name: Not reported
Owner Type: Not reported
Owner Address: Not reported
Owner Addr2: Not reported
Owner City,St,Zip: Not reported
Owner Email: Not reported
Owner Phone: Not reported
Contact Name: PHILIP BARRETTI;PRESIDENT
Contact Address: Not reported
Contact Addr2: Not reported
Contact City,St,Zip: Not reported
Contact Email: Not reported
Contact Phone: Not reported
Activity Desc: Transfer station - regulated
Activity Number: 24T63
Active: No

DEMICCO BROS. INC. (Continued) **S105841744**

East Coordinate: 587500
North Coordinate: 4508000
Accuracy Code: Not reported
Regulatory Status: Not reported
Waste Type: Not reported
Authorization #: 2-6101-00013
Authorization Date: Not reported
Expiration Date: Not reported

SWRCY:
Region: 2
Facility Address 2: Not reported
Phone Number: 7185335308
Owner Type: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner Address 2: Not reported
Owner City,St,Zip: Not reported
Owner Email: Not reported
Owner Phone: Not reported
Contact Name: Tara Hemmer
Contact Address: Not reported
Contact Address 2: Not reported
Contact City,St,Zip: Not reported
Contact Email: Not reported
Contact Phone: Not reported
Activity Desc: Source separated solid waste recyclables
Activity Number: 24MD8
Active: No
East Coordinate: Not reported
North Coordinate: Not reported
Accuracy Code: Not reported
Regulatory Status: Not reported
Permit #: 2-6101-00013
Auth. Date: Not reported
Expiration Date: Not reported
Waste Types: Not reported

AH230 **RECYCLE AMERICA ALLIANCE (A WASTEMANAGEMENT OF NY** **SWRCY** **S106402504**
SW **2 NORTH 5TH STREET** **N/A**
1/4-1/2 **BROOKLYN, NY 11237**
1727 ft.

Site 3 of 4 in cluster AH

Relative:
Lower

Actual:
3 ft.

SWRCY:
Region: 2
Facility Address 2: Not reported
Phone Number: 7183020709
Owner Type: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner Address 2: Not reported
Owner City,St,Zip: Not reported
Owner Email: Not reported
Owner Phone: Not reported
Contact Name: Michael Washalski
Contact Address: 123 Varick Avenue

RECYCLE AMERICA ALLIANCE (A WASTEMANAGEMENT OF NY (Continued) **S106402504**

Contact Address 2:	Not reported
Contact City,St,Zip:	Brooklyn, NY 11237
Contact Email:	Not reported
Contact Phone:	7185335308
Activity Desc:	Source separated solid waste recyclables
Activity Number:	24M08
Active:	No
East Coordinate:	587485
North Coordinate:	4508167
Accuracy Code:	4.3 - Utilization of Digital Orthophoto Quads
Regulatory Status:	Registration
Permit #:	None
Auth. Date:	Not reported
Expiration Date:	Not reported
Waste Types:	Paper (All Types)

AH231 **USA WASTE OF NYC** **LTANKS** **S102662713**
SW **2 N 5TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **BROOKLYN, NY**
1727 ft.

Site 4 of 4 in cluster AH

Relative:
Lower

Actual:
3 ft.

LTANKS:

Site ID:	172840
Spill Date:	11/08/96
Facility Addr2:	Not reported
Facility ID:	9609934
Program Number:	9609934
SWIS:	2401
Region of Spill:	2
Investigator:	SXSCHARF
Referred To:	Not reported
Reported to Dept:	11/08/96
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/23/05
Remediation Phase:	0
Date Entered In Computer:	11/08/96
Spill Record Last Update:	12/07/05
Spille Namer:	RODNEY WOOSTER
Spiller Company:	USA WASTE OF NYC
Spiller Phone:	(718) 384-5151
Spiller Extention:	Not reported
Spiller Address:	2 N 5TH ST
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	RODNEY WOOSTER
Spiller Phone:	(718) 384-5151

USA WASTE OF NYC (Continued) **S102662713**

Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9609934
DER Facility ID:	145460
Site ID:	172840
Operable Unit ID:	1041428
Operable Unit:	01
Material ID:	342149
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9609934 3/28/05 - Austin - Reassigned from O'dowd to Rahman - received report from AKRF, dated March, 2005, entitled "Spill closure Investigation" for review - end Austin - transferred to Albany for reassignment - end 07/22/05- Called AKRF Inc., as consultant for the USA Waste Inc. to see if there is a spill closure report. S. Scharf 09/16/05- finally got in touch with AKRF person. named Marc Godick (marc godick@akrf.com)(914-922-2356 and 646-388-9534). Marc forwarded me the spill closure report for my review/closure. Review of spill closure report found that closure was acceptable. GW was tested seven years later and all results were below GW standards. Spill closed via letter on November 23, 2005. S.Scharf 11/29/05. Marc godick AKRF, INC 34 South Broadway Suite 3N White Plains, NY 10601 914-922-2356 END DECRemark - 9609934
Remarks:	Start CallerRemark - 9609934 during removal of tanks found contaminated soil. At a later date, contaminated soils were reomved. Seven years later, GW testing revealed levels below GW standards. END CallerRemark - 9609934

HIST LTANKS:

Region of Spill:	2
Spill Number:	9609934
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/08/1996
Spill Time:	12:00

USA WASTE OF NYC (Continued) **S102662713**

Reported to Department Date: 11/08/96
Reported to Department Time: 14:41
SWIS: 61
Spiller Contact: RODNEY WOOSTER
Spiller Phone: (718) 384-5151
Spiller Extention: Not reported
Spiller Name: USA WASTE OF NYC
Spiller Address: 2 N 5TH ST
Spiller City,St,Zip: BROOKLYN, NY
Facility Contact: RODNEY WOOSTER
Facility Phone: (718) 384-5151
Facility Extention: Not reported
Spill Cause: Tank Overfill
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 11/08/96
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/18/96
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: during removal of tanks found contaminated soil

AI232 **PS 610** **LTANKS** **S104621884**
East **50 BEDFORD AVE** **HIST LTANKS** **N/A**
1/4-1/2 **BROOKLYN, NY**
1768 ft.

Site 1 of 3 in cluster AI

Relative:
Higher

Actual:
14 ft.

LTANKS:

Site ID:	339016
Spill Date:	03/17/05
Facility Addr2:	Not reported
Facility ID:	0413160
Program Number:	0413160
SWIS:	2401
Region of Spill:	2
Investigator:	kkchanda
Referred To:	REPORT DUE 9/4/07
Reported to Dept:	03/17/05
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	03/18/05
Spill Record Last Update:	07/26/07
Spille Namer:	LEE GUGERMAN, MS.
Spiller Company:	SCA
Spiller Phone:	(718) 472-8502
Spiller Extention:	Not reported
Spiller Address:	30-30 THOMSON AVE.
Spiller City,St,Zip:	LIC, NY 11101
Spiller County:	001
Spiller Contact:	LEE GUGERMAN, MS.
Spiller Phone:	(718) 472-8502
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0413160
DER Facility ID:	102108
Site ID:	339016
Operable Unit ID:	1100934
Operable Unit:	01
Material ID:	581083
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported

PS 610 (Continued) **S104621884**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0413160 3/21/2005 There was an earlier tank test failure spill number (0004062-DeMeo) which has now been closed out in favor of this new spill number. Earth Tech believes that the old tank was relined after the tank failed theprior tank test several years ago, however no work was ever done to remediate the contamination which occurred because of that leak. Earth Tech believes that approx 2 years ago this buried tank was taken out of service. Since that time the building has been supplied by an above ground 5,000 gal tank. Unknown if the buried tank was ever emptied. Earth Tech recently did soil borings around the UST area and came back with high contamination levels. This information was forwarded to theCity SCA (SCA Contact:Lee Guterman 718-472-5802) SCA has now decided to removed the UST and excavate out the contaminated soil around it. Earth Tech is modifying the standard city bid package to site specific conditions and will work with the city as they put the excavation/remediation work out to bid. Bid package should go out around April 1st, 2005. Work should be done summer 2005. 04/13/06- Case was transferred from Jake Krimgold to Koon Tang. 7/9/07: Reassigned from Koon Tangto Kartik Chanda (Chanda) 7/18/07: Kartik Chanda of DEC reviewed all documents regarding this spill case. On 7/18/07, Chanda sent a letter to Ms. Lee Guuterman, Manager IEH Department, NYC School Construction Authority, requiring that the following information be submitted to the DEC for review by 9/4/07. 1. An explanation of the cause of the tank system failure; 2. Either a description of the work performed to restore the integrity of the tank system (including retesting results), ora description of the work performed to close (decommission) the tank; 3. Information regarding petroleum contamination found at the site and cleanup activities (if any) associated with a release from this tank system; 4. Any available documentation (i.e., invoices, bills, sampling analysis reports, etc.) pertaining to the work performed at this site associated with this violation END DECRemark - 0413160
Remarks:	Start CallerRemark - 0413160 OLD TANK THAT WAS INSTALLED AND WANTED IT TO BE REOVED. THEY TOOK TESTS AND FOUND THAT THE TANK HAS LEAKED. THE TANK HAS FAILED MANY TIMES BEFORE. TOOK TESTS FROM THE SOIL. HAS NOT BEEN CLEANED OR REMOVED. OUTSIDE UNDERGROUND TANK. 20,000 GAL CAPACITY. END CallerRemark - 0413160
Site ID:	117362
Spill Date:	06/30/00
Facility Addr2:	Not reported
Facility ID:	0004062
Program Number:	0004062
SWIS:	2401
Region of Spill:	2
Investigator:	TJDEMEO
Referred To:	Not reported
Reported to Dept:	07/05/00
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester

PS 610 (Continued) **S104621884**

Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/21/05
Remediation Phase:	0
Date Entered In Computer:	07/05/00
Spill Record Last Update:	03/21/05
Spille Namer:	Not reported
Spiller Company:	NONE
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	999
Spiller Contact:	FRANK CARDELLO
Spiller Phone:	(718) 391-6832
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0004062
DER Facility ID:	102108
Site ID:	117362
Operable Unit ID:	825295
Operable Unit:	01
Material ID:	568984
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	117362
Spill Tank Test:	1525742
Tank Number:	1
Tank Size:	20000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0004062 Prior to Sept, 2004 data translation this spill Lead DEC Field was "DEMEO" 3/21/2005 This spill number (tank test failure) is being closed out and consolidated with a new spill (#0413160) which involves the removal of this tank and contaminated soil found around it. END DECRemark - 0004062
Remarks:	Start CallerRemark - 0004062 tank test failure, no product leaked END CallerRemark - 0004062

HIST LTANKS:

Region of Spill:	2

PS 610 (Continued) **S104621884**

Spill Number:	0004062
Investigator:	DEMEO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	06/30/2000
Spill Time:	15:30
Reported to Department Date:	07/05/00
Reported to Department Time:	07:02
SWIS:	61
Spiller Contact:	FRANK CARDELLO
Spiller Phone:	(718) 391-6832
Spiller Extention:	Not reported
Spiller Name:	NONE
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	2-355305
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	07/05/00
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/07/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	1
Tank Size:	20000
Test Method:	Horner EZ Check
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
PBS Number:	Not reported
Tank Number:	1
Tank Size:	20000
Test Method:	Horner EZ Check

PS 610 (Continued) **S104621884**

Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	tank test failure, no product leaked

AI233 **AUTOMOTIVE TRADES HS** **UST** **U000409472**
East **50 BEDFORD AVENUE** **AST** **N/A**
1/4-1/2 **BROOKLYN, NY 11222** **HIST UST**
1768 ft.

Site 2 of 3 in cluster AI

Relative: Higher

UST:

Actual: 14 ft.

UST:

Facility Id:	2-355305
Region:	STATE
Expiration Date:	06/28/08
Renewal Date:	/ /
Total Capacity:	25000
Facility Type:	Not reported
Mailing Company:	NEW YORK CITY DEPARTMENT OF EDUCATION
Mailing Title:	Not reported
Mailing Contact:	JAMES A. MERLO
Mailing Address:	FIELD OPERATIONS-FUEL DIVISION
Mailing Address 2:	44-36 VERNON BOULEVARD
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 349-5738
Mailing Email:	Not reported
Owner Title:	MANAGER, FUEL DIVISION
Owner Name:	JAMES A. MERLO
Owner Address:	44-36 VERNON BOULEVARD
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 349-5738
Owner Company:	NEW YORK CITY DEPARTMENT OF EDUCATION
Emergency Contact:	SCHOOL SAFETY
Emergency Phone:	(718) 935-3300
Operator:	PLANT OPERATIONS
Operator Phone:	(718) 349-5400
Owner City:	LONG ISLAND CITY
Owner Sub Type:	Local Government
UTM X:	588458.31772
UTM Y:	4508426.01555
Site Type Name:	School

AUTOMOTIVE TRADES HS (Continued) **U000409472**

Site Type Status: Active
Comments: 12/21/2000 20,000 gal tank tested by H EZY 3 failed (exceeded the m aximum capacity). Product stored changed to '3' instead of '4' based on tank test repo rt. jz 10-17-06 Tank number 001 scheduled for removal in 2007. nl

Program Type: PBS

Tank Number: 001
Tank Location Name: Underground
Tank Status: Temporarily Out of Service
Tank Model: Not reported
Pipe Model: Not reported
Active Status: Active
Install Date: / /
Capacity Gallons: 20000
Material Name: #4 Fuel Oil
Percentage: 100.00
Tank Type Name: Steel/Carbon Steel/Iron
Tank Internal Protection: None
Tank Internal Protection 1: Painted/Asphalt Coating
Tank Internal Protection 2: Not reported
Pipe Location Name: Aboveground/Underground Combination
Pipe Type Name: Steel/Carbon Steel/Iron
Pipe External Protection 1: Painted/Asphalt Coating
Pipe External Protection 2: Not reported
Tank Secondary Containment 1: None
Tank Secondary Containment 2: Not reported
Pipe Secondary Containment: None
Tank Leak Detection 1: None
Tank Leak Detection 2: Not reported
Pipe Leak Detection 1: Exempt Suction Piping
Pipe Leak Detection 2: Not reported
Type Of Overfill Prevention 1: None
Type Of Overfill Prevention 2: Not reported
Dispenser Method: Suction
Spill Prevention: None
Tightness Test Method: Unknown
Date Tested: / /
Next Test Date: 12/27/87
Date Tank Closed: / /

AST:

AST:
Region: STATE
Facility Id: 2-355305
UTM X: 588458.31772
UTM Y: 4508426.01555
Expiration Date: 06/28/08
Renewal Date: / /
Total Capacity: 25000
Facility Type: Not reported
Site Type Name: School
Site Type Status: Active
Mailing Company: NEW YORK CITY DEPARTMENT OF EDUCATION
Mailing Title: Not reported

AUTOMOTIVE TRADES HS (Continued) **U000409472**

Mailing Contact:	JAMES A. MERLO
Mailing Address:	FIELD OPERATIONS-FUEL DIVISION
Mailing Address 2:	44-36 VERNON BOULEVARD
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 349-5738
Mailing Email:	Not reported
Owner Title:	MANAGER, FUEL DIVISION
Owner Name:	JAMES A. MERLO
Owner Address:	44-36 VERNON BOULEVARD
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 349-5738
Owner Company:	NEW YORK CITY DEPARTMENT OF EDUCATION
Emergency Contact:	SCHOOL SAFETY
Emergency Phone:	(718) 935-3300
Operator:	PLANT OPERATIONS
Operator Phone:	(718) 349-5400
Owner City:	LONG ISLAND CITY
Owner Sub Type:	Local Government
Program Type:	PBS

Tank Number:	002
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	05/19/06
Capacity Gallons:	5000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Product Level Gauge (A/G)
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AUTOMOTIVE TRADES HS (Continued) **U000409472**

HIST UST:

PBS Number:	2-355305
SPDES Number:	Not reported
Emergency Contact:	SCHOOL SAFETY
Emergency Telephone:	(212) 979-3300
Operator:	PLANT OPERATION
Operator Telephone:	(718) 391-6000
Owner Name:	CITY OF NEW YORK C/O BOARD OF EDUCATION
Owner Address:	28-11 QUEENS PLAZA NORTH
Owner City,St,Zip:	LONG ISLAND CITY, NY 11101
Owner Telephone:	(718) 391-6832
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	BOARD OF EDUCATION
Mailing Address:	28-11 QUEENS PLAZA NORTH
Mailing Address 2:	5TH FLOOR
Mailing City,St,Zip:	LONG ISLAND CITY, NY 11101
Mailing Contact:	FRANK CARDELLO NTROL
Mailing Telephone:	(718) 391-6832
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	50 BEDFORD AV
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	SCHOOL
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	09/02/1998
Expiration Date:	06/28/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	20000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	20000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported

AUTOMOTIVE TRADES HS (Continued) **U000409472**

Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AI234 **NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL** **FINDS** **1001961570**
East **50 BEDFORD AVE** **NY MANIFEST** **NYR000083642**
1/4-1/2 **BROOKLYN, NY 11222** **RCRA-CESQG**
1768 ft.

Site 3 of 3 in cluster AI

Relative: Higher

Actual: 14 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYG3565926
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/13/2003
Trans1 Recv Date:	01/13/2003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/14/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	40580PANY
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00001
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	03
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-537-3835
Document ID:	NYG2260188
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	02/16/2000
Trans1 Recv Date:	02/16/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/17/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NYPD1010
Waste Code:	D005 - BARIUM 100.0 MG/L TCLP
Quantity:	00075
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00030

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00007
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-537-3835
Document ID:	NYG2260197
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	02/16/2000
Trans1 Recv Date:	02/16/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/17/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NYPD1010

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Waste Code:	U002 - ACETONE
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	00003
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00001
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00002
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Mailing Phone:	718-537-3835
Document ID:	NYG1003572
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/19/2000
Trans1 Recv Date:	01/19/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/20/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	68235AK
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00008
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00018
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	U144 - LEAD ACETATE
Quantity:	00005
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Quantity:	00003
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-537-3835
Document ID:	NYG1003581
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/19/2000
Trans1 Recv Date:	01/19/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/20/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	68235AK
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00020
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	U135 - HYDROGEN SULFIDE
Quantity:	00010
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00110
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-537-3835
Document ID:	NYG1711107
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/19/2000
Trans1 Recv Date:	01/19/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/20/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	68325AK
Waste Code:	D022 - CHLOROFORM 6.0 MG/L TCLP
Quantity:	00002
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Quantity:	00001
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Quantity:	00005

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00003
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-537-3835
Document ID:	NYG1711116
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/19/2000
Trans1 Recv Date:	01/19/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/20/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	68235AK

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00085
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	U012 - ANILINE (L)
Quantity:	00015
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00010
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000083642
Facility Name:	AUTOMOTIVE HIGH SCHOOL
Facility Address:	50 BEDFORD AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	AUTOMOTIVE HIGH SCHOOL
Mailing Contact:	ADRIENNE M SPENCER
Mailing Address:	50 BEDFORD AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Mailing Phone:	718-537-3835
Document ID:	NYG1711125
Manifest Status:	Not reported
Trans1 State ID:	NYD077444263
Trans2 State ID:	Not reported
Generator Ship Date:	01/19/2000
Trans1 Recv Date:	01/19/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/20/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000083642
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	68235AR
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00035
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	U165 - NAPHTHALENE
Quantity:	00030
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	00007
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Quantity:	00007
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	00
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

EPA ID: NYR000083642
Facility Name: AUTOMOTIVE HIGH SCHOOL
Facility Address: 50 BEDFORD AVE
Facility City: BROOKLYN
Facility Address 2: Not reported
Country: USA
County: KI
Mailing Name: AUTOMOTIVE HIGH SCHOOL
Mailing Contact: ADRIENNE M SPENCER
Mailing Address: 50 BEDFORD AVE
Mailing Address 2: Not reported
Mailing City: BROOKLYN
Mailing State: NY
Mailing Zip: Not reported
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 718-537-3835

RCRA-CESQG:
Date form received by agency: 01/01/2006
Facility name: NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL
Facility address: 50 BEDFORD AVE
BROOKLYN, NY 112223906
EPA ID: NYR000083642
Mailing address: QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Contact: BERNARD - ORLAN
Contact address: QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Contact country: US
Contact telephone: (718) 391-6475
Contact email: Not reported
EPA Region: 02
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
Owner/operator name: NYC BOARD OF EDUCATION
Owner/operator address: 2811 QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Owner/operator country: Not reported
Owner/operator telephone: (718) 391-6475
Legal status: Municipal

NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL (Continued) **1001961570**

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/13/2000
Facility name: NYC BD OF ED - AUTOMOTIVE HIGH SCHOOL
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Violation Status: No violations found

235
SSE
1/4-1/2
1772 ft.

WINTER RESIDENCE
167 N. 9TH ST
BROOKLYN, NY

LTANKS

S108639569
N/A

Relative:
Higher

Actual:
25 ft.

LTANKS:

Site ID:	381213
Spill Date:	05/09/07
Facility Addr2:	Not reported
Facility ID:	0701659
Program Number:	0701659
SWIS:	2401
Region of Spill:	2
Investigator:	jbvought
Referred To:	Not reported
Reported to Dept:	05/09/07
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	05/10/07
Remediation Phase:	0
Date Entered In Computer:	05/10/07
Spill Record Last Update:	05/10/07
Spille Namer:	ANTHONY LOSQUADRO
Spiller Company:	FIJAX FUEL CORP
Spiller Phone:	(718) 456-7235
Spiller Extention:	Not reported
Spiller Address:	222 VARICK AVE
Spiller City,St,Zip:	BROOKLYN, NY 11237
Spiller County:	001
Spiller Contact:	MR. WINTER
Spiller Phone:	(718) 388-3142
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0701659
DER Facility ID:	330604
Site ID:	381213
Operable Unit ID:	1138681
Operable Unit:	01
Material ID:	2128675
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5.00
Units:	Gallons
Recovered:	5.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported

WINTER RESIDENCE (Continued) **S108639569**

Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0701659 05/10/07-Vought-Off hours responder. Vought called Winters and left message to return call to cell phone. Vought called Vijax and spoke to Anthony Rotello and cause of spill was bad gauge. Spill came out of gauge and onto concrete floor. No sewers or drains affected. Rotello confirmed that spill amount less than five gallons. Gauge will be replaced. No spill out of vent pipe. Vought received call from resident (Ms Winter) is satsified with cleanup and confirmed thatspill on concrete and no sewers or drains affected. Vought provided contact info in case additional issues arrise. Spill closed by Vought. END DECRemark - 0701659
Remarks:	Start CallerRemark - 0701659 SPILL ONTO BASEMENT FLOOR, CLEANUP COMPLETE: END CallerRemark - 0701659

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236 **C & J COLLISION SERVICE** **FINDS** **1000108173**
ENE **74 GUERNSEY ST** **NY MANIFEST** **NYD982534182**
1/4-1/2 **BROOKLYN, NY 11222** **RCRA-NonGen**
1797 ft.

Relative:
Higher

Actual:
12 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

NJ-NJEMS (New Jersey - New Jersey Environmental Management System). The Department of Environmental Protection (NJDEP) manages large databases of environmental information in this integrated system.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

Document ID:	NYA6456555
Manifest Status:	Completed copy
Trans1 State ID:	PLATE#
Trans2 State ID:	57745GB
Generator Ship Date:	880328
Trans1 Recv Date:	880328
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880328
Part A Recv Date:	880331
Part B Recv Date:	880412
Generator EPA ID:	NYD982534182
Trans1 EPA ID:	NYD000824334

C & J COLLISION SERVICE (Continued) **1000108173**

Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F003 - UNKNOWN
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD982534182
Facility Name:	C & J COLLISION
Facility Address:	74 GUERNSY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	C & J COLLISION
Mailing Contact:	C & J COLLISION
Mailing Address:	74 GUERNSY STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-782-6604
Document ID:	NJA0534826
Manifest Status:	Completed copy
Trans1 State ID:	NJSWAS300
Trans2 State ID:	Not reported
Generator Ship Date:	881123
Trans1 Recv Date:	881123
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	881123
Part A Recv Date:	881128
Part B Recv Date:	881202
Generator EPA ID:	NYD982534182
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	F005 - UNKNOWN
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)

C & J COLLISION SERVICE (Continued) **1000108173**

Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	88
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD982534182
Facility Name:	C & J COLLISION
Facility Address:	74 GUERNSY ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	C & J COLLISION
Mailing Contact:	C & J COLLISION
Mailing Address:	74 GUERNSY STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-782-6604

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	C & J COLLISION SERVICE INC
Facility address:	74 GUERNSEY ST BROOKLYN, NY 112223112
EPA ID:	NYD982534182
Mailing address:	GUERNSEY ST BROOKLYN, NY 11222
Contact:	-
Contact address:	GUERNSEY ST BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste
Handler accessibilty indicator:	Transferred to the program or state equivalent.

Handler Activities Summary:

U.S. importer of hazardous waste: Unknown

C & J COLLISION SERVICE (Continued) **1000108173**

Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: C & J COLLISION SERVICE INC
Classification: Not a generator, verified

Date form received by agency: 03/04/1988
Facility name: C & J COLLISION SERVICE INC
Classification: Small Quantity Generator

Violation Status: No violations found

AJ237 **154-158 NORTH 7TH ST/BKLY** **LTANKS** **S104275561**
South **154-158 NORTH 7TH STREET** **HIST LTANKS** **N/A**
1/4-1/2 **BROOKLYN, NY**
1834 ft.

Site 1 of 3 in cluster AJ

Relative:
Higher

Actual:
33 ft.

LTANKS:
Site ID: 219940
Spill Date: 01/16/90
Facility Addr2: Not reported
Facility ID: 8909928
Program Number: 8909928
SWIS: 2401
Region of Spill: 2
Investigator: BKFALVEY
Referred To: Not reported
Reported to Dept: 01/16/90
CID: 14
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1

154-158 NORTH 7TH ST/BKLY (Continued) **S104275561**

Date Entered In Computer:	01/23/90
Spill Record Last Update:	09/22/06
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	(718) 388-9360
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8909928
DER Facility ID:	181901
Site ID:	219940
Operable Unit ID:	936938
Operable Unit:	01
Material ID:	443066
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	219940
Spill Tank Test:	1536688
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 8909928 Tank test failure. PBS file shows tank in service, but next tank tes due prior to the date of this spill. PBS registration expired in 2000. Need to follow up. 9/22/06 left message for attorney found on deed to contactWilliamsburgh Square LLC (new owner as of 2003). address:154 N. 7th St., Brooklyn 11211. deed had no individual's name (only corporation). bf END DECRemark - 8909928
Remarks:	Start CallerRemark - 8909928 3K TANK FAILED PETRO TITE WITH A LEAK RATE OF -.161GPH. END CallerRemark - 8909928

HIST LTANKS:

Region of Spill:	2
Spill Number:	8909928
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported

154-158 NORTH 7TH ST/BKLY (Continued) **S104275561**

Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	01/16/1990
Spill Time:	15:45
Reported to Department Date:	01/16/90
Reported to Department Time:	16:22
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	(718) 388-9360
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/23/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/15/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207

DEC Remarks: Not reported

154-158 NORTH 7TH ST/BKLY (Continued) **S104275561**

Spill Cause: 3K TANK FAILED PETRO TITE WITH A LEAK RATE OF -.161GPH.

AJ238 **SERVICE PLATING CO LTD** **FINDS** **1000432493**
South **154 N 7TH ST** **UST** **NYD001384072**
1/4-1/2 **BROOKLYN, NY 11211** **CERC-NFRAP**
1834 ft. **NY MANIFEST**
HIST UST
Site 2 of 3 in cluster AJ **LIENS 2**
Relative: **RCRA-NonGen**
Higher **CT MANIFEST**

Actual:
33 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

FIS (New York - Facility Information System) is New York's Department of Environmental Conservation (DEC) information system for tracking environmental facility information found across the State.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

UST:

UST:

Facility Id:	2-479748
Region:	STATE
Expiration Date:	02/01/00
Renewal Date:	/ /
Total Capacity:	3000
Facility Type:	Not reported
Mailing Company:	ALL PLATING CORPORATION
Mailing Title:	Not reported
Mailing Contact:	RUBEN A. MIRENSKY
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 388-9360
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	154 NORTH 7TH STREET
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 388-9360
Owner Company:	154 NORTH 7TH STREET R. E. CORPORATION
Emergency Contact:	RUBEN A. MINERNSKY
Emergency Phone:	(516) 538-0423
Operator:	RUBEN A. MINERNSKY
Operator Phone:	(718) 388-9360
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588019.64505
UTM Y:	4507965.37721
Site Type Name:	Manufacturing (Other than Chemical)/Processing
Site Type Status:	Active
Comments:	9/22/06 there is an oopen spill case at this site (#8909928). bf
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Unknown

SERVICE PLATING CO LTD (Continued) **1000432493**

Date Tested: / /
Next Test Date: 12/27/87
Date Tank Closed: / /

CERC-NFRAP:
Site ID: 0204153
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL
Non NPL Status: Removal Only Site (No Site Assessment Work Needed)

Site Description: NYC Dept. of Environmental Protection responded to odor complaints, issued notice letters to which there was no action by the owner. The site which is non-operational, contains acids, cyanides in open vats, tanks, etc. Preliminary assessment indicates site is removal eligible.Site is being archived with approval of removal program (see J. Witkowski email 04/11/05).

CERCLIS-NFRAP Assessment History:
Action: Notice Letters Issued
Date Started: Not reported
Date Completed: 06/25/1998
Priority Level: Not reported

Action: REMOVAL ASSESSMENT
Date Started: 02/18/1998
Date Completed: 08/10/1998
Priority Level: Not reported

Action: REMOVAL NEGOTIATIONS
Date Started: 06/25/1998
Date Completed: 08/21/1998
Priority Level: Not reported

Action: Public Notice Published
Date Started: Not reported
Date Completed: 10/13/1998
Priority Level: Not reported

Action: REMOVAL
Date Started: 08/26/1998
Date Completed: 11/04/1998
Priority Level: Cleaned up

Action: NON-NATIONAL PRIORITIES LIST POTENTIALLY RESPONSIBLE PARTY SEARCH
Date Started: 03/24/1998
Date Completed: 09/27/2001
Priority Level: Search Complete, No Viable PRPs

Action: LIEN ON POTENTIALLY RESPONSIBLE PARTY PROPERTY
Date Started: Not reported
Date Completed: 11/04/2001
Priority Level: Not reported

Action: ADMINISTRATIVE RECORDS
Date Started: 10/13/1998
Date Completed: 03/07/2005
Priority Level: Admin Record Compiled for a Removal Event

SERVICE PLATING CO LTD (Continued) **1000432493**

Action:	ARCHIVE SITE
Date Started:	Not reported
Date Completed:	04/11/2005
Priority Level:	Not reported

NY MANIFEST:

Document ID:	PAE6261636
Manifest Status:	Completed copy
Trans1 State ID:	PAAH0317
Trans2 State ID:	Not reported
Generator Ship Date:	970106
Trans1 Recv Date:	970106
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970106
Part A Recv Date:	970122
Part B Recv Date:	970122
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	PAD982661381
Trans2 EPA ID:	Not reported
TSDF ID:	PAD085690592
Waste Code:	F009 - UNKNOWN
Quantity:	00050
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00500
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET

SERVICE PLATING CO LTD (Continued) **1000432493**

Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	MIA7123394
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	10/21/1998
Trans1 Recv Date:	10/21/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/27/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	MIA7123395
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	10/26/1998
Trans1 Recv Date:	10/26/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/05/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	D006 - CADMIUM 1.0 MG/L TCLP
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	MIA7123396
Manifest Status:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	10/30/1998
Trans1 Recv Date:	10/30/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/05/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	AC747GNJ
Waste Code:	D006 - CADMIUM 1.0 MG/L TCLP
Quantity:	00030
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	MIA7123397
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	11/02/1998
Trans1 Recv Date:	11/02/1998
Trans2 Recv Date:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

TSD Site Recv Date:	11/05/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	D006 - CADMIUM 1.0 MG/L TCLP
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	MIA7123398
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	10/28/1998
Trans1 Recv Date:	10/28/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/10/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	MID000724831

SERVICE PLATING CO LTD (Continued) **1000432493**

Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	ALA0068623
Manifest Status:	Not reported
Trans1 State ID:	NJD986607380
Trans2 State ID:	Not reported
Generator Ship Date:	10/27/1998
Trans1 Recv Date:	10/27/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/03/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	ALD981020894
Trans2 EPA ID:	Not reported
TSDF ID:	AA998BNJ
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00010
Units:	G - Gallons (liquids only)* (8.3 pounds)

SERVICE PLATING CO LTD (Continued) **1000432493**

Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	ALA0067513
Manifest Status:	Not reported
Trans1 State ID:	NJD986607380
Trans2 State ID:	Not reported
Generator Ship Date:	10/14/1998
Trans1 Recv Date:	10/14/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/20/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	ALD981020894
Trans2 EPA ID:	Not reported
TSDF ID:	NYJA334
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES

SERVICE PLATING CO LTD (Continued) **1000432493**

Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00083
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00275
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	ALA0070460
Manifest Status:	Not reported
Trans1 State ID:	NJD986607380
Trans2 State ID:	Not reported
Generator Ship Date:	10/14/1998
Trans1 Recv Date:	10/14/1998

SERVICE PLATING CO LTD (Continued) **1000432493**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/20/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	ALD981020894
Trans2 EPA ID:	Not reported
TSDF ID:	NYJA334
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D005 - BARIUM 100.0 MG/L TCLP
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	NJA2960228
Manifest Status:	Not reported
Trans1 State ID:	NJD071629976
Trans2 State ID:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Generator Ship Date:	10/13/1998
Trans1 Recv Date:	10/13/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/13/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	NJD002385730
Trans2 EPA ID:	Not reported
TSDF ID:	03217
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00340
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	NJA2960229
Manifest Status:	Not reported
Trans1 State ID:	NJD071629976
Trans2 State ID:	Not reported
Generator Ship Date:	10/14/1998
Trans1 Recv Date:	10/14/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/14/1998
Part A Recv Date:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	NJD002385730
Trans2 EPA ID:	Not reported
TSDF ID:	03217
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00186
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360

Document ID:	NJA2960230
Manifest Status:	Not reported
Trans1 State ID:	NJD071629976
Trans2 State ID:	Not reported
Generator Ship Date:	10/14/1998
Trans1 Recv Date:	10/14/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/14/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	NJD002385730
Trans2 EPA ID:	Not reported
TSDF ID:	03217

SERVICE PLATING CO LTD (Continued) **1000432493**

Waste Code:	F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity:	00833
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	NJA2960238
Manifest Status:	Not reported
Trans1 State ID:	PAR000035949
Trans2 State ID:	Not reported
Generator Ship Date:	11/02/1998
Trans1 Recv Date:	11/02/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/02/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	NJD002385730
Trans2 EPA ID:	Not reported
TSDF ID:	50134
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	01081
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks

SERVICE PLATING CO LTD (Continued) **1000432493**

Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360
Document ID:	MIA7151249
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	10/13/1998
Trans1 Recv Date:	10/13/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/27/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	MID000724831
Trans2 EPA ID:	Not reported
TSDF ID:	AC747GNJ
Waste Code:	F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	CM - Metal boxes, cases, roll-offs
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360

Document ID:	NYB7125786
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PC4339NY
Trans2 State ID:	Not reported
Generator Ship Date:	961216
Trans1 Recv Date:	961216
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	961216
Part A Recv Date:	970108
Part B Recv Date:	970109
Generator EPA ID:	NYD001384072
Trans1 EPA ID:	NYD049178296
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049178296
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	06400
Units:	P - Pounds
Number of Containers:	016
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	96
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD001384072
Facility Name:	SERVICE PLATING CO LTD
Facility Address:	154 NORTH 7TH STREET
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	SERVICE PLATING CO LTD
Mailing Contact:	FRED ACCINELLIAL
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-388-9360

HIST UST:

PBS Number:	2-479748
SPDES Number:	Not reported
Emergency Contact:	RUBEN A. MINERNSKY
Emergency Telephone:	(516) 538-0423
Operator:	RUBEN A. MINERNSKY
Operator Telephone:	(718) 388-9360
Owner Name:	154 NORTH 7TH STREET R. E. CORPORATION
Owner Address:	154 NORTH 7TH STREET
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 388-9360
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	ALL PLATING CORPORATION
Mailing Address:	154 NORTH 7TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	RUBEN A. MIRENSKY
Mailing Telephone:	(718) 388-9360
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	MANUFACTURING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	01/30/1995
Expiration Date:	02/01/2000

SERVICE PLATING CO LTD (Continued) **1000432493**

Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

LIENS 2:

Facility name:	ALL PLATING CORP.
Facility address:	154 NORTH 7TH STREET BROOKLYN, NY 11211
EPA ID:	NYD001384072
Action:	LP001 - Lien on PRP property
Start date:	Not reported
Complete date:	11/04/2001
Notice date:	Not reported
Enforcemant date:	Not reported
Reardon date:	Not reported
Statutes:	Not reported

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	SERVICE PLATING CO LTD

SERVICE PLATING CO LTD (Continued) **1000432493**

Facility address: 154 N 7TH ST
BROOKLYN, NY 112112920
EPA ID: NYD001384072
Mailing address: N 7TH ST
BROOKLYN, NY 11211
Contact: -
Contact address: N 7TH ST
BROOKLYN, NY 11211
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/08/1999
Facility name: SERVICE PLATING CO LTD
Classification: Not a generator, verified

Date form received by agency: 11/10/1980
Facility name: SERVICE PLATING CO LTD
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 12/07/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

CT MANIFEST:
Manifest No: Not reported
Waste Occurence: Not reported

SERVICE PLATING CO LTD (Continued) **1000432493**

UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1998
Manifest ID:	CTF0535724
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	10/20/98
Transporter EPA ID:	NJD071629976
Transporter Name:	S-J TRANSPORTATION CO
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD001384072
Gererator Phone:	7329066908
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	10/20/98
Date Received:	10/20/98
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported

AK239
NE
1/4-1/2
1879 ft.

PUBLIC SCHOOL 31 (OLD)-BROOKLYN
75 MESEROLE AVE
BROOKLYN, NY 11222

AST

A100178457
N/A

Site 1 of 2 in cluster AK

Relative:
Higher

AST:

Actual:
13 ft.

AST:

Region:	STATE
Facility Id:	2-606277
UTM X:	588330.65612
UTM Y:	4508899.66506
Expiration Date:	07/11/11
Renewal Date:	/ /
Total Capacity:	6000
Facility Type:	Not reported
Site Type Name:	School
Site Type Status:	Active
Mailing Company:	NYC DEPARTMENT OF EDUCATION
Mailing Title:	Not reported
Mailing Contact:	JAMES A. MERLO
Mailing Address:	FIELD OPERATIONS-FUEL DIVISION
Mailing Address 2:	44-36 VERNON BLVD.
Mailing City:	LONG ISLAND CITY
Mailing State:	NY
Mailing Zip Code:	11101
Mailing Phone No:	(718) 349-5738
Mailing Email:	JMERLO@SCHOOLS.NYC.GOV
Owner Title:	MANAGER, FUEL DIVISION
Owner Name:	JAMES A. MERLO
Owner Address:	44-36 VERNON BLVD.
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11101
Owner Phone:	(718) 349-5738
Owner Company:	NYC DEPARTMENT OF EDUCATION
Emergency Contact:	SCHOOL SAFETY
Emergency Phone:	(718) 935-3300
Operator:	PLANT OPERATION
Operator Phone:	(718) 349-5400
Owner City:	LONG ISLAND CITY
Owner Sub Type:	Local Government
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Aboveground on crib, rack, or cradle
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	01/01/00
Capacity Gallons:	6000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Painted/Asphalt Coating
Tank Internal Protection 2:	Not reported
Pipe Location Name:	Aboveground

PUBLIC SCHOOL 31 (OLD)-BROOKLYN (Continued) **A100178457**

Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	Painted/Asphalt Coating
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	None
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	None
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	High Level Alarm
Type Of Overfill Prevention 2:	Product Level Gauge (A/G)
Dispenser Method:	Suction
Spill Prevention:	None
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AK240 **NYC BD OF ED - PUBLIC SCHOOL 31K** **FINDS** **1004762108**
NE **75 MESEROLE AVE** **NY MANIFEST** **NYR000093617**
1/4-1/2 **BROOKLYN, NY 11222** **RCRA-NonGen**
1879 ft.

Site 2 of 2 in cluster AK

Relative:
Higher

Actual:
13 ft.

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and its Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

NY MANIFEST:

Document ID:	NYB9515016
Manifest Status:	Not reported
Trans1 State ID:	NY0000291823
Trans2 State ID:	PAD146714878
Generator Ship Date:	05/09/2001

NYC BD OF ED - PUBLIC SCHOOL 31K (Continued) **1004762108**

Trans1 Recv Date:	05/09/2001
Trans2 Recv Date:	05/10/2001
TSD Site Recv Date:	05/11/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000093617
Trans1 EPA ID:	NYD049836679
Trans2 EPA ID:	Not reported
TSDF ID:	1A375
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00500
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	01
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYR000093617
Facility Name:	NYC BOARD OF EDUCATION
Facility Address:	75 MESSEROLE AVE
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	NYC BOARD OF EDUCATION
Mailing Contact:	NYC BOARD OF EDUCATION
Mailing Address:	75 MESSEROLE AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-617-0771

RCRA-NonGen:

Date form received by agency:	01/01/2006
Facility name:	NYC BD OF ED - PUBLIC SCHOOL 31K
Facility address:	75 MESEROLE AVE BROOKLYN, NY 11222
EPA ID:	NYR000093617
Mailing address:	MESEROLE AVE BROOKLYN, NY 11222
Contact:	ROBERT - CANN
Contact address:	MESEROLE AVE

NYC BD OF ED - PUBLIC SCHOOL 31K (Continued) **1004762108**

BROOKLYN, NY 11222
Contact country: US
Contact telephone: (718) 383-1154
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: NEW YORK CITY BOARD OF EDUCATION
Owner/operator address: 28-11 QUEENS PLZ N
LONG ISLAND CITY, NY 11101
Owner/operator country: Not reported
Owner/operator telephone: (718) 391-6902
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/31/2001
Facility name: NYC BD OF ED - PUBLIC SCHOOL 31K
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D008
Waste name: LEAD

Violation Status: No violations found

AL241
SE
1/4-1/2
1908 ft.

Relative:
Higher

Actual:
14 ft.

432 DRIGGS AVENUE CORP
181 N 11TH ST
BROOKLYN, NY 11211

Site 1 of 2 in cluster AL

RCRA-LQG

1010327931
NYR000140699

RCRA-LQG:

Date form received by agency:	07/25/2006
Facility name:	432 DRIGGS AVENUE CORP
Facility address:	181 N 11TH ST BROOKLYN, NY 11211
EPA ID:	NYR000140699
Mailing address:	DRIGGS AVE BROOKLYN, NY 11211
Contact:	DAVID MOSKOVITZ
Contact address:	DRIGGS AVE BROOKLYN, NY 11211
Contact country:	Not reported
Contact telephone:	(732) 886-0008
Contact email:	Not reported
EPA Region:	02
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	DAVID MOSKOVITZ
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/01/1969
Owner/Op end date:	Not reported

Owner/operator name:	DAVID MOSKOVITZ
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	06/01/1969
Owner/Op end date:	Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No

432 DRIGGS AVENUE CORP (Continued) **1010327931**

Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 07/24/2006
Facility name: 432 DRIGGS AVENUE CORP
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Violation Status: No violations found

AL242 **432 DRIGGS AVENUE CORP** **RCRA-LQG** **1010327932**
SE **181 N 11TH ST** **NYR000140699**
1/4-1/2 **BROOKLYN, NY 11211**
1908 ft.

Site 2 of 2 in cluster AL

Relative: Higher

Actual: 14 ft.

RCRA-LQG:
Date form received by agency: 07/25/2006
Facility name: 432 DRIGGS AVENUE CORP
Facility address: 181 N 11TH ST
BROOKLYN, NY 11211
EPA ID: NYR000140699
Mailing address: DRIGGS AVE
BROOKLYN, NY 11211
Contact: DAVID MOSKOVITZ
Contact address: DRIGGS AVE
BROOKLYN, NY 11211
Contact country: Not reported
Contact telephone: (732) 886-0008
Contact email: Not reported
EPA Region: 02
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any

432 DRIGGS AVENUE CORP (Continued) **1010327932**

residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	DAVID MOSKOVITZ
Owner/operator address:	Not reported
	Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/01/1969
Owner/Op end date:	Not reported

Owner/operator name:	DAVID MOSKOVITZ
Owner/operator address:	Not reported
	Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	06/01/1969
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Historical Generators:

Date form received by agency:	07/24/2006
Facility name:	432 DRIGGS AVENUE CORP
Classification:	Large Quantity Generator

Hazardous Waste Summary:

432 DRIGGS AVENUE CORP (Continued) **1010327932**

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Violation Status: No violations found

AM243 **51-55 NASSAU AVENUE** **UST** **U004077592**
East **51-55 NASSAU AVENUE** **N/A**
1/4-1/2 **BROOKLYN, NY 11222**
1908 ft.

Site 1 of 2 in cluster AM

Relative: Higher

Actual: 13 ft.

UST:

UST:

Facility Id:	2-269069
Region:	STATE
Expiration Date:	07/10/07
Renewal Date:	03/06/02
Total Capacity:	3000
Facility Type:	Not reported
Mailing Company:	MELISSA ETLIN
Mailing Title:	Not reported
Mailing Contact:	Not reported
Mailing Address:	167 DIAMOND ST
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11222
Mailing Phone No:	(718) 349-1484
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	167 DIAMOND ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11222
Owner Phone:	(718) 349-1484
Owner Company:	MELISSA ETLIN
Emergency Contact:	MELISSA ETLIN
Emergency Phone:	(718) 349-1484
Operator:	PERRY
Operator Phone:	(718) 388-2690
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	588496.09381
UTM Y:	4508537.03880
Site Type Name:	Other
Site Type Status:	Active
Comments:	Not reported

Program Type: PBS

Tank Number: 001

51-55 NASSAU AVENUE (Continued) **U004077592**

Tank Location Name:	Underground, vaulted, with access
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Active
Install Date:	/ /
Capacity Gallons:	3000
Material Name:	#2 Fuel Oil
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	None
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	Steel/Carbon Steel/Iron
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	None
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	None
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Exempt Suction Piping
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Testing Not Required
Date Tested:	/ /
Next Test Date:	/ /
Date Tank Closed:	/ /

AM244 **51-55 NASSAU AVENUE** **HIST UST** **U000400326**
East **51-55 NASSAU AVENUE** **N/A**
1/4-1/2 **BKLYN, NY 11222**
1908 ft.

Site 2 of 2 in cluster AM

Relative:
Higher

Actual:
13 ft.

HIST UST:

PBS Number:	2-269069
SPDES Number:	Not reported
Emergency Contact:	LAUREL SHUTE
Emergency Telephone:	(718) 782-3766
Operator:	TADASHI HASHINOTO
Operator Telephone:	(718) 782-3766
Owner Name:	MELISSA ETLIN
Owner Address:	800 BURNT MILLS AVE
Owner City,St,Zip:	SILVER SPRING, MD 20901
Owner Telephone:	(301) 593-6421
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	MELISSA ETLIN
Mailing Address:	800 BURNT MILLS AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	SILVER SPRING, MD 20901
Mailing Contact:	Not reported
Mailing Telephone:	(301) 593-6421

51-55 NASSAU AVENUE (Continued) **U000400326**

Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	51 NASSAU AVENUE
SWIS ID:	6101
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/15/1997
Expiration Date:	07/10/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	61
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

245 NNW 1/4-1/2 1912 ft. | **V2306**
2-50 NOBLE STREET
NEW YORK CITY, NY 11206

NY MANIFEST | **1007206901**
RCRA-NonGen | **NYP004033171**

Relative: Lower

Actual: 1 ft.

NY MANIFEST:

Document ID:	NYE0218788
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	12/08/1998
Trans1 Recv Date:	12/08/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	12/09/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004033171
Trans1 EPA ID:	NYD980593636
Trans2 EPA ID:	Not reported
TSDF ID:	80416AB
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	02586
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004033171
Facility Name:	CONSOLIDATED EDISON COMPANY OF NEW YORK
Facility Address:	MH39276-LEX AVE & 131ST ST
Facility City:	N/S
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	CONSOLIDATED EDISON COMPANY OF NEW YORK
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

Document ID:	NYE0216887

V2306 (Continued) **1007206901**

Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	03/25/1999
Trans1 Recv Date:	03/25/1999
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/26/1999
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004033171
Trans1 EPA ID:	NYD980593636
Trans2 EPA ID:	Not reported
TSDF ID:	31877AJ
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	01518
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	99
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYP004033171
Facility Name:	CONSOLIDATED EDISON COMPANY OF NEW YORK
Facility Address:	MH39276-LEX AVE & 131ST ST
Facility City:	N/S
Facility Address 2:	Not reported
Country:	USA
County:	NE
Mailing Name:	CONSOLIDATED EDISON COMPANY OF NEW YORK
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

RCRA-NonGen:

Date form received by agency:	01/02/2001
Facility name:	V2306
Facility address:	2-50 NOBLE STREET NEW YORK CITY, NY 11206
EPA ID:	NYP004033171

V2306 (Continued) **1007206901**

Mailing address: CONSOLIDATED EDISON INC.
4 IRVING PLACE -- ROOM 300
NEW YORK, NY 10003
Contact: ANTHONY - DRUMMINGS
Contact address: CONSOLIDATED EDISON INC.
NEW YORK, NY 10003
Contact country: US
Contact telephone: (212) 460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler accessibilty indicator: Transferred to the program or state equivalent.

Handler Activities Summary:
U.S. importer of hazardous waste: Unknown
Mixed waste (haz. and radioactive): Unknown
Recycler of hazardous waste: Unknown
Transporter of hazardous waste: Unknown
Treater, storer or disposer of HW: No
Underground injection activity: Unknown
On-site burner exemption: Unknown
Furnace exemption: Unknown
Used oil fuel burner: Unknown
Used oil processor: Unknown
User oil refiner: Unknown
Used oil fuel marketer to burner: Unknown
Used oil Specification marketer: Unknown
Used oil transfer facility: Unknown
Used oil transporter: Unknown
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 01/01/2001
Facility name: V2306
Classification: Large Quantity Generator

Violation Status: No violations found

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246 South 1/4-1/2 1918 ft.
RIZZO TRUCKING INC
91 N 5TH ST
BROOKLYN, NY 11211
UST U000407567
HIST UST N/A

Relative: Higher

Actual: 19 ft.

UST:

UST:
Facility Id: 2-002801
Region: STATE
Expiration Date: 10/23/02
Renewal Date: 06/05/02
Total Capacity: 0
Facility Type: Not reported
Mailing Company: RIZZO TRUCKING INC
Mailing Title: Not reported
Mailing Contact: Not reported
Mailing Address: 91 N 5TH ST
Mailing Address 2: Not reported

RIZZO TRUCKING INC (Continued) **U000407567**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip Code:	11211
Mailing Phone No:	(718) 388-6639
Mailing Email:	Not reported
Owner Title:	Not reported
Owner Name:	Not reported
Owner Address:	91 N 5TH ST
Owner Address 2:	Not reported
Owner State:	NY
Owner Zip Code:	11211
Owner Phone:	(718) 388-6639
Owner Company:	RIZZO TRUCKING INC
Emergency Contact:	BARNEY RIZZ0
Emergency Phone:	(516) 825-0836
Operator:	RIZZ0 TRUCKING INC
Operator Phone:	(718) 388-6639
Owner City:	BROOKLYN
Owner Sub Type:	Corporate or Commercial
UTM X:	587819.55700
UTM Y:	4507925.26659
Site Type Name:	Trucking/Transportation/Fleet Operation
Site Type Status:	Unregulated
Comments:	Not reported
Program Type:	PBS
Tank Number:	001
Tank Location Name:	Underground
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Active Status:	Inactive
Install Date:	11/01/75
Capacity Gallons:	4000
Material Name:	Diesel
Percentage:	100.00
Tank Type Name:	Steel/Carbon Steel/Iron
Tank Internal Protection:	None
Tank Internal Protection 1:	Retrofitted Sacrificial Anode
Tank Internal Protection 2:	Not reported
Pipe Location Name:	No Piping
Pipe Type Name:	No Piping
Pipe External Protection 1:	None
Pipe External Protection 2:	Not reported
Tank Secondary Containment 1:	Vault (w/o access)
Tank Secondary Containment 2:	Not reported
Pipe Secondary Containment:	Not reported
Tank Leak Detection 1:	Other
Tank Leak Detection 2:	Not reported
Pipe Leak Detection 1:	Not reported
Pipe Leak Detection 2:	Not reported
Type Of Overfill Prevention 1:	Product Level Gauge (A/G)
Type Of Overfill Prevention 2:	Not reported
Dispenser Method:	Suction
Spill Prevention:	Not reported
Tightness Test Method:	Missing Code in Old Data - Must be fixed

RIZZO TRUCKING INC (Continued) **U000407567**

Date Tested: 10/01/96
Next Test Date: / /
Date Tank Closed: 07/24/02

HIST UST:
PBS Number: 2-002801
SPDES Number: Not reported
Emergency Contact: BARNEY RIZZ0
Emergency Telephone: (516) 825-0836
Operator: RIZZ0 TRUCKING INC
Operator Telephone: (718) 388-6639
Owner Name: RIZZO TRUCKING INC
Owner Address: 91 N 5TH ST
Owner City,St,Zip: BROOKLYN, NY 11211
Owner Telephone: (718) 388-6639
Owner Type: Not reported
Owner Subtype: Not reported
Mailing Name: RIZZO TRUCKING INC
Mailing Address: 91 N 5TH ST
Mailing Address 2: Not reported
Mailing City,St,Zip: BROOKLYN, NY 11211
Mailing Contact: Not reported
Mailing Telephone: (718) 388-6639
Owner Mark: First Owner
Facility Status: 1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2: 91 N 5TH ST
SWIS ID: 6101
Old PBS Number: Not reported
Facility Type: TRUCKING/TRANSPORTATION
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 10/01/1997
Expiration Date: 10/23/2002
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 4000
FAMT: True
Facility Screen: No Missing Data
Owner Screen: Minor Data Missing
Tank Screen: Minor Data Missing
Dead Letter: False
CBS Number: Not reported
Town or City: NEW YORK CITY
County Code: 61
Town or City: 01
Region: 2

Tank Id: 001
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19751101
Capacity (gals): 4000

RIZZO TRUCKING INC (Continued) **U000407567**

Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Sacrificial Anode
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	Other
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	10/01/1996
Next Test Date:	10/01/2001
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AG247 **JORAL CARTING INC.** **SWF/LF** **S105841726**
SW **157 KENT AVE.** **N/A**
1/4-1/2 **BROOKLYN, NY 12211**
1953 ft.

Site 3 of 3 in cluster AG

Relative: Higher

Actual: 12 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	7186267907
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	ANTHONY SPENSIERI; SUPERVISOR
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - regulated
Activity Number:	24T62
Active:	No
East Coordinate:	587500
North Coordinate:	4508000
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	2-6101-00021
Authorization Date:	Not reported
Expiration Date:	Not reported

AJ248
SSE
1/4-1/2
1974 ft.

Relative:
Higher

Actual:
30 ft.

187 BEDFORD AVE
187 BEDFORD AVENUE
BROOKLYN, NY 11211

Site 3 of 3 in cluster AJ

LTANKS **S106123807**
N/A

LTANKS:

Site ID:	147917
Spill Date:	10/16/03
Facility Addr2:	Not reported
Facility ID:	0307525
Program Number:	0307525
SWIS:	2401
Region of Spill:	2
Investigator:	BKFALVEY
Referred To:	Not reported
Reported to Dept:	10/16/03
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	10/16/03
Spill Record Last Update:	11/03/06
Spille Namer:	ALEX WEROCKI
Spiller Company:	Not reported
Spiller Phone:	(646) 87 -6165
Spiller Extention:	Not reported
Spiller Address:	187 BEDFORD AVE
Spiller City,St,Zip:	BROOKLYN, ZZ
Spiller County:	001
Spiller Contact:	ALEX WEROCKI
Spiller Phone:	(646) 87 -6165
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0307525
DER Facility ID:	29992
Site ID:	147917
Operable Unit ID:	873923
Operable Unit:	01
Material ID:	501052
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

187 BEDFORD AVE (Continued) **S106123807**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0307525 Prior to Sept, 2004 data translation this spill Lead DEC Field was "DEMEO" TTF letter sent to Mr. Wersocki at 187 Bedford Ave Bklyn 11211 12/3/05: CBN Called Alex Wersocki (718) 963-2659 and left a message for hm to call me back, but haven't heard from him yet. END DECRemark - 0307525
Remarks:	Not reported

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249 **V. M. TRANSFER; LTD.(CARDELLA)** **SWF/LF** **S105841759**
SW **175 KENT AVE** **N/A**
1/4-1/2 **BROOKLYN, NY 11211**
2139 ft.

Relative:
Higher

Actual:
13 ft.

SWF/LF:

Flag:	INACTIVE
Secondary Addr:	Not reported
Region Code:	2
Phone Number:	5162863322
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	VINCENT MORIBITO; OWNER
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - regulated
Activity Number:	24T64
Active:	No
East Coordinate:	587400
North Coordinate:	4508000
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	2-6101-00066
Authorization Date:	Not reported
Expiration Date:	Not reported

AN250
SSE
1/4-1/2
2265 ft.

Relative:
Higher

Actual:
28 ft.

ST VINCENT DEPAUL CHURCH
167 N. 6TH ST
BROOKLYN, NY

LTANKS **S105998861**
N/A

Site 1 of 2 in cluster AN

LTANKS:

Site ID:	177051
Spill Date:	05/01/03
Facility Addr2:	Not reported
Facility ID:	0301163
Program Number:	0301163
SWIS:	2401
Region of Spill:	2
Investigator:	JBLISTER
Referred To:	Not reported
Reported to Dept:	05/01/03
CID:	14
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Tank Tester
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/21/05
Remediation Phase:	0
Date Entered In Computer:	05/01/03
Spill Record Last Update:	01/06/06
Spille Namer:	FR. KING
Spiller Company:	ST VINCENT DEPAUL CHURCH
Spiller Phone:	(718) 388-4218
Spiller Extention:	Not reported
Spiller Address:	167 N. 6TH ST
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	FR. KING
Spiller Phone:	(718) 388-4218
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0301163
DER Facility ID:	148793
Site ID:	177051
Operable Unit ID:	867566
Operable Unit:	01
Material ID:	509219
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

ST VINCENT DEPAUL CHURCH (Continued) **S105998861**

Site ID:	177051
Spill Tank Test:	1528335
Tank Number:	001
Tank Size:	5000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0301163 Prior to Sept, 2004 data translation this spill Lead DEC Field was "KRIMGOLD" 05/02/03 - ROSSAN, DDO - Tank test failure letter was sent 5/2/03 Letter was sent to: Fr. King St Vincent De PaulChurch 167 N 6th Street Brooklyn, NY 11211 END 4/30/2004 SS sent a new ttf ltr 12/06/05 called for Father King who I was informed was no longer at the church. Bishop Manuel will call me when he returns. J Lister 12/21/05 Spill closed after receiving documentation that tank was retested and passed. J Lister END DECRemark - 0301163
Remarks:	Start CallerRemark - 0301163 tank test failure END CallerRemark - 0301163

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251 NE 1/4-1/2 2305 ft. **NYCPD 94TH PRECINCT** **LTANKS** **S107658676**
100 MESEROLE AVENUE **N/A**
BROOKLYN, NY 11222

Relative: Higher

Actual: 21 ft.

LTANKS:

Site ID:	360258
Spill Date:	02/07/06
Facility Addr2:	Not reported
Facility ID:	0513729
Program Number:	0513729
SWIS:	2401
Region of Spill:	2
Investigator:	ADZHITOM
Referred To:	Not reported
Reported to Dept:	02/28/06
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	02/28/06
Spill Record Last Update:	08/07/07
Spille Namer:	JIM CAREY
Spiller Company:	METRO OIL CO.
Spiller Phone:	(718) 383-1400
Spiller Extention:	Not reported
Spiller Address:	500 KINGSLAND AVE

NYCPD 94TH PRECINCT (Continued) **S107658676**

Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	SARGEANT PALANCO
Spiller Phone:	(347) 672-2367
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0513729
DER Facility ID:	8239
Site ID:	360258
Operable Unit ID:	1117434
Operable Unit:	01
Material ID:	2107944
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	50.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0513729 This spill was called in 3 weeks late - Why? ECO's were on site and issued a summons Check with ECO's and get a report from Milro before closing case. 3/7/06-Vought-Spoke with Paul Basso (Milro) and soil borings were performed yesterday. Soil samples were collected from around gasoline tank and contamination was present. 3000-gallon gasoline tank onsite. Curb overfill resulted in filling of tank sump. Vapors impacted the police station. Oil company (Metro fuel oil) has hired Milro. Vought called NYPD 94th Precinct (Lt. Lott 718-383-6491 and Sgt. Gonzalez 718-383-4427 fax: 718-476-7503) and Sgt; Gonzalez requested that he be the sole contact for the Precinct. As per Lot: 1)gasoline odors were presentin the basement of the building but were mitigated via the installation of a ventilation system by Milro 2)NYCDOH was onsite yesterday and suggested continued ventilation 2)OSHA was onsite yesterday. Sgt. Gonzalez requested: 1)copy of spill report(Vought faxed on 3/7) and 2)notification of Milro of further work date. Vought called Milro and informed Paul to contact Precinct and to call DEC Rahman for further requirements (excavation versus SVE installation). Milro met with Officer Eddie and Sgt Cortez and they just spoke to Lt. Palanco. Vought left message with Lott to return call to DEC with one primary contact phone number. 03.10.06 Sharif Rahman-I spoke with Paul at Milro. He said they found pea gravel near manway of the gasolinetank is contaminated. They dug out 5' down the grade and the PID meter deflected for 150-180 ppm reading.There is a fillcap between the lounge and the dispenser that leads to an old UST.The UST is filled with water. Needs to do more investigation.03/13/06 Sharif Rahman-Rec'd proposal from Milro to remove the concrete slab above the underground gasoline tank and remove the contaminated pea gravel. A CSL was sent to Metro Fuel Oil 500 Kingsland AVenue Brooklyn, NY 11222 Attn: Jim Carey Cc: Lt.

NYCPD 94TH PRECINCT (Continued) **S107658676**

Polanco,NYPD-Fuel Control Unit. 04/24/06 Sharif Rahman- Milro is removing the pea gravel around the gasoline tank. I spoke with Paul Basso from Milro and suggested him to get approval from the appropriate person of Police Dept.(Lt. Polanco,718.476.7536)before they proceed with all kind of excavation and removal work at the tank area and in the basement as well. Paul informed me he would do thatway.Paul also informed me that they found a 2-3' gap in the tank vault which, apparently theescape way for the gasoline and vapor. Samples from the basement should be tested. Residual contamination between tank and building needs to be investigated and remediated, besides the source tank area.I spoke with Lt. Lott,(718)383-6491 and told her about the necessity of excavation and installation of soil borings in the premise. She confirmed me there is no odor complain,as of today. 07/07/06 Rahman- Milro took soil and ground water samples from the tank premises and sent to the lab. Strong odor was encountered during the sampling event.Mike Reardon(718.999.2463)of FDNY called DEC to know the status of the case. He indicated that the tank/piping removal should be done by a FD certified company. I gave him MILRO's contact # to check if they are certified by FD. 08/01/06- Rahman-Rec'd investigation summary report from MILRO.Seven borings were advanced around the gasoline tank and between the precinct and dispenser garage. Three ground water samples out of five showed significantcontamination(SB3:Benzene 8500 ug/L,Ethylbenzene 14000 ug/L,Toluene 49000 ug/L,MTBE , Naphthalene 18000 ug/L; SB4:Benzene 17000 ug/L,Ethylbenzene 2100 ug/L,Toluene 26000 ug/L,MTBE 16000 ug/L , Naphthalene 2100 ug/L; SB5:Benzene 18000 ug/L,Ethylbenzene 16000 ug/L,Toluene 58000 ug/L,MTBE 17000 ug/L , Naphthalene 28000 ug/L) . Ground water samples of SB6 and SB7 could not be collected due to boring refusal at 10 ft below grade.GW depth is at 12' below grade.Milro could not install soil boring through the tank vault due to the thickness of the concrete.However,boring was attempted through a void in the bottom of the tank vault that encountered contaminated soil below the tank.Guidance of professional engineer is recommended regarding the removal/treatment of contaminated soil below the tank vault due to structural concerns.Contamination in SB3(Absence of MTBE), located south side of 5000 gallon #2 Fuel oil tank indicates possibility of other source of contamination.Tightness testing ofFuel oil tank system is strongly recommended(contact: Lt. Polanco of NYPD@ 347.672.2367). Milro proposed to install GW monitoring wells to recover separate phase product.ORC will be applied to remediate the residual contaminated water. Case was transferred to Remedial section B for further action on it. 8/1/2006 Spill report is given to AZ by KT. AZ 8/2/06 Left a message for Paul at Milro (516-379-1500). AZ Contacted Paul (Milro). Left a message for Paul at Milro (516-379-1500). AZ Contacted Paul (Milro). They pulled out 1x3000 gal gasoline UST. Tank is in good shape. The cause of the spill was overfill. Complained about odors in the building. The release was below the vault. The vault was not removed. I recommend if safe and structurally possible the vault should be removed and the soil beneath the vault the vault should be excavated. AZ 8/3/06 Contacted Paul @ Milro). Product showed up in the sump. Complains about the odors in the building. Vault has drain holes and weep holes in the bottom. The vault is in poor condition. There is contamination below the vault. Some borings were done at the property. Contamination was found at the water table. No wells were installed. They should hire an engineer to evaluate the possibility of removing the vault. Wells should be installed. I contacted Lt. Polanco(NYPD 718-476-7524). I recommended, if it is structurally possible(from the engineering and safety standpoint) to remove the vault and all contaminated soil. AZ 8/22/2006 Received a letter from Milro and enclosed letter from Hydro Environmental Technologies. The letter from Milro stated that Mr. Douset (Hydro Environmental Technologies) inspected the site. Based on his inspection the tank vault should not be removed. I called Milro to notify them that I concur with this recommendation. Paul is out this week and I left a message for

NYCPD 94TH PRECINCT (Continued) **S107658676**

Anthony who is covering for him. AZ 8/23/2006 Contacted Anthony Mariano (Milro). They should submit to DEC alternative remedial strategy plan. AZ 9/14/2006 Left a message for Paul (Milro). AZ 9/19/2006 Conversation with Paul (Milro). AIG thinks that there are too many unknowns to perform the excavation. They will consider other alternatives. No wells wereinstalled in the area. One soil boring under the vault has shown signs of free phase. I recommended istalling wells in the area. Milro or the insurance company (AIG) will submit investigative/remedial proposals for this site to DEC. AZ 9/20/2006Lt. Lott NYPD 94-th Precinct 718-383-6491. We discussed the site and agreed that the site should be remediated. The tank vault could be temporarily filled in with clean back fill but this backfill could be excavated if this is necessary for futurethe site investigation. It is not recommended to install new tanks into this vault prior to remediation/investigation. FD contact Eugene Levintov 718-999-2451. AZ 9/20/2006 I contacted Paul and told him that they must submit a work plan within five working days. AZ 9/21/2006 I contacted Larry Doucet (Hydro Tech Environmental - 914-245-5411). They will submit an investigative plan with a schedule by Tuesday. AZ 10/3/2006 Left a message for Lt. Polanko 347-672-2367. Spoke with Lt. Polanko (NYPD). Discussed with Lt. Polanko progress of the clean up. Contacted Sergio Rojas (Hydro Tech Environmental -(732)929-2900). I reviewed the submitted Work Plan. The plan did not have a site plan with existing soil borings locations and didnot include a plan with proposed well locations. I requested to install wells, utilities allowing, near soil borings SB-3, SB-4, SB-5. A plan with the boring locations should be submitted to DEC. If free phase is discovered it should be pumped out.Plume should be delineated. Soil sampling and groundwater sampling are required. Hydro Tech was notified that contractors are doing the roof at the precinct and there is no access to the site for environmental consultants at the moment. AZ 11/7/2006 I contacted Anne Davis @Hydro Environmental Technologies @732-929-2900, additional phone #732-818-1800. They submiited a letter to Mr. Carey (Metro Oil) and copied NYSDEC on this letter. This submittal was discussed with Sergio on 10/3/2006. Nonew submittals were mailed to DEC. Soil borings have advanced (3) and two wells were completed. Shallow wells were installed in the garage previously. They attemped to install a new well in the garage but got refusal on a Geoprobe. No investigativeresults have been submitted to DEC so far. Wells must be sutveyed. At least 3 wells must be installed. Total concentrations must be included in the report. A plan showing all the wells, borings and excavated area should be submitted. Groundwater flow should be determined. The installed wells are 2" diameter. Free phase was discovered in MW-1 and just outside of the vault. They must submit a full a report to DEC ASAP. Anne stated that they will send us a report by 11/17/2006. Proposal for future installation should be included. The free phase should be delineated and pumped out as soon as possible. AZ 11/27/2006 Contacted Lt. Polanko @347-672-2367. I informed him that it’s ok to temporarily backfill the excavation if necessary but they will have open it up again if needed. Hydrotech will mail DEC their proposals tomorrow. AZ 12/20/2006 I have reviewed a Remedial Investigation Report received on Dec. 7, 2006, and contacted Anne Davis @Hydro Environmental Technologies @732-929-2900. I was told that delineation has not been completed due to the construction barriers installed at the site. I requested installation of 9 delineation wells ASAP. Groundwater flow direction should be established. IRM - enhanced fluid recovery via vac truck could be started from the existing wells immediately. Anne Davis stated that the wells will be installed in mid January. Upon plume delineation complection a remedial strategy will be developed and submitted to DEC for review. AZ 1/19/2007 I contacted Anne Davis@732-818-1800 fax#732-818-1802. The vault is backfilled. 8 wells were installed (total of 10 wells on site and 3 wells are on the sidewalk). They are sampling 11 wells next week. All wells must be developed including the old wells as per DEC instructions. Product was

NYCPD 94TH PRECINCT (Continued) **S107658676**

encountered in two wells: MW-2 - 0.2', MW-9 installed in place IP-2 (piezometer without water which was over drilled) in the garage) -0.03'.They should measure the amount of the pumped product. Enhanced fluid recovery will be performed twice a week? They do not have PID reaings on the removed air and amount of product pumped out. Anne is stating that the results of the field investigation will be submitted to DEC around March 2, 2007. I requested a quicker submittal of the investigation report. AZ 1/19/2007 I contacted Lt. Polanko and requested to expedite the issuance of the investigation report. AZ 7/2/2007 Reviewed Remedial Investigation Report and Proposed Remedial Action Plan submitted by Hydro Environmental Technologies on May 8, 2007. The investigation showed 0.07' of free phase in MW-01. Groundwater samples from wells MW-2 to MW-9 all contained total BTEX ranging from 14,336 ppb to 48,520 ppb. The report stated that the southern and eastern horizontal extent of contamination was not been delineated due to the limited access imposed by raw houses located along Manhattan Avenue and Lorimer Street. Additional delineation upgradient of the spill area was attempted but not completed since groundwater was not present in the upgradient wells. The report stated that background water contamination and organic solvents are present at the site. The BTEX and BN concentrations detected in MW-9, which is located approximately 30' upgradient of the spill area, were significantly higher then those concentrations obtained immediately upgradient of the spill (MW-7 and MW-8). The source of organic solvents is not known. The consultant proposed Dual Phase Vapor Extraction (DPVE)as a remedial strategy. The DPVE recovery system will recover total fluids from eight recovery wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, and MW-8. A high vacuum total fluids pump will depress the water table to a fixed depthbetween 16 and 18 feet below the grade. Groundwater will be treated using an oil/water separator, sediment filters, air stripper and GACA prior to discharge to a storm sewer lateral. The system will be designed to accommodate 10 gpm. Groundwater flow direction, according to the report, is south towards the former gasoline UST at a hydraulic gradient of 0.002 feet/foot and also northeast from Lorimer Avenue towards the former gasoline UST vault at a hydraulic gradient ranging from 0.06 to 0.08feet/foot. The submitted remedial plan did not specify capture zone radius of the remedial system. Apparently, the remedial system will not include portion of the plume located around MW-9. I called Anne Davis at (732)-818-1800. She was busy and told me that she will call right back. AZ 7-3-2007 Anne Davis has not called me back. I called Metro Oil Tom Torre(718-383-1400 Ext.#184). I discussed the remediation progress with him. On January 19 2007, DEC requsted that Investigative Report should be issued no later than March 2. However, the report was issued in May 2007. I requested information regarding the contact at the insurance company handling the case in order to expedite the site remediation. Mr. Torre will call me back with this info. AZ 7-5-2007 Contacted AIG insurance company (Glen Gunkel 770-870-2132). Claim #683-092965. AIG P.O. Box 2970 Alpharetta GA 30023-2970 We discussed the progress of the remediation. The remediation of this site is delayed. AIG environmental engineer will contact me. Left a message for Lieutenant Polanko. Russ Greatorex (AIG Consultants 770-870-2079) called me regarding the status of the site. I explained to him deficiencies of the submitted report. He will contacts the consultants and the deadlines will be enforced. A letter with DEC comments was sent to Hydro Environmental, Metro Oil and AIG: "The DEC comments are as the following: The DPVE recovery system could be used for the site remediation. However, the submitted remedial plan did not specify projected capture zone and radius of influence of the proposed remedial system. Apparently, the remedial system will not include portion of the plume located around well MW-9 and north of well MW-7. This area should be included in the remedial plan. The remedial plan should include a monitoring plan and implementation schedule. A schematic plan of the remedial system should be included in the proposal. Major

NYCPD 94TH PRECINCT (Continued) **S107658676**

parameters of the remedial system such as computations of drawdown, pumping rates and radius of influence; the capture zone, system monitoring parameters and frequency, and reporting frequency should specified in the report. The plume should be delineated in the northern part in the area of wellMW-9. The responsible party should obtain all necessary permits. The submittal of the remedial plan was significantly delayed. A revised remediation plan should be submitted to DEC within two weeks of the receipt of this letter." AZ 7-5-2007 I contacted Rob Meisner @732-818-1800 (Hydro Environmental). He stated that the Precinct provided the site plan. They are looking into a getting sanitary sewer permit. They will address all report deficiencies. AZ 8-7-2007 Meeting with Hydro Environmental (Rob Meisner), AIG (Tony Vinci ph. 201-631-7118), Metro Oil (Scott Alnwick ph. 718-383-1400), John Urda and V. Brevdo took place on Aug. 3, 2007. Three new wells were installed - MW-11, MW-12 and MW-13 with Geoprobe. DEC was not informed about the well installation. No Work Plan for the well installation was submitted to DEC. Neither soil sampling nor PID screening was performed during the well installation. It was agreed at the meeting that: 1. Some delineation wells will be installed downgradient - south and east of the source; 2. Aquifer test will be performed 3. Area around MW-9 will be addressed in the design of the remedial system; 4. The amended Work Plan will be submitted to DEC by September 15, 2007. AZ END DECRemark -0513729

Remarks: Start CallerRemark - 0513729 HAS BEEN CLEANED UP END CallerRemark - 0513729

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252 **RESIDENCE** **LTANKS** **S107658588**
ENE **92 NORMAN AVE** **N/A**
1/4-1/2 **BROOKLYN, NY**
2367 ft.

Relative:
Higher

Actual:
17 ft.

LTANKS:

Site ID:	359744
Spill Date:	02/17/06
Facility Addr2:	Not reported
Facility ID:	0513280
Program Number:	0513280
SWIS:	2401
Region of Spill:	2
Investigator:	rmpiper
Referred To:	Not reported
Reported to Dept:	02/17/06
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	02/21/06
Remediation Phase:	0
Date Entered In Computer:	02/17/06
Spill Record Last Update:	02/21/06
Spille Namer:	JIM CAREY
Spiller Company:	RESIDENCE
Spiller Phone:	(646) 772-5889
Spiller Extention:	CELL

RESIDENCE (Continued) **S107658588**

Spiller Address:	92 NORMAN AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	JIM CAREY
Spiller Phone:	(646) 772-5889
Spiller Extention:	CELL
DEC Region:	2
Program Number:	0513280
DER Facility ID:	309878
Site ID:	359744
Operable Unit ID:	1116938
Operable Unit:	01
Material ID:	2107403
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0513280 2/17/06- DEC Piper confirmed cleanup in progress. 2/21/06- DEC Piper spoke w/ Jim Carey of Castle. Due to a faulty gauge, tank overfill to sidewalk. All cleaned up and gauge has been replaced. END DECRemark - 0513280
Remarks:	Start CallerRemark - 0513280 DUE TO A STOARGE TANK OVERFILL, ON SIDEWALK, CLEAN UP IS IN PROGRESS END CallerRemark - 0513280

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253 **111 MILTON STREET** **LTANKS** **S102672351**
NNE **111 MILTON STREET** **HIST LTANKS** **N/A**
1/4-1/2 **BROOKLYN, NY**
2383 ft.

Relative:
Higher

Actual:
20 ft.

LTANKS:

Site ID:	219109
Spill Date:	01/27/94
Facility Addr2:	Not reported
Facility ID:	9312646
Program Number:	9312646
SWIS:	2401
Region of Spill:	2
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	01/27/94
CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported

111 MILTON STREET (Continued) **S102672351**

Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
Cleanup Ceased:	01/27/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/27/94
Remediation Phase:	0
Date Entered In Computer:	01/28/94
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	BAERENKLAU OIL CO.
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	740 JAMAICA AVENUE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9312646
DER Facility ID:	279871
Site ID:	219109
Operable Unit ID:	991300
Operable Unit:	01
Material ID:	388066
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9312646 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" END DECRemark - 9312646
Remarks:	Start CallerRemark - 9312646 PUT DOWN SPEEDY DRY - WILL CLEAN END CallerRemark - 9312646

HIST LTANKS:

Region of Spill:	2
Spill Number:	9312646

111 MILTON STREET (Continued) **S102672351**

Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	01/27/1994
Spill Time:	13:30
Reported to Department Date:	01/27/94
Reported to Department Time:	14:05
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	BAERENKLAU OIL CO.
Spiller Address:	740 JAMAICA AVENUE
Spiller City,St,Zip:	BROOKLYN, NY
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	01/27/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/27/94
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/28/94
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0

111 MILTON STREET (Continued) **S102672351**

Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: PUT DOWN SPEEDY DRY - WILL CLEAN

AN254 **LTANKS S105135025**
SSE **179 N 6TH STREET** **HIST LTANKS N/A**
1/4-1/2 **BROOKLYN, NY**
2425 ft.

Site 2 of 2 in cluster AN

Relative: Higher

Actual: 25 ft.

LTANKS:
Site ID: 306031
Spill Date: 07/23/01
Facility Addr2: Not reported
Facility ID: 0104288
Program Number: 0104288
SWIS: 2401
Region of Spill: 2
Investigator: TJDEMEO
Referred To: Not reported
Reported to Dept: 07/23/01
CID: 14
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/12/03
Remediation Phase: 0
Date Entered In Computer: 07/23/01
Spill Record Last Update: 12/12/03
Spille Namer: Not reported
Spiller Company: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: ***Update***, ZZ
Spiller County: 001
Spiller Contact: MARY JANE TREVZEN
Spiller Phone: (718) 387-2316
Spiller Extention: Not reported
DEC Region: 2
Program Number: 0104288
DER Facility ID: 247190
Site ID: Not reported
Operable Unit ID: Not reported
Operable Unit: Not reported

(Continued) **S105135025**

Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	Not reported
Site ID:	306031
Spill Tank Test:	1526473
Tank Number:	1
Tank Size:	4000
Test Method:	03
Leak Rate:	0.00
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Horner EZ Check I or II
DEC Memo:	Start DECRemark - 0104288 Prior to Sept, 2004 data translation this spill Lead DEC Field was "DEMEO" 11/28/2001 Tank passed EZY 3 LP test on 9/7/01. jz 12/12/03 TJD Spill closed based on above entry. END DECRemark - 0104288
Remarks:	Start CallerRemark - 0104288 tank contained #2 fuel oil END CallerRemark - 0104288

HIST LTANKS:

Region of Spill:	2
Spill Number:	0104288
Investigator:	DEMEO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	07/23/2001
Spill Time:	09:00
Reported to Department Date:	07/23/01
Reported to Department Time:	10:28
SWIS:	61
Spiller Contact:	MARY JANE TREVZEN
Spiller Phone:	(718) 387-2316
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Tank Tester

(Continued) **S105135025**

PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 07/23/01
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/28/01
Is Updated: False
PBS Number: Not reported
Tank Number: 1
Tank Size: 4000
Test Method: Horner EZ Check
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Talk Test Failures only pass or fail
Material Class Type: Not reported
Quantity Spilled: Not reported
Unkonwn Quantity Spilled: Not reported
Units: Not reported
Quantity Recovered: Not reported
Unkonwn Quantity Recovered: Not reported
Material: Not reported
Class Type: Not reported
Times Material Entry In File: Not reported
CAS Number: Not reported
Last Date: Not reported
DEC Remarks: 11/28/2001 Tank passed EZY 3 LP test on 9/7/01. j
Spill Cause: tank contained 2 fuel oil

AO255 **NORTH FIRST STREET FUEL OIL TERMINAL** **MOSF UST** **S102634104**
SW **214 KENT AVENUE** **CBS AST** **N/A**
1/4-1/2 **BROOKLYN, NY 11222** **MOSF AST**
2465 ft. **CBS**
Site 1 of 7 in cluster AO **MOSF**

Relative: Higher

Actual: 17 ft.

MOSF UST:
Facility ID: 2-1480
SWIS Code: 61
Facility Town: NEW YORK CITY
Contact Phone: (718) 834-3820
Emerg Contact: CIG
Emergency Telephone: (212) 580-6765
CBS Number: Not reported
SPDES Num: Not reported
Total Tanks: 8
Total Capacity: 31115023
Avg Throughput: 0
License Stat: 1
Facility Status: ACTIVE FACILITY

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Prod Xfer Options:	ACD
Expiration Date:	03/31/2003
Applic Rcvd:	01/05/2001
Operator:	WILTON CEDENO
Owner Name:	CONSOLIDATED EDISON COMPANY OF N.Y., INC.
Owner Address:	4 IRVING PLACE, ROOM 826
Owner City,St,Zip:	NEW YORK, NY 10003-
Owner Telephone:	(212) 460-3968
Owner Type:	Corporate/Commercial
Owner Status:	1
Owner Mark:	First Owner
Mail To Name:	CONSOLIDATED EDISON COMPANY OF N.Y., INC.
Mail To Address:	4 IRVING PLACE, ROOM 826
Mail To Address 2:	Not reported
Mail City,St,Zip:	NEW YORK, NY 10003-
Mail To Contact:	JANET R. FOX: DIRECTOR-COMPLIA
Mail To Telephone:	(212) 460-3968
Legal Agent Name:	OFFICE OF THE SECRETARY OF THE COMPANY
Legal Agent Address:	4 IRVING PLACE, ROOM 1618-S
Legal Agent City,St,Zip:	NEW YORK, NY 10003-
Date Filed:	09/84

Tank ID:	F06-7
Tank Location:	UNDERGROUND
Install Date:	12/65
Capacity (Gal):	10120
Product:	EMPTY
Tank Status:	Closed-Removed
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	12
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Contain:	None
Leak Detection:	None
Overfill Protection:	23
Dispenser:	Suction
Test Date:	10/97
Date Closed:	Not reported
Latitude:	40|10|00
Longitude:	73|53|06
Status of Data:	Complete
Inspected Date:	04/15/1997
Inspector Initials:	AS
Inspector Status:	Not reported
Pipe Flag:	True
License Issued:	04/01/2001
Vessel Id:	Not reported
Renew Flag:	True
Renew Date:	11/27/2000
Federal Id No:	Not reported
COI Date:	/ /

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

MOSF:

Facility ID:	2-1480
Program Type:	MOSF
Dec Region:	2
Expiration Date:	2009/03/31
Tank Status:	Active
UTMX:	587402.6746
UTMY:	4507903.6515

CBS AST:

CBS Number:	2-000330
Region:	STATE
ICS Number:	Not reported
PBS Number:	Not reported
MOSF Number:	2-1480
Telephone:	(718) 834-3820
Facility Town:	NEW YORK CITY
Operator:	SAUMIL SHUKLA
Emrgncy Contact:	CENTRAL INFORMATION GROUP
Emrgncy Phone:	(212) 580-6763
Expiration Date:	01/31/2001
Owner Name:	CONSOLIDATED EDISON CO. OF NY, INC.
Owner Address:	4 IRVING PLACE
Owner City,St,Zip:	NEW YORK, NY 10003
Owner Telephone:	(212) 460-4928
Owner type:	Corporate/Commercial
Facility Type:	FARM
Mail Name:	CONSOLIDATED EDISON CO. OF NY., INC.
Mail Contact Addr:	4 IRVING PLACE
Mail Contact Addr2:	ROOM 306S
Mail Contact Contact:	JANET R. FOX, DIRECTOR-COMPLIA
Mail Contact City,St,Zip:	NEW YORK, NY 10003
Mail Phone:	(212) 460-3968
SPDES Number:	0-200999
Facility Status:	ACTIVE FACILITY
Owner Sub Type:	Not reported

Tank Id:	FF-4
Date Entered:	01/29/1997
Capacity (Gal):	3000
Chemical:	Ethylene glycol
Tank Closed:	12/99
Tank Status:	0
Tank Type:	Steel/carbon steel
Install Date:	00/64
Certified Date:	01/14/1999
CAS Number:	107211
Substance:	More than one Hazardous Substance on DEC List
Tank Location:	ABOVEGROUND
Intrnl Protection:	None
Extrnl Protection:	Painted/Asphalt Coating
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	1
Pipe Containment:	None

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

Tank Containment:	None
Leak Detection:	None
Overfill Protection:	Product Level Gauge
Haz Percent:	6
Total Tanks:	0
Tank Secret:	False
Last Test:	Not reported
Due Date:	Not reported
Tank Error Status:	No Missing Data
SWIS Code:	6101
Lat/Long:	Not reported
Pipe Flag:	False
Federal ID:	Not reported
Is Updated:	F
Renew Date:	Not reported
Is it There:	F
Deliquent:	F
Date Expired:	Not reported
Owner Mark:	1
Certificate Needs to be Printed:	False
Fiscal Amt for Registration Fee Correct:	True
Renewal Has Been Printed for Facility:	True
Pre-Printed Renewal App Last Printed:	10/01/1998
Total Capacity of All Active Tanks(gal):	0

MOSF AST:

MOSF Number:	2-1480
SWIS Code:	61
Facility Town:	NEW YORK CITY
Facility Phone:	(718) 834-3820
Emergency Contact Name:	CIG
Emergency Contact Phone:	(212) 580-6765
Total Tanks:	8
Total Capacity:	31115023
Daily Throughput:	0
License Status:	MOSF AST
Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Product Transfer Operation:	ACD
Facility Status:	ACTIVE FACILITY
Operator Name:	WILTON CEDENO
Owner Name:	CONSOLIDATED EDISON COMPANY OF N.Y., INC.
Owner Address:	4 IRVING PLACE, ROOM 826
Owner City,St,Zip:	NEW YORK, NY 10003-
Owner Phone:	(212) 460-3968
Owner Type:	Corporate/Commercial
Owner Status:	1
Owner Mark:	First Owner
Mailing Name:	CONSOLIDATED EDISON COMPANY OF N.Y., INC.
Mailing Address:	4 IRVING PLACE, ROOM 826
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10003-
Mailing Contact:	JANET R. FOX: DIRECTOR-COMPLIA
Mailing Phone:	(212) 460-3968
Legal Agent Name:	OFFICE OF THE SECRETARY OF THE COMPANY
Legal Agent Address:	4 IRVING PLACE, ROOM 1618-S
Legal Agent City,St,Zip:	NEW YORK, NY 10003-
LIC Expires:	03/31/2003

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

Tank ID:	F06-1
Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	EMPTY
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	12
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Jacketed
Second Contain:	95
Leak Detection:	96
Overfill Protection:	42
Dispensing Mthd:	Suction
Test Date:	12/91
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	5787007
Lat/Long:	40|10|00 / 73|53|06
Federal ID:	Not reported
Inspected Date:	04/15/1997
Inspector:	AS
Renew Date:	11/27/2000
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	Closed-Removed
COI Date:	/ /
Date License Issued:	04/01/2001
Date License Application Received:	01/05/2001
Chemical Bulk Storage Number:	Not reported
Pollution Discharge Elimination System Num:	Not reported
Date Legal Agent Filed with Secretary of State:	09/84

Tank ID:	F06-2
Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	EMPTY
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	12
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Jacketed
Second Contain:	95
Leak Detection:	96
Overfill Protection:	42
Dispensing Mthd:	Suction
Test Date:	12/91
Date Closed:	Not reported
Status of Data:	Complete

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

Capacity (gal):	2273423
Lat/Long:	40|10|00 / 73|53|06
Federal ID:	Not reported
Inspected Date:	04/15/1997
Inspector:	AS
Renew Date:	11/27/2000
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	Closed-Removed
COI Date:	/ /
Date License Issued:	04/01/2001
Date License Application Received:	01/05/2001
Chemical Bulk Storage Number:	Not reported
Pollution Discharge Elimination System Num:	Not reported
Date Legal Agent Filed with Secretary of State:	09/84

Tank ID:	F06-3
Tank Location:	ABOVEGROUND
Install Date:	12/65
Product:	EMPTY
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	12
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Jacketed
Second Contain:	95
Leak Detection:	96
Overfill Protection:	42
Dispensing Mthd:	Suction
Test Date:	12/91
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	5812006
Lat/Long:	40|10|00 / 73|53|06
Federal ID:	Not reported
Inspected Date:	04/15/1997
Inspector:	AS
Renew Date:	11/27/2000
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	Closed-Removed
COI Date:	/ /
Date License Issued:	04/01/2001
Date License Application Received:	01/05/2001
Chemical Bulk Storage Number:	Not reported
Pollution Discharge Elimination System Num:	Not reported
Date Legal Agent Filed with Secretary of State:	09/84

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

Tank ID:	F06-4
Tank Location:	ABOVEGROUND
Install Date:	12/67
Product:	EMPTY
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	10
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Jacketed
Second Contain:	50
Leak Detection:	None
Overfill Protection:	42
Dispensing Mthd:	Suction
Test Date:	12/79
Date Closed:	Not reported
Status of Data:	Complete
Capacity (gal):	5989032
Lat/Long:	40|10|00 / 73|53|06
Federal ID:	Not reported
Inspected Date:	04/15/1997
Inspector:	AS
Renew Date:	11/27/2000
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	Closed-Removed
COI Date:	/ /
Date License Issued:	04/01/2001
Date License Application Received:	01/05/2001
Chemical Bulk Storage Number:	Not reported
Pollution Discharge Elimination System Num:	Not reported
Date Legal Agent Filed with Secretary of State:	09/84

Tank ID:	F06-5
Tank Location:	ABOVEGROUND
Install Date:	12/67
Product:	EMPTY
Tank Status:	In Service
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	10
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Jacketed
Second Contain:	50
Leak Detection:	None
Overfill Protection:	42
Dispensing Mthd:	Suction
Test Date:	12/79
Date Closed:	Not reported
Status of Data:	Complete

NORTH FIRST STREET FUEL OIL TERMINAL (Continued) **S102634104**

Capacity (gal):	6000070
Lat/Long:	40|10|00 / 73|53|06
Federal ID:	Not reported
Inspected Date:	04/15/1997
Inspector:	AS
Renew Date:	11/27/2000
Inspected State:	Not reported
Pipe Flag:	True
Vessel ID:	Not reported
Reserve Flag:	True
Status of Data:	Closed-Removed
COI Date:	/ /
Date License Issued:	04/01/2001
Date License Application Received:	01/05/2001
Chemical Bulk Storage Number:	Not reported
Pollution Discharge Elimination System Num:	Not reported
Date Legal Agent Filed with Secretary of State:	09/84

Click this hyperlink while viewing on your computer to access
2 additional NY_AST_MOS: record(s) in the EDR Site Report.

CBS:

CBS Number:	2-000330
Program Type:	CBS
Dec Region:	2
Expiration Date:	N/A
UTMX:	0.0000
UTMY:	0.0000

MOSF:

Facility ID:	2-1480
Program Type:	MOSF
Dec Region:	2
Expiration Date:	2009/03/31
Tank Status:	Active
UTMX:	587402.6746
UTMY:	4507903.6515

AO256 **NORTH 1ST ST TERMINAL** **LTANKS** **S100146382**
SW **214 KENT AVE** **NY Spills** **N/A**
1/4-1/2 **BROOKLYN, NY** **NY Hist Spills**
2465 ft. **HIST LTANKS**

Site 2 of 7 in cluster AO

Relative: Higher

Actual: 17 ft.

LTANKS:

Site ID:	59588
Spill Date:	10/10/90
Facility Addr2:	Not reported
Facility ID:	9007596
Program Number:	9007596
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Reported to Dept:	10/10/90
CID:	14
Spill Cause:	Tank Failure

NORTH 1ST ST TERMINAL (Continued) **S100146382**

Water Affected:	Not reported
Spill Source:	Major Facility > 400,000 gal
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	10/30/90
Spill Record Last Update:	04/09/03
Spille Namer:	Not reported
Spiller Company:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller County:	Not reported
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9007596
DER Facility ID:	58320
Site ID:	59588
Operable Unit ID:	948243
Operable Unit:	01
Material ID:	570604
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15000.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9007596 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" 10/10/90: CON EDISON HAS INITIATED BIDS TO CLEAN UP OIL IN DIKE & INSPECT THE LEAKING TANK, APPROXIMATELY 6 INCHES OF PRODUCT REMAINS IN ALL THREE COMPARTMENTS. 11/15/94: REASSIGNED FROM SIGONA TO ENGELHARDT ON 11/15/94. END DECRemark - 9007596
Remarks:	Start CallerRemark - 9007596 TANK AREA A HOLDING COMPARTMENTS 100, 200 & 300, 132,000 BARRELS, 51,000 BARRELS & 132,000 BARRELS WERE DISCOVERED TO BE

NORTH 1ST ST TERMINAL (Continued) **S100146382**

LEAKING 4 MONTHS AGO, OIL LEAKED INTO DIKED AREA. END CallerRemark - 9007596

NY Spills:

Site ID:	304351
Facility Addr2:	Not reported
Facility ID:	9611792
Spill Number:	9611792
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	12/30/96
Reported to Dept:	12/30/96
CID:	14
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Non Major Facility > 1,100 gal
Spill Notifier:	Responsible Party
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	12/30/96
Spill Record Last Update:	02/10/03
Spiller Name:	Not reported
Spiller Company:	CON EDISON
Spiller Address:	128 WEST END AVENUE
Spiller City,St,Zip:	NEW YORK, NY 10023
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	FRANK MISCONE
Contact Phone:	(718) 706-2753
DEC Region:	2
Program Number:	9611792
DER Facility ID:	58320
Site ID:	304351
Operable Unit ID:	1039672
Operable Unit:	01
Material ID:	340445
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	10.00
Units:	Gallons
Recovered:	10.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9611792 SEAL ON NUMBER 1 FUEL OIL PUMP FAILED - APPROX 10 GALS OF #6 FUEL OIL LEAKED ONTO CONCRETE - SPILL BEING CLEANED UP END

NORTH 1ST ST TERMINAL (Continued) **S100146382**

CallerRemark - 9611792
Remarks: Start DECRemark - 9611792 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ENGELHARDT" END DECRemark - 9611792

Site ID:	304355
Facility Addr2:	Not reported
Facility ID:	9910798
Spill Number:	9910798
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	IXMUNTEA
Referred To:	Not reported
Spill Date:	12/10/99
Reported to Dept:	12/10/99
CID:	14
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Local Agency
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	12/10/99
Spill Record Last Update:	07/10/03
Spiller Name:	RICHARD ROACH
Spiller Company:	CON EDISON
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	NEW YORK, NY
Spiller Company:	001
Spiller Phone:	(212) 580-6763
Contact Name:	RICHARD ROACH
Contact Phone:	(212) 580-6763
DEC Region:	2
Program Number:	9910798
DER Facility ID:	58320
Site ID:	304355
Operable Unit ID:	1089491
Operable Unit:	01
Material ID:	296278
Material Code:	0059A
Material Name:	SOLVENTS
Case No.:	Not reported
Material FA:	Other
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

DEC Memo: Start CallerRemark - 9910798 unk cause caused spill of some type of solvent - soil will be asessed as to how it will be cleaned up. - is unsure as of yet as

NORTH 1ST ST TERMINAL (Continued) **S100146382**

to how it will be cleaned up. con ed #129261 END CallerRemark - 9910798
Remarks: Start DECRemark - 9910798 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MUNTEANU" 12/10/99 During phase 2 environmental assessment test pit #2 soil sample indicated strong smell (xylene or solvent product). Test pit is in theparking lot next to a paint factory. A previous report (spill #9604977) was submitted on July 15, 1996 of samples taken within 30 ft of test pit 2. Samples of test pit #2 were taken for analysis by LMS Engineers. 7/10/03: spill related to FynPaint Inc. facility. This is a voluntary site managed by Ioana Munteanu (DER HWR). (JHO) END DECRemark - 9910798

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:

Region of Spill:	2
Spill Number:	9611792
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	12/30/1996 02:30
Reported to Dept Date/Time:	12/30/96 03:04
SWIS:	61
Spiller Name:	CON EDISON
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Contact:	FRANK MISCONE
Spiller Phone:	(718) 706-2753
Spiller Address:	128 WEST END AV
Spiller City,St,Zip:	NEW YORK, NY 10023-
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	04
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	12/30/96
Date Spill Entered In Computer Data File:	Not reported
Update Date:	01/06/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported

NORTH 1ST ST TERMINAL (Continued) **S100146382**

Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	10
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	10
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Remark:	SEAL ON NUMBER 1 FUEL OIL PUMP FAILED - APPROX 10 GALS OF 6 FUEL OIL LEAKED ONTO CONCRETE - SPILL BEING CLEANED UP

Region of Spill:	2
Spill Number:	9910798
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	12/10/1999 11:40
Reported to Dept Date/Time:	12/10/99 14:02
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	RICHAD ROACH
Spiller Phone:	(212) 580-6763
Spiller Contact:	RICHARD ROACH
Spiller Phone:	(212) 580-6763
Spiller Address:	4 IRVING PL
Spiller City,St,Zip:	NEW YORK, NY -
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /

Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /

NORTH 1ST ST TERMINAL (Continued) **S100146382**

Date Spill Entered In Computer Data File: 12/10/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/17/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Hazardous Material
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: SOLVENTS
Class Type: SOLVENTS
Times Material Entry In File: 424
CAS Number: Not reported
Last Date: 19940928
DEC Remarks: Not reported
Remark: unk cause caused spill of some type of solvent - soil will be asessed as to how it will be cleaned up. - is unsure as of yet as to how it will be cleaned up. con ed 129261

Region of Spill: 2
Spill Number: 9910708
Investigator: COMENALE
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 12/08/1999 11:30
Reported to Dept Date/Time: 12/08/99 13:46
SWIS: 61
Spiller Name: CON ED
Spiller Contact: Not reported
Spiller Phone: (212) 580-6763
Spiller Contact: RICHARD ROACH
Spiller Phone: (212) 580-6763
Spiller Address: Not reported
Spiller City,St,Zip: -
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /

NORTH 1ST ST TERMINAL (Continued) **S100146382**

Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 12/08/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 02/17/00
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Remark: LEAKED FROM A AIR COMPRESSOR - CLEANUP IS IN PROGRESS REF 129235

Region of Spill: 2
Spill Number: 0011756
Investigator: OKWUOHA
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 01/31/2001 11:30
Reported to Dept Date/Time: 01/31/01 13:26
SWIS: 61
Spiller Name: CON ED
Spiller Contact: SAME
Spiller Phone: (212) 580-6763
Spiller Contact: BILL MURPHY
Spiller Phone: (212) 580-6763
Spiller Address: 4 IRVING PLACE
Spiller City,St,Zip: MANHATTAN, NY
Spill Cause: Abandoned Drums
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 12
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /

NORTH 1ST ST TERMINAL (Continued) **S100146382**

Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 08/20/01
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 01/31/01
Date Spill Entered In Computer Data File: Not reported
Update Date: 10/18/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Nonpetroleum/Nonhazardous
Quantity Spilled: 2
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: ETHYLENE GLYCOL
Class Type: ETHYLENE GLYCOL
Times Material Entry In File: 0
CAS Number: 00107211
Last Date: Not reported
DEC Remarks: E2MIS Notes 1/31/10: 5gallon plastic container of 3 cold aer-o-foam had broken and spilled on concrete floor. Foam contains <6 ethylene glycol. Clean up in progress. 2/1/01: 0900 HRS: CLEANUP OF SPILL WAS COMPLETED BY ALL STATE POWERVAC AT 1455HOURS ON 1/31/2001. ON REMOVAL OF AEROFOAM CONTAINERS, IT WAS FOUND THAT ONE CONTAINER CRACKED AND LEAKED APPROXIMATELY HALF OF ITS CONTAINERS AND ANOTHER CONTAINER HAD A PIN HOLE IN IT APPROXIMATELY. HALF OF ITS CONTENTS LEAKED. A TOTAL OF 5 GALLONS OF AEROFOAM HAD LEAKED ONTO CONCRETE FLOOR. THERE WAS NO THREAT TO SEWERS OR WATERWAY. THE CONTAINERS WHICH WERE STACKED FOUR HIHG, WERE RESTACKED TWO HIGH AND THE LEAKING CONTAINERS WERE PLACED IN OVERPACKS. 3/8/2001: NO SAMPLES WERE TAKEN DUETO KNOWN MATERIAL AND AVAILABILITY OF THE MSDS FOR THAT PRODUCT. ARS
Remark: material found in a 5 gal container in a fire extinquishing solvent - can ruptured causing spill. clean up in progress. con ed 135-315

Click this hyperlink while viewing on your computer to access additional NY_HIST_SPILL: detail in the EDR Site Report.

HIST LTANKS:
Region of Spill: 2
Spill Number: 9007596
Investigator: ENGELHARDT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported

NORTH 1ST ST TERMINAL (Continued) **S100146382**

Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	10/10/1990
Spill Time:	09:00
Reported to Department Date:	10/10/90
Reported to Department Time:	13:00
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CON EDISON
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Major Facility 400,000 gallons
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/30/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/15/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	15000
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190

NORTH 1ST ST TERMINAL (Continued) **S100146382**

CAS Number: Not reported
Last Date: 19940728
DEC Remarks: 10/10/90: CON EDISON HAS INITIATED BIDS TO CLEAN UP OIL IN DIKE INSPECT THE LEAKING TANK, APPROXIMATELY 6 INCHES OF PRODUCT REMAINS IN ALL THREE COMPARTMENTS. 11/15/94: REASSIGNED FROM SIGONA TO ENGELHARDT ON 11/15/94.
Spill Cause: TANK AREA A HOLDING COMPARTMENTS 100, 200 300,132,000 BARRELS, 51,000 BARRELS 132,000 BARRELS WERE DISCOVERED TO BE LEAKING 4 MONTHS AGO, OIL LEAKED INTO DIKED AREA.

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257 **UNKNOWN GAS STATION** **LTANKS** **S106702988**
SE **2 ROBLING ST** **HIST LTANKS** **N/A**
1/4-1/2 **BROKLYN, NY**
2466 ft.

Relative:
Higher

Actual:
15 ft.

LTANKS:
Site ID: 102738
Spill Date: 10/17/00
Facility Addr2: Not reported
Facility ID: 0008335
Program Number: 0008335
SWIS: 2401
Region of Spill: 2
Investigator: JRSTRANG
Referred To: Not reported
Reported to Dept: 10/17/00
CID: 14
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Gasoline Station
Spill Notifier: Other
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: True
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/25/05
Remediation Phase: 0
Date Entered In Computer: 10/17/00
Spill Record Last Update: 10/25/05
Spille Namer: Not reported
Spiller Company: UNKNOWN
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: NY
Spiller County: 999
Spiller Contact: UNKNOWN
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
Program Number: 0008335
DER Facility ID: 90969
Site ID: 102738
Operable Unit ID: 828934
Operable Unit: 01
Material ID: 545847

UNKNOWN GAS STATION (Continued) **S106702988**

Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0008335 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ROMMEL" 10/25/05 - New Condo built on-site. Administrative Closure. END DECRemark - 0008335
Remarks:	Start CallerRemark - 0008335 callers business was contracted for excavation of tank and when contaminated soil was found the callers business was fired. another company on scene - dano construction END CallerRemark - 0008335

HIST LTANKS:

Region of Spill:	2
Spill Number:	0008335
Investigator:	ROMMEL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	10/17/2000
Spill Time:	10:00
Reported to Department Date:	10/17/00
Reported to Department Time:	10:38
SWIS:	61
Spiller Contact:	UNKNOWN
Spiller Phone:	( ) -
Spiller Extention:	Not reported
Spiller Name:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	( ) -
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Other

UNKNOWN GAS STATION (Continued) **S106702988**

PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 10/17/00
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 02/06/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: callers business was contracted for excavation of tank and when contaminated soil was found the callers business was fired. another company on scene - dano construction

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AO258 **WILLIAMS MASPETH TERMINAL INC.** **MOSF** **S108413245**
SSW **46-75 METROPOLITAN AVE** **N/A**
1/4-1/2 **BROOKLYN, NY 11237**
2491 ft.

Site 3 of 7 in cluster AO

Relative:
Higher

Actual:
20 ft.

MOSF:
Facility ID: 2-1820
Program Type: MOSF
Dec Region: 2
Expiration Date: N/A
Tank Status: Inactive
UTMX: 0.0000
UTMY: 0.0000

AO259 **46-11 METROPOLITAN AVE** **LTANKS** **S104275741**
SW **46-11 METROPOLITAN AVE** **HIST LTANKS** **N/A**
1/4-1/2 **BROOKLYN, NY**
2497 ft.

Site 4 of 7 in cluster AO

Relative:
Higher

Actual:
16 ft.

LTANKS:

Site ID:	303971
Spill Date:	07/28/95
Facility Addr2:	Not reported
Facility ID:	9505833
Program Number:	9505833
SWIS:	2401
Region of Spill:	2
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	08/11/95
CID:	12
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/12/96
Remediation Phase:	0
Date Entered In Computer:	09/12/95
Spill Record Last Update:	05/15/97
Spille Namer:	Not reported
Spiller Company:	SAME
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NN
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9505833
DER Facility ID:	245597
Site ID:	303971
Operable Unit ID:	1016724
Operable Unit:	01
Material ID:	363820
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False

46-11 METROPOLITAN AVE (Continued) **S104275741**

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9505833 10-12 550 GAL TANKS ON SITE - SOIL SAMPLES INDICATE GASOLINE IN -SOIL BELIEVED TANKS HAVE LEAKED OVER THE YEARS - SITE IS BEING CLOSED END CallerRemark - 9505833

HIST LTANKS:

Region of Spill:	2
Spill Number:	9505833
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	07/28/1995
Spill Time:	12:00
Reported to Department Date:	08/11/95
Reported to Department Time:	11:58
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	SAME
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.

46-11 METROPOLITAN AVE (Continued) **S104275741**

Spill Closed Dt: 12/12/96
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 09/12/95
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 05/15/97
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: SEE FILE QUEENS VILLAGE FIELD OFFICE
Spill Cause: 10-12 550 GAL TANKS ON SITE - SOIL SAMPLES INDICATE GASOLINE IN -SOIL BELIEVED TANKS HAVE LEAKED OVER THE YEARS - SITE IS BEING CLOSED

AO260 **NORTH 1ST ST TERMINAL** **LTANKS** **S102233219**
SW **N FIRST ST / KENT AV** **HIST LTANKS** **N/A**
1/4-1/2 **BRROKLYN, NY**
2562 ft.

Site 5 of 7 in cluster AO

Relative: Higher

Actual: 11 ft.

LTANKS:
Site ID: 104301
Spill Date: 10/30/95
Facility Addr2: Not reported
Facility ID: 9509439
Program Number: 9509439
SWIS: 2401
Region of Spill: 2
Investigator: JHOCONNE
Referred To: Not reported
Reported to Dept: 10/30/95
CID: 349
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Responsible Party
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /

NORTH 1ST ST TERMINAL (Continued) **S102233219**

Remediation Phase:	1
Date Entered In Computer:	10/30/95
Spill Record Last Update:	07/27/04
Spille Namer:	RICHARD ROACH
Spiller Company:	CON EDISON
Spiller Phone:	(212) 580-6764
Spiller Extention:	Not reported
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller County:	001
Spiller Contact:	MR DEVOTI
Spiller Phone:	(212) 580-6763
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9509439
DER Facility ID:	92177
Site ID:	104301
Operable Unit ID:	1023643
Operable Unit:	01
Material ID:	360400
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9509439 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" 7/27/04: Con Ed submitted copy of "NOTIFICATION FOR FUEL orL SPILLS (NOT INVOCVING A PIPELINE):, which states: "LEAK DEVELOPED APPROX 12" FROM BOTTOM OF FUEL OIL TANK #500. IN MOAT; MAGNETIC PATCH SUPPLIED BY FIRE DEPT WAS APPLIED & LEAK RATE REDUCED. BARGE ARRANGED TO UNLOAD TANK. VENDOR (MILLER ENV. GROUP) MOBILIZED. TANK CONTAINS 3.6 MILLION GALLONS OF #6 HIGH-POUR OIL." Also submitted copy of internal Con Ed memo, which states: "STATUS OF THE INCIDENT: Contained and cleaned." No information given on repairs. END DECRemark - 9509439
Remarks:	Start CallerRemark - 9509439 MOAT HAS ALL PRODUCT CONTAINED - BEGINING RECOVERY AT THIS TIME END CallerRemark - 9509439

HIST LTANKS:

Region of Spill:	2
Spill Number:	9509439
Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported

NORTH 1ST ST TERMINAL (Continued) **S102233219**

Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	10/30/1995
Spill Time:	17:05
Reported to Department Date:	10/30/95
Reported to Department Time:	18:18
SWIS:	61
Spiller Contact:	MR DEVOTI
Spiller Phone:	(212) 580-6763
Spiller Extention:	Not reported
Spiller Name:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003-
Facility Contact:	RICHARD ROACH
Facility Phone:	(212) 580-6764
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/30/95
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/26/98
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL

NORTH 1ST ST TERMINAL (Continued) **S102233219**

Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: MOAT HAS ALL PRODUCT CONTAINED - BEGINING RECOVERY AT THIS TIME

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261 **101-105 WEST STREET** **VCP** **S108524782**
North **101-105 WEST STREET, BROOKLYN** **N/A**
1/4-1/2 **BROOKLYN, NY 11222**
2586 ft.

Relative:
Higher

Actual:
13 ft.

VCP:
Program Type: VCP
Site Code: 57559
Assessment: Soils contaminated with metals and semi-volatile organic compounds were identified at this site. Contaminated soils have either been excavated and disposed of offsite or are covered by a concrete slab or the onsite building. Groundwater has not been impacted, however, the area is served by a public water supply. Volatile organic compounds were not detected at this site, therefore, exposures associated with soil vapor intrusion are unlikely.
Env Problems: The contaminants of concern in soil at the site were Semi Volatile Organic Compounds (SVOCs)and heavy metals. The groundwater has not been impacted by the contaminants. In 1998, the Pase I and Phase II Environmental Site Aassessment have revealed that the contaminants of concern in soil were above TAGM 4046 RSCO. The SVOCs had excedences ranging from non detected to Benzo(a)anthracene 43ppm, benzo(a)fluoranthene 1500ppm, benzo(b)fluoranthene 41ppm, benzo(k)fluoranthene 26ppm, benzo(a)pyrene 41ppm, Chrysene 38ppm,Dibenzofuran 12ppm. Some of the havy metal excedences were Arsenic 52ppm, Selenium 5.6ppm, Chromium 49ppm, Cadmium 12.5ppm, Lead 1930ppm,Zinc 1490ppm, Mercury 3.5ppm. The source was presumed to be in the fill material and also produced by uncontrolled dumping. During the remedial phase, the site has been excavated and the end point samples showed that the concentrations of the contaminats levels were very close to TAGM 4046 RSCO. The excavation has been backfilled with clean soil. The remediation was completed in 2002.
Site Desc: 101-105 West Street is located in the Greenpoint area of Brooklyn, NY 10310, Block 2556, Lot 58. The site is a 0.2-acre parcel used as a construction material storage yard. It is located between Kent Street and Java Street, on the west side of WestStreet. A commercial property borders the site to the east. The intended use of the site remains to be a construction material storage yard. The surrounding uses are mainly residential with some commercial divisions. Contamination at the site waspredominantly in the soil and represented by Semi Volatile Organic Compounds and metals, and resulted from historic fill and uncontrolled dumping of oil and oil-related products from trucks loading construction materials. The Remedial Investigationwork plan was approved in 1999 and the RI was completed in 2000. The groundwater is 8-10 feet below ground. The soil is sandy and it is covered with 3-4 feet of fill material. The Remedial Work Plan was approved in 2001 and the field remedial workwas completed in 2002. The remedy involved excavation of the entire site and off site disposal. Clean backfill material has been placed in the former excavation. Remedial work at the site is completed.

AO262 **FYN PAINT AND LACQUER CO., INC.** **VCP** **S108524789**
SW **230 KENT AVENUE** **N/A**
1/2-1 **BROOKLYN, NY 11211**
2696 ft.

Site 6 of 7 in cluster AO

Relative:
Higher

VCP:
Program Type: VCP
Actual: Site Code: 56974
19 ft. Assessment: Public water is provided to the area, thereby preventing exposures to groundwater. The site and surrounding area are covered with buildings or pavement, which limits or eliminates the potential for contact. DOH staff requested the volunteer assessthe presence of soil gas in the area to determine the potential for soil vapor intrusion.
Env Problems: The soil and the groundwater are highly contaminated with VOCs from historical spills during manufacturing processes of paint. The contaminated plume has migrated under the adjacent parking lot of the adjacent ConEd Facility. In 2002, ConEd sued Fyn Paint for contaminateing their site. In March 2007, the Pump and Treatment System is in operation at low capacity until the NYCDEP permit to discharge the residue into the municipal sewer system will be obtained. The residue is now stored into 55gal drums. A soil gas intrusion investigation work plan around the facility was approved and the field work is undergoing.
Site Desc: The site is located at the norhtwest corner of the intersection of Kent Ave with North First St., Brooklyn, NY. The current zoning is M3-1, heavy manufacturing. The site is adjacent to a ConEd Facility, Former North First St. Oil Storage Terminal. In 2002, ConEd sued Fyn Paint for contaminating their site with Volatile Organic Compounds (VOCs). Fyn Paint property is 500 ft away from the East River. In the neighbourhood there are warehouses, other manufacturing facilities and few residential buildings. The site's soil and groundwater are contaminated with elevated concentrations of VOCs as ethylbenzene, toluene, o&m/p xylenes, 2-butanone, and acetone. The site is in remedial investigation phase and an Interim Remedial Measure (IRM) is in operation at the site. The remedial investigation has not been completed. A soil gas intrusion survey is in process around the Fyn Paint property. In March 2007, the IRM consisting of a Pump and Treatment System (PTS). Design includes anactivated carbon filtration stage. The system is working at low capacity until a NYCDEP permit to discharge the residue into the municipal sewer system is obtained. At the present time, the residue is stored in 55 gal drums.

AO263 **NORTH 1ST ST TERMINAL** **LTANKS** **S102145872**
SW **NORTH 1ST ST / KENT AVE** **NY Spills** **N/A**
1/2-1 **NEW YORK CITY, NY** **NY Hist Spills**
2727 ft. **HIST LTANKS**

Site 7 of 7 in cluster AO

Relative:
Higher

LTANKS:
Site ID: 230666
Actual: Spill Date: 11/24/90
19 ft. Facility Addr2: Not reported
Facility ID: 9009234
Program Number: 9009234
SWIS: 2401
Region of Spill: 2
Investigator: SIGONA
Referred To: Not reported
Reported to Dept: 11/24/90
CID: Not reported
Spill Cause: Tank Overfill
Water Affected: Not reported

NORTH 1ST ST TERMINAL (Continued) **S102145872**

Spill Source:	Major Facility > 400,000 gal
Spill Notifier:	Responsible Party
Cleanup Ceased:	11/24/90
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	11/24/90
Remediation Phase:	0
Date Entered In Computer:	11/28/90
Spill Record Last Update:	04/18/91
Spille Namer:	Not reported
Spiller Company:	CON ED
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9009234
DER Facility ID:	190093
Site ID:	230666
Operable Unit ID:	946430
Operable Unit:	01
Material ID:	432998
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	400.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9009234 TANK OVERFILLED, AAA ON SCENE,NYCFD ON SCENE, TANK FARM B, TANK 600 TRANSFERRING TO 10K UST BOILER FEED TANK, ALARM WENT OFF BUT VALVE WASNOT CLOSED TO TANK CAUSING OVERFILL OF 400 GALLONS. END CallerRemark - 9009234

NY Spills:

Site ID:	230665
Facility Addr2:	Not reported

NORTH 1ST ST TERMINAL (Continued) **S102145872**

Facility ID:	9007240
Spill Number:	9007240
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	JHOCONNE
Referred To:	Not reported
Spill Date:	10/02/90
Reported to Dept:	10/02/90
CID:	Not reported
Spill Cause:	Unknown
Water Affected:	EAST RIVER
Spill Source:	Vessel
Spill Notifier:	Affected Persons
Cleanup Ceased:	06/07/95
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	06/07/95
Remediation Phase:	0
Date Entered In Computer:	10/10/90
Spill Record Last Update:	04/09/03
Spiller Name:	Not reported
Spiller Company:	BOUCHARD BARGE #115
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9007240
DER Facility ID:	190093
Site ID:	230665
Operable Unit ID:	947761
Operable Unit:	01
Material ID:	434660
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Surface Water
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9007240 BARGE OFFLOADING, FUEL LEAKED FROM HOSE & WENT INTO RIVER. END CallerRemark - 9007240
Remarks:	Start DECRemark - 9007240 Prior to Sept, 2004 data translation this spill Lead DEC Field was "O'CONNELL" END DECRemark - 9007240

Site ID:	230664
Facility Addr2:	Not reported
Facility ID:	9004154

NORTH 1ST ST TERMINAL (Continued) **S102145872**

Spill Number:	9004154
Facility Type:	ER
SWIS:	2401
Region of Spill:	2
Investigator:	TOMASELLO
Referred To:	Not reported
Spill Date:	07/15/90
Reported to Dept:	07/15/90
CID:	Not reported
Spill Cause:	Human Error
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	07/15/90
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported
Spill Closed Dt:	07/15/90
Remediation Phase:	0
Date Entered In Computer:	07/24/90
Spill Record Last Update:	09/30/04
Spiller Name:	Not reported
Spiller Company:	CON ED
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	999
Spiller Phone:	Not reported
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
Program Number:	9004154
DER Facility ID:	190093
Site ID:	230664
Operable Unit ID:	941956
Operable Unit:	01
Material ID:	435257
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	420.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
DEC Memo:	Start CallerRemark - 9004154 FILLING TANK, MISGAUGED & CAUSED OVERFILL, AAA TO CLEAN UP, CONTAINED WITH ABSORBENTS. END CallerRemark - 9004154
Remarks:	Not reported

Click this hyperlink while viewing on your computer to access additional NY_SPILL: detail in the EDR Site Report.

NY Hist Spills:

Region of Spill:	2
Spill Number:	9007240

NORTH 1ST ST TERMINAL (Continued) **S102145872**

Investigator:	O'CONNELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/02/1990 10:00
Reported to Dept Date/Time:	10/02/90 11:03
SWIS:	61
Spiller Name:	BOUCHARD BARGE #115
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	Surface Water
Water Affected:	EAST RIVER
Spill Source:	10
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	06/07/95
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt:	06/07/95
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	10/10/90
Date Spill Entered In Computer Data File:	Not reported
Update Date:	11/17/97
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	15
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Remark:	BARGE OFFLOADING, FUEL LEAKED FROM HOSE WENT INTO RIVER.

NORTH 1ST ST TERMINAL (Continued) **S102145872**

Region of Spill:	2
Spill Number:	9004154
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/15/1990 11:15
Reported to Dept Date/Time:	07/15/90 12:48
SWIS:	61
Spiller Name:	CON ED
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Human Error
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	07/15/90
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	07/15/90
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/24/90
Date Spill Entered In Computer Data File:	Not reported
Update Date:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	420
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	07/15/90: SPILL HAPPENED ON BLACK TOP IN PARKING LOT, NO SURFACE WATER

NORTH 1ST ST TERMINAL (Continued) **S102145872**

INVOLVED, WAS FILLING TANK FOR DAY BOILERS, OVERFILLED, STRICTLY ON CON ED PROPERTY.

Remark: FILLING TANK, MISGAUGED CAUSED OVERFILL, AAA TO CLEAN UP, CONTAINED WITH ABSORBENTS.

HIST LTANKS:

Region of Spill:	2
Spill Number:	9009234
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/24/1990
Spill Time:	07:15
Reported to Department Date:	11/24/90
Reported to Department Time:	09:24
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CON ED
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Major Facility 400,000 gallons
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	11/24/90
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	11/24/90
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/28/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/18/91
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported

NORTH 1ST ST TERMINAL (Continued) **S102145872**

Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	400
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Spill Cause:	TANK OVERFILLED, AAA ON SCENE,NYCFD ON SCENE, TANK FARM B, TANK 600 TRANSFERRING TO 10K UST BOILER FEED TANK, ALARM WENT OFF BUT VALVE WASNOT CLOSED TO TANK CAUSING OVERFILL OF 400 GALLONS.

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264 **FYN PAINT** **LTANKS** **S103824283**
SW **33 NORTH 1ST STREET** **HIST LTANKS** **N/A**
1/2-1 **BROOKLYN, NY**
2742 ft.

Relative:
Higher

Actual:
16 ft.

LTANKS:

Site ID:	197936
Spill Date:	03/30/99
Facility Addr2:	Not reported
Facility ID:	9815508
Program Number:	9815508
SWIS:	2401
Region of Spill:	2
Investigator:	O'DOWD
Referred To:	Not reported
Reported to Dept:	03/30/99
CID:	12
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/23/00
Remediation Phase:	0
Date Entered In Computer:	03/30/99
Spill Record Last Update:	05/23/00
Spille Namer:	DAN ROF
Spiller Company:	FYN PAINT
Spiller Phone:	(718) 721-3400
Spiller Extention:	Not reported
Spiller Address:	33 NORTH 1ST STREET
Spiller City,St,Zip:	BROOKLYN, ZZ
Spiller County:	001
Spiller Contact:	DAN ROF

FYN PAINT (Continued) **S103824283**

Spiller Phone:	(718) 721-3400
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9815508
DER Facility ID:	164733
Site ID:	197936
Operable Unit ID:	1076536
Operable Unit:	01
Material ID:	308612
Material Code:	0056A
Material Name:	PAINT THINNERS
Case No.:	Not reported
Material FA:	Other
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	197936
Operable Unit ID:	1076536
Operable Unit:	01
Material ID:	308613
Material Code:	0059A
Material Name:	SOLVENTS
Case No.:	Not reported
Material FA:	Other
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9815508 ABANDONDED TANKS IN PLACE-CONTAMINATION DISCOVERED UPON DRILLING AROUND THE TANKS. TANK CLOSURE REPORT ON FILE. END CallerRemark - 9815508

HIST LTANKS:

Region of Spill:	2
Spill Number:	9815508
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported

FYN PAINT (Continued) **S103824283**

Notifier Extension:	Not reported
Spill Date:	03/30/1999
Spill Time:	12:00
Reported to Department Date:	03/30/99
Reported to Department Time:	12:55
SWIS:	61
Spiller Contact:	DAN ROF
Spiller Phone:	(718) 721-3400
Spiller Extention:	Not reported
Spiller Name:	FYN PAINT
Spiller Address:	33 NORTH 1ST STREET
Spiller City,St,Zip:	BROOKLYN
Facility Contact:	DAN ROF
Facility Phone:	(718) 721-3400
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	05/23/00
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	03/30/99
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	05/23/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Hazardous Material
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	PAINT THINNERS
Class Type:	PAINT THINNERS
Times Material Entry In File:	124
CAS Number:	Not reported
Last Date:	19940728
Material Class Type:	Hazardous Material
Quantity Spilled:	0

FYN PAINT (Continued) **S103824283**

Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: SOLVENTS
Class Type: SOLVENTS
Times Material Entry In File: 424
CAS Number: Not reported
Last Date: 19940928
DEC Remarks: 5/23/2000 SPILL NON-OIL - INVESTIGATION AND CLEANUP BEING HANDLED BY HAZARDOUS WASTE REMEDIATION - REFER INQUIRIES TO IOANA MUNTEANU-RAMNIC. SMM. HANDLED BY HWR- MUNTEANE RAMONI
Spill Cause: ABANDONDED TANKS IN PLACE-CONTAMINATION DISCOVERED UPON DRILLING AROUND THE TANKS. TANK CLOSURE REPORT ON FILE.

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265 **140 GREENPOINT AVE** **LTANKS** **S102146621**
NNE **140 GREENPOINT AVE** **NY Hist Spills** **N/A**
1/2-1 **BROOKLYN, NY**
2852 ft.

Relative:
Higher

Actual:
31 ft.

LTANKS:
Site ID: 174214
Spill Date: 06/15/93
Facility Addr2: Not reported
Facility ID: 9303423
Program Number: 9303423
SWIS: 2401
Region of Spill: 2
Investigator: SIGONA
Referred To: Not reported
Reported to Dept: 06/15/93
CID: 14
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Gasoline Station
Spill Notifier: Affected Persons
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: True
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Unknown Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt: 10/28/03
Remediation Phase: 0
Date Entered In Computer: 06/16/93
Spill Record Last Update: 10/28/03
Spille Namer: JANICE FLATERTY
Spiller Company: AMERADA HESS CORP
Spiller Phone: (732) 750-6350
Spiller Extention: Not reported
Spiller Address: 1 HESS PLAZA
Spiller City,St,Zip: WOODBRIDGE, NJ 07095-
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2

140 GREENPOINT AVE (Continued) **S102146621**

Program Number:	9303423
DER Facility ID:	146554
Site ID:	174214
Operable Unit ID:	981755
Operable Unit:	01
Material ID:	396999
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9303423 ONGOING FOR DAYS/DEC RESPONDED TO SITE. TANKS REMOVED/REPLACED BY MERIT S/S. SOIL REMOVED REQUESTED ADDITIONAL TARPS TO CONTAIN VAPORS. END CallerRemark - 9303423

NY Hist Spills:

Region of Spill:	2
Spill Number:	9303423
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	06/15/1993 15:00
Reported to Dept Date/Time:	06/15/93 15:23
SWIS:	61
Spiller Name:	UNK CONTRACTOR
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	Air
Water Affected:	Not reported
Spill Source:	05
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /

140 GREENPOINT AVE (Continued) **S102146621**

Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 06/16/93
Date Spill Entered In Computer Data File: Not reported
Update Date: 11/29/94
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: 10/10/95: This is additional information about material spilled from the translation of the old spill file: ODOR.
Remark: ONGOING FOR DAYS/DEC RESPONDED TO SITE. TANKS REMOVED/REPLACED BY MERIT S/S. SOIL REMOVED REQUESTED ADDITIONAL TARPS TO CONTAIN VAPORS.

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266 East 1/2-1 2857 ft. **ADAMS DELI** **LTANKS S104951065**
112 NASSAU AVE **HIST LTANKS N/A**
BROOKLYN, NY

Relative: Higher

Actual: 17 ft.

LTANKS:
Site ID: 211488
Spill Date: 03/14/01
Facility Addr2: Not reported
Facility ID: 0013080
Program Number: 0013080
SWIS: 2401
Region of Spill: 2
Investigator: SMSANGES
Referred To: Not reported
Reported to Dept: 03/14/01
CID: 14
Spill Cause: Tank Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Fire Department
Cleanup Ceased: / /

ADAMS DELI (Continued) **S104951065**

Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/14/01
Remediation Phase:	0
Date Entered In Computer:	03/14/01
Spill Record Last Update:	03/16/01
Spille Namer:	Not reported
Spiller Company:	ADAMS DELI
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	112 NASSAU AVE
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	FIREMAN RIPOLL
Spiller Phone:	(718) 476-6288
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0013080
DER Facility ID:	175258
Site ID:	211488
Operable Unit ID:	834599
Operable Unit:	01
Material ID:	560404
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	100.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Sewer
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0013080 Prior to Sept, 2004 data translation this spill Lead DEC Field was "SANGESLAND" Duplicate spill number closed Ref: Spill 0013079 END DECRemark - 0013080
Remarks:	Start CallerRemark - 0013080 undetermined amount of oil enter drain via basement after tank let go. hazmat on scene Cross Ref Spill #0013079 END CallerRemark - 0013080

HIST LTANKS:

Region of Spill:	2
Spill Number:	0013080
Investigator:	SANGESLAND

ADAMS DELI (Continued) **S104951065**

Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	03/14/2001
Spill Time:	09:50
Reported to Department Date:	03/14/01
Reported to Department Time:	10:30
SWIS:	61
Spiller Contact:	FIREMAN RIPOLL
Spiller Phone:	(718) 476-6288
Spiller Extention:	Not reported
Spiller Name:	ADAMS DELI
Spiller Address:	112 NASSAU AVE
Spiller City,St,Zip:	BROOKLYN, NY
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/14/01
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	03/14/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	03/16/01
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	100
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False

ADAMS DELI (Continued) **S104951065**

Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Duplicate spill number closed Ref: Spill 0013079
Spill Cause: undetermined amount of oil enter drain via basement after tank let go. ha mat on scene Cross Ref Spill 0013079

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267 **BRUMAR SHEET METAL INC** **LTANKS** **S105998342**
East **498 LEONARD STREET** **N/A**
1/2-1 **BROOKLYN, NY 11222**
2891 ft.

Relative:
Higher

Actual:
16 ft.

LTANKS:
Site ID: 265770
Spill Date: 03/10/03
Facility Addr2: Not reported
Facility ID: 0212132
Program Number: 0212132
SWIS: 2401
Region of Spill: 2
Investigator: VSZHUNE
Referred To: Not reported
Reported to Dept: 03/10/03
CID: 14
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Commercial/Industrial
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 09/26/06
Remediation Phase: 0
Date Entered In Computer: 03/10/03
Spill Record Last Update: 10/16/06
Spille Namer: JILL HUEY
Spiller Company: BRUMAR SHEET METAL INC
Spiller Phone: (718) 782-9052
Spiller Extention: Not reported
Spiller Address: 498 LEONARD ST
Spiller City,St,Zip: BROOKLYN, NY 11222-
Spiller County: 001
Spiller Contact: JILL HUEY
Spiller Phone: (718) 782-9052
Spiller Extention: Not reported
DEC Region: 2
Program Number: 0212132
DER Facility ID: 30480
Site ID: 265770
Operable Unit ID: 865591
Operable Unit: 01
Material ID: 511867

BRUMAR SHEET METAL INC (Continued) **S105998342**

Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0212132 01/27/2006 Kuldeep received the Fax from Brumer, but again information not adequate and need more follow up. 01/23/2006 Kuldeep sent a letterfor more information. 01/09/2006 Kuldeep Gupta- Facility Faxed on -01/06/2006 copy of consent Order. Region 2 Nick Lombardo on 01/09/2006 Faxed Report of 5000 gallon Tank Test report of 01/05/2004. 01/06/06 Kuldeep Gupta talked to Ms. Jill Huey and she need a letter in writing what document we need. She wanted to faxit at 1-718-486-6862. DEC Faxed the letter as requested. Kuldeep discussed with Philip Lodico Senior Attorney DEC and found Consent order signed on 03/24/2003 for not this spill. Prior to Sept, 2004 data translation this spill Lead DEC Field was "TIPPLE" Does not appear on PBS database. Called Jill Huey. She stated that she received a Consent Order to bring the facility in compliance with state laws. The tank is 5000 gallons. 3/11/2003 ars. DEC Sigona sent TTF notice on March 14, 2003. 9/11/06 This case was transfered from Albany to Region 2. Zhune spoke to Jill Huey (ph: 718-9052) She doesn't want phone calls. She wants every thing by writing. 9/11/06 A TTF letter was sending to : Jill Huey 498 Leonard Street Brooklyn, NY 11222 09/18/06 Ms. Huey sent a package of documents the passing tank test from 2003 was missing. 09/19/06 I sent a letter requesting her the tank test results from 2003. 09/22/03 Ms. Huey sent a package of 8 pages including the passing tank test results from 2003, letters stated the fallowing: The system test passed. After the system test failed in October due to a vent bad line, we decided to replace all pipes just to be sure we would pass. Also we would like to convey to yourdepartment that no contamination was detected in our system. What was the cause of the tank test failure on March 3, 2003? Water in tank issue. Piping needed to be replaced was replaced and systems test passed as a result of replacement.09/27/06 This case was closed for V. Zhune in accordance with J. Vought. END DECRemark - 0212132
Remarks:	Start CallerRemark - 0212132 RECCOMEND CLEAN TANK DISCONNECT PIPING AND RETEST END CallerRemark - 0212132

268
South
1/2-1
3151 ft.

GNA AUTO
308 METROPOLITAN AVE
BROOKLYN, NY

LTANKS **S108765395**
N/A

Relative:
Higher

Actual:
26 ft.

LTANKS:

Site ID:	384746
Spill Date:	07/23/07
Facility Addr2:	Not reported
Facility ID:	0704569
Program Number:	0704569
SWIS:	2401
Region of Spill:	2
Investigator:	SFRAHMAN
Referred To:	Not reported
Reported to Dept:	07/23/07
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	/ /
Remediation Phase:	1
Date Entered In Computer:	07/23/07
Spill Record Last Update:	08/03/07
Spille Namer:	Not reported
Spiller Company:	GNA AUTO
Spiller Phone:	( ) -
Spiller Extention:	Not reported
Spiller Address:	308 METROPOLITAN AVE
Spiller City,St,Zip:	BROOKLYN, NY 11211
Spiller County:	999
Spiller Contact:	RICHARD LAVADO
Spiller Phone:	(212) 809-1110
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	0704569
DER Facility ID:	334146
Site ID:	384746
Operable Unit ID:	1142038
Operable Unit:	01
Material ID:	2132257
Material Code:	0022
Material Name:	Waste Oil/Used Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported

GNA AUTO (Continued) **S108765395**

Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 0704569 07/24/07-Vought-Off hours spill responder. Vought called ASR Lavado (ph:212-809-1110 fax:)212-809-1777). Vought called Lavado and left message to return call. Vought received message and returned call to Lavado (cell:646-235-4800). Site was old gas station in 1950's and was vacant lot. Site will be residential construction. Phase I shows tanks still in place and tanks were removed (gasoline and waste oil). Gasoline USTs encased in concrete and waste oil tank had numerous holes. Waste oil tank was vacuumed out however after removal, gross contamination was observed above tank. Samples were collected for waste disposal. Future plans will include excavation and collection of endpoint soil samples. Lavado will return call to DEC with site contact. DEC requires: 1)PBS registration 2)collection of endpoint samples with site plan 3)future use of site 4)owners address and fax 4)delineation 5)vapor barrier and possibly SSDS 6)notificaton upon collection of endpoint samples so that site visit by DEC may be scheduled. 8/3/07 - Austin - Transferred from Vought to Rahman for further review and action - end END DECRemark - 0704569
Remarks:	Start CallerRemark - 0704569 NOT YET CLEANED; HOLES DISCOVERED DURING A TANK PULL; END CallerRemark - 0704569

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269 East 1/2-1 3188 ft. **BERKMAN BROS. INC.**
55 ECKFORD ST.
BROOKLYN, NY 11222

CBS AST **S100494954**
LTANKS **N/A**
HIST LTANKS
CBS

Relative: Higher

Actual: 17 ft.

CBS AST:

CBS Number:	2-000058
Region:	STATE
ICS Number:	2-125095
PBS Number:	Not reported
MOSF Number:	Not reported
Telephone:	(718) 387-8811
Facility Town:	NEW YORK CITY
Operator:	GERALD BERKMAN
Emrgncy Contact:	GERALD BERKMAN
Emrgncy Phone:	(516) 799-6958
Expiration Date:	06/14/1999
Owner Name:	BERKMAN BROS. INC.
Owner Address:	55 ECKFORD ST.
Owner City,St,Zip:	BROOKLYN, NY 11222
Owner Telephone:	(718) 387-8811
Owner type:	Corporate/Commercial
Facility Type:	MANUFACTURING
Mail Name:	BERKMAN BROS. INC.
Mail Contact Addr:	55 ECKFORD ST.
Mail Contact Addr2:	Not reported
Mail Contact Contact:	GERALD BERKMAN
Mail Contact City,St,Zip:	BROOKLYN, NY 11222
Mail Phone:	(718) 387-8811
SPDES Number:	Not reported
Facility Status:	ACTIVE FACILITY

BERKMAN BROS. INC. (Continued) **S100494954**

Owner Sub Type: Not reported

Tank Id: Yes
Date Entered: 06/14/1989
Capacity (Gal): 500
Chemical: Sodium hypochlorite
Tank Closed: 01/98
Tank Status: 0
Tank Type: Fiberglass reinforced plastic [FRP]
Install Date: 11/85
Certified Date: 05/20/1997
CAS Number: 7681529
Substance: Single Hazardous Substance on DEC List
Tank Location: ABOVEGROUND
Intrnl Protection: None
Extrnl Protection: None
Pipe Location: Aboveground
Pipe Type: PLASTIC
Pipe Internal: None
Pipe External: 0
Pipe Containment: None
Tank Containment: Other
Leak Detection: None
Overfill Protection: Catch Basin
Haz Percent: 15
Total Tanks: 0
Tank Secret: False
Last Test: Not reported
Due Date: Not reported
Tank Error Status: No Missing Data
SWIS Code: 6101
Lat/Long: Not reported
Pipe Flag: False
Federal ID: Not reported
Is Updated: F
Renew Date: 03/01/93
Is it There: F
Deliquent: F
Date Expired: 06/14/95
Owner Mark: 1
Certificate Needs to be Printed: False
Fiscal Amt for Registration Fee Correct: True
Renewal Has Been Printed for Facility: True
Pre-Printed Renewal App Last Printed: 03/03/1997
Total Capacity of All Active Tanks(gal): 0

LTANKS:
Site ID: 107414
Spill Date: 03/26/93
Facility Addr2: Not reported
Facility ID: 9214462
Program Number: 9214462
SWIS: 2401
Region of Spill: 2
Investigator: KSTANG
Referred To: Not reported
Reported to Dept: 03/31/93

BERKMAN BROS. INC. (Continued) **S100494954**

CID:	14
Spill Cause:	Tank Overfill
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	03/31/93
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/31/93
Remediation Phase:	0
Date Entered In Computer:	04/01/93
Spill Record Last Update:	09/30/04
Spille Namer:	Not reported
Spiller Company:	MYSTIC FUEL CO.
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	1902 STEINWAY ST.
Spiller City,St,Zip:	L.I.C., NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9214462
DER Facility ID:	94484
Site ID:	107414
Operable Unit ID:	981754
Operable Unit:	01
Material ID:	400668
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9214462 Prior to Sept, 2004 data translation this spill Lead DEC Field was "TANG" END DECRemark - 9214462
Remarks:	Start CallerRemark - 9214462 MYSTIC CLEANED SPILL WITH SPEEDI-DRI, PICK UP AND DISPOSED. END CallerRemark - 9214462

BERKMAN BROS. INC. (Continued) **S100494954**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9214462
Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	03/26/1993
Spill Time:	12:00
Reported to Department Date:	03/31/93
Reported to Department Time:	08:50
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	MYSTIC FUEL CO.
Spiller Address:	1902 STEINWAY ST.
Spiller City,St,Zip:	L.I.C., NY
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	03/31/93
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	03/31/93
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/01/93
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1

BERKMAN BROS. INC. (Continued) **S100494954**

Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: MYSTIC CLEANED SPILL WITH SPEEDI-DRI, PICK UP AND DISPOSED.

CBS:
CBS Number: 2-000058
Program Type: CBS
Dec Region: 2
Expiration Date: N/A
UTMX: 0.0000
UTMY: 0.0000

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270 NE 1/2-1 3190 ft.
176 MCGUINNES AVE/GAS STA **LTANKS** **S106703582**
176 MCGUINES AVE **HIST LTANKS** **N/A**
BKLYN, NY

Relative: Higher

Actual: 17 ft.

LTANKS:
Site ID: 228776
Spill Date: 11/04/91
Facility Addr2: Not reported
Facility ID: 9108332
Program Number: 9108332
SWIS: 2401
Region of Spill: 2
Investigator: BKFALVEY
Referred To: Not reported
Reported to Dept: 11/04/91
CID: 14
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Gasoline Station
Spill Notifier: Tank Tester
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: True
Spill Class: Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Remediation Phase: 1
Date Entered In Computer: 11/12/91
Spill Record Last Update: 11/06/06
Spille Namer: Not reported
Spiller Company: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Address: Not reported

176 MCGUINNES AVE/GAS STA (Continued) **S106703582**

Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9108332
DER Facility ID:	4291
Site ID:	228776
Operable Unit ID:	962462
Operable Unit:	01
Material ID:	420485
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Gallons
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	228776
Spill Tank Test:	1539268
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 9108332 Prior to Sept, 2004 data translation this spill Lead DEC Field was "ROMMEL" 4/12/04-Vouight-Spill transferred from Sullivan to Rommel as per Rommel. Contacted present owner. Manny Shurka (212) 832-9100. He has no infoon followup tank test. He bought site in 1997. All tanks closed in 1999. If tanks were operated for two years after tank test failure, then tanks can be assumed to have been OK in 1997. Tanks were not suction dispensers. They used submersiblepumps. So, depending on where the tank test failure leak was, there could have been a release. Check with Manny if he did an environmental assessment when he bought the property or if Getty did one when they sold the property. END DECRemark - 9108332
Remarks:	Start CallerRemark - 9108332 WILL E I & R END CallerRemark - 9108332

HIST LTANKS:

Region of Spill:	2
Spill Number:	9108332
Investigator:	SULLIVAN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	11/04/1991
Spill Time:	19:00

176 MCGUINNES AVE/GAS STA (Continued) **S106703582**

Reported to Department Date: 11/04/91
Reported to Department Time: 11:31
SWIS: 61
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: Groundwater
Water Affected: Not reported
Spill Source: Gas Station
Spill Notifier: Tank Tester
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Standard: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Spill Class: Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 11/12/91
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 08/09/95
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: WILL E I R

271
ESE
1/2-1
3248 ft.

68 RICHARDSON STREET
68 RICHARDSON STREET
BROOKLYN, NY

LTANKS **S100879125**
HIST LTANKS **N/A**

Relative:
Higher

Actual:
15 ft.

LTANKS:

Site ID:	111528
Spill Date:	01/25/94
Facility Addr2:	Not reported
Facility ID:	9312569
Program Number:	9312569
SWIS:	2401
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Reported to Dept:	01/25/94
CID:	14
Spill Cause:	Tank Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	02/26/01
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/11/01
Remediation Phase:	0
Date Entered In Computer:	01/28/94
Spill Record Last Update:	09/04/01
Spille Namer:	HARRY NADLER
Spiller Company:	BERNSTEIN REALTY
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	855 6TH AVE
Spiller City,St,Zip:	NEW YORK, NY 10001-
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9312569
DER Facility ID:	97543
Site ID:	111528
Operable Unit ID:	994568
Operable Unit:	01
Material ID:	387992
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	Not reported

68 RICHARDSON STREET (Continued) **S100879125**

Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported
DEC Memo:	Start DECRemark - 9312569 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" CLOSURE LETTER DATED 7/30/2001. SMM END DECRemark - 9312569
Remarks:	Start CallerRemark - 9312569 AFTER TANK WAS CLEANED - OWNER FOUND RESIDUAL OIL PUMP PIT - CALLED BOB DECK, HE SAID THAT OIL SHOWED UP IN SUMP PIT OWNER ASKED TO SET UP TEMP. TANK (1080 GAL) AND CLEANED THE 2500 GAL UST. FOR INSPE END CallerRemark -9312569

HIST LTANKS:

Region of Spill:	2
Spill Number:	9312569
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	01/25/1994
Spill Time:	15:30
Reported to Department Date:	01/25/94
Reported to Department Time:	16:17
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	BERNSTEIN REALTY
Spiller Address:	855 6TH AVE
Spiller City,St,Zip:	NEW YORK, NY 10001-
Facility Contact:	HARRY NADLER
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	02/26/01
Cleanup Meets Standard:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False

68 RICHARDSON STREET (Continued) **S100879125**

Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 06/11/01
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 01/28/94
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 09/04/01
Is Updated: False
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Pounds
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: CLOSURE LETTER DATED 7/30/2001. SMM
Spill Cause: AFTER TANK WAS CLEANED - OWNER FOUND RESIDUAL OIL PUMP PIT - CALLED BOB DECK, HE SAID THAT OIL SHOWED UP IN SUMP PIT OWNER ASKED TO SET UP TEMP. TANK 1080 GAL) AND CLEANED THE 2500 GAL UST. FOR INSPE

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272 **145 WEST STREET** **LTANKS** **S101341059**
North **145 WEST STREET** **HIST LTANKS** **N/A**
1/2-1 **BROOKLYN, NY**
3249 ft.

Relative:
Higher

Actual:
11 ft.

LTANKS:
Site ID: 176037
Spill Date: 09/29/94
Facility Addr2: Not reported
Facility ID: 9408663
Program Number: 9408663
SWIS: 2401
Region of Spill: 2
Investigator: O'DOWD
Referred To: Not reported
Reported to Dept: 09/29/94
CID: 14
Spill Cause: Tank Test Failure
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Tank Tester
Cleanup Ceased: 12/02/94
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response.

145 WEST STREET (Continued) **S101341059**

	Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/02/94
Remediation Phase:	0
Date Entered In Computer:	11/01/94
Spill Record Last Update:	12/02/94
Spille Namer:	Not reported
Spiller Company:	COMMERCIAL BLDG COOP APTS
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	145 WEST STREET
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9408663
DER Facility ID:	147953
Site ID:	176037
Operable Unit ID:	1002784
Operable Unit:	01
Material ID:	378091
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	176037
Spill Tank Test:	1543192
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Not reported
Remarks:	Start CallerRemark - 9408663 TO PUMP TANK OUT VIA NOTIFIER END CallerRemark - 9408663
Site ID:	176036
Spill Date:	09/21/94
Facility Addr2:	Not reported
Facility ID:	9408283
Program Number:	9408283
SWIS:	2401
Region of Spill:	2
Investigator:	SMMARTIN
Referred To:	Not reported
Reported to Dept:	09/22/94
CID:	14
Spill Cause:	Tank Test Failure

145 WEST STREET (Continued) **S101341059**

Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Tank Tester
Cleanup Ceased:	12/02/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/02/94
Remediation Phase:	0
Date Entered In Computer:	10/31/94
Spill Record Last Update:	03/03/00
Spille Namer:	Not reported
Spiller Company:	UNKNOWN
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	9408283
DER Facility ID:	147953
Site ID:	176036
Operable Unit ID:	1005855
Operable Unit:	01
Material ID:	377721
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Pounds
Recovered:	0.00
Resource Affected:	Soil
Oxygenate:	False
Site ID:	176036
Spill Tank Test:	1543162
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 9408283 Prior to Sept, 2004 data translation this spill Lead DEC Field was "MARTINKAT" 12/02/94: CLOSED OUT 20K TANK, TOOK SOIL SAMPLES, BELOW STARS. SEE O'DOWD'S FILES: 9408663 END DECRemark - 9408283
Remarks:	Start CallerRemark - 9408283 TTF- WILL RECOMMEND REPAIRS END CallerRemark - 9408283

145 WEST STREET (Continued) **S101341059**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9408663
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	09/29/1994
Spill Time:	10:30
Reported to Department Date:	09/29/94
Reported to Department Time:	11:53
SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	COMMERCIAL BLDG COOP APTS
Spiller Address:	145 WEST STREET
Spiller City,St,Zip:	BROOKLYN, NEW YORK
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Cleanup Ceased:	12/02/94
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/02/94
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/01/94
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/02/94
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1

145 WEST STREET (Continued) **S101341059**

Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: 12/02/94: CLOSED OUT 20K TANK, TOOK SOIL SAMPLES BELOW STARS.
Spill Cause: TO PUMP TANK OUT VIA NOTIFIER

Region of Spill: 2
Spill Number: 9408283
Investigator: MARTINKAT
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Spill Date: 09/21/1994
Spill Time: 12:00
Reported to Department Date: 09/22/94
Reported to Department Time: 08:16
SWIS: 61
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: UNKNOWN
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Notifier: Tank Tester
PBS Number: Not reported
Cleanup Ceased: 12/02/94
Cleanup Meets Standard: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Date: / /
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/02/94
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 10/31/94

145 WEST STREET (Continued) **S101341059**

Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	03/03/00
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Pounds
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	12/02/94: CLOSED OUT 20K TANK, TOOK SOIL SAMPLES, BELOW STARS. SEE O DOWD S FILES: 9408663
Spill Cause:	TTF- WILL RECOMMEND REPAIRS

AP273 **RADIAC RESEARCH CORP** **PADS** **1000245435**
SW **33 S FIRST ST** **FINDS** **NYD049178296**
1/2-1 **BROOKLYN, NY 11211** **RCRA-TSDF**
3256 ft. **CORRACTS**
Site 1 of 2 in cluster AP **FTTS**
Relative: **NY MANIFEST**
Higher **HIST FTTS**
RCRA-NonGen
Actual: **CT MANIFEST**
18 ft. **NJ MANIFEST**
RI MANIFEST

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and its Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region

RADIAC RESEARCH CORP (Continued) **1000245435**

that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

RCRA-TSDF:

Date form received by agency:	02/08/2006
Facility name:	RADIAC RESEARCH CORP
Facility address:	S 1ST ST BROOKLYN, NY 11211
EPA ID:	NYD049178296
Mailing address:	KENT AVE BROOKLYN, NY 11211
Contact:	JOHN V TEKIN JR
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	(718) 963-2233
Telephone ext.:	TEKIN
Contact email:	JTEKIN@RADIACENV.COM
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	TSDF
Description:	Handler is engaged in the treatment, storage or disposal of hazardous waste
TSD commencement date:	Not reported
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	RADIAC RESEARCH CORP
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1986
Owner/Op end date:	Not reported
Owner/operator name:	SAM ETHEL LOEFFLER
Owner/operator address:	ALTON PKWY SILVER SPRING, MD 20910
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/1974
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No

RADIAC RESEARCH CORP (Continued) **1000245435**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Lamps
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Pesticides
Accumulated waste on-site: No
Generated waste on-site: No

Waste type: Thermostats
Accumulated waste on-site: No
Generated waste on-site: No

Historical Generators:
Date form received by agency: 02/07/2006
Facility name: RADIAC RESEARCH CORP
Classification: Large Quantity Generator

Date form received by agency: 02/23/2004
Facility name: RADIAC RESEARCH CORP
Classification: Not a generator, verified

Date form received by agency: 02/11/2002
Facility name: RADIAC RESEARCH CORP
Classification: Not a generator, verified

Date form received by agency: 01/01/2001
Facility name: RADIAC RESEARCH CORP
Site name: RADIAC RESEARCH CORP.
Classification: Large Quantity Generator

Date form received by agency: 07/29/1999
Facility name: RADIAC RESEARCH CORP
Classification: Large Quantity Generator

Date form received by agency: 02/27/1998
Facility name: RADIAC RESEARCH CORP
Classification: Small Quantity Generator

Date form received by agency: 08/01/1997
Facility name: RADIAC RESEARCH CORP

RADIAC RESEARCH CORP (Continued) **1000245435**

Classification: Not a generator, verified

Date form received by agency: 02/11/1997
Facility name: RADIAC RESEARCH CORP
Classification: Not a generator, verified

Date form received by agency: 03/06/1996
Facility name: RADIAC RESEARCH CORP
Site name: RADIAC RESEARCH CORP.
Classification: Not a generator, verified

Date form received by agency: 03/25/1994
Facility name: RADIAC RESEARCH CORP
Classification: Not a generator, verified

Date form received by agency: 02/27/1992
Facility name: RADIAC RESEARCH CORP
Classification: Large Quantity Generator

Date form received by agency: 03/01/1990
Facility name: RADIAC RESEARCH CORP
Site name: RADIAC RESEARCH CORPORATION
Classification: Not a generator, verified

Date form received by agency: 11/19/1980
Facility name: RADIAC RESEARCH CORP
Classification: Not a generator, verified

Date form received by agency: 07/21/1980
Facility name: RADIAC RESEARCH CORP
Classification: Unverified

Hazardous Waste Summary:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D003
Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

RADIAC RESEARCH CORP (Continued) **1000245435**

Waste code: D004
Waste name: ARSENIC

Waste code: D005
Waste name: BARIUM

Waste code: D006
Waste name: CADMIUM

Waste code: D007
Waste name: CHROMIUM

Waste code: D008
Waste name: LEAD

Waste code: F001
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F005
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

RADIAC RESEARCH CORP (Continued) **1000245435**

Waste code: U001
Waste name: ACETALDEHYDE (I)

Waste code: U002
Waste name: ACETONE (I)

Biennial Reports:

Last Biennial Reporting Year: 2005

Annual Waste Handled:

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.
Amount (Lbs): 0

Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.
Amount (Lbs): 0

Waste code: D004
Waste name: ARSENIC
Amount (Lbs): 0

Waste code: D005
Waste name: BARIUM
Amount (Lbs): 0

Waste code: D006
Waste name: CADMIUM
Amount (Lbs): 0

Waste code: D007
Waste name: CHROMIUM
Amount (Lbs): 0

Waste code: D008
Waste name: LEAD
Amount (Lbs): 0

Waste code: D009
Waste name: MERCURY
Amount (Lbs): 0

Waste code: D011
Waste name: SILVER
Amount (Lbs): 0

RADIAC RESEARCH CORP (Continued) **1000245435**

Waste code: D018
Waste name: BENZENE
Amount (Lbs): 0

Waste code: D022
Waste name: CHLOROFORM
Amount (Lbs): 0

Waste code: D038
Waste name: PYRIDINE
Amount (Lbs): 0

Waste code: D039
Waste name: TETRACHLOROETHYLENE
Amount (Lbs): 0

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 0

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
Amount (Lbs): 0

Waste code: LABP
Waste name: LAB PACK
Amount (Lbs): 0

Waste code: U226
Waste name: ETHANE, 1,1,1-TRICHLORO-
Amount (Lbs): 0

Corrective Action Summary:
Event date: 11/29/1985
Event: RFA Completed

Event date: 02/10/1993
Event: CA Prioritization, Facility or area was assigned a low corrective action priority.

RADIAC RESEARCH CORP (Continued) **1000245435**

Facility Has Received Notices of Violations:

Regulation violated: SR - 373 Permit/373-2.9(h)(3)
Area of violation: TSD - General
Date violation determined: 06/24/2004
Date achieved compliance: 06/24/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/14/2004
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 373 Permit
Area of violation: TSD - General
Date violation determined: 06/24/2004
Date achieved compliance: 06/24/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/14/2004
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 373 Permit/373-2.3(b)
Area of violation: TSD - General
Date violation determined: 06/24/2004
Date achieved compliance: 06/24/2004
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/14/2004
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Transporters - Manifest and Recordkeeping
Date violation determined: 05/08/2001
Date achieved compliance: 06/21/2001
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/08/2002
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 03/28/2000
Date achieved compliance: 09/08/2000
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/08/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 03/28/2000
Date achieved compliance: 09/08/2000
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/08/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 09/27/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 02/15/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 20000
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 09/27/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Area of violation: LDR - General
Date violation determined: 09/27/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 09/27/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 02/15/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 20000
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6nycrr373-2.3(d) & Permit Cond
Area of violation: TSD - General
Date violation determined: 07/26/1999
Date achieved compliance: 08/13/1999
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/26/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 04/20/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/23/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General

RADIAC RESEARCH CORP (Continued) **1000245435**

Date violation determined: 04/20/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 04/20/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 04/20/1999
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/23/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 05/15/1998
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 10/27/1998
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 24995
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 05/15/1998

RADIAC RESEARCH CORP (Continued) **1000245435**

Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 10/27/1998
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 24995
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 05/15/1998
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 05/15/1998
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 05/15/1998
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/11/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12000
Paid penalty amount: 12100

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 04/28/1997
Date achieved compliance: 04/04/2000

RADIAC RESEARCH CORP (Continued) **1000245435**

Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 04/28/1997
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/11/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12000
Paid penalty amount: 12100

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 04/28/1997
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/04/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 20000
Paid penalty amount: 20000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 04/28/1997
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/11/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12000
Paid penalty amount: 12100

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 04/28/1997
Date achieved compliance: 04/04/2000
Violation lead agency: State

RADIAC RESEARCH CORP (Continued) **1000245435**

Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 10/02/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 1200
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 04/28/1997
Date achieved compliance: 04/04/2000
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 10/02/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 1200
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6nycrr373-2.5(d)(1), 373-2.2(h
Area of violation: Permits - Application
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/11/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12000
Paid penalty amount: 12100

Regulation violated: SR - 6nycrr373-2.5(d)(1), 373-2.2(h
Area of violation: Permits - Application
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: SR - 6NYCRR373-2.2(g)(2) & (4)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 12/17/1997
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER

RADIAC RESEARCH CORP (Continued) **1000245435**

Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: FR - 40cfr265.32(c)and 265.33
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR265.16(d)(4) & (e)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: SR - 6NYCRR373-2.2(g)(2) & (4)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 12/17/1997
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6NYCRR373-2.2(g)(2) & (4)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 12/17/1997
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/11/1997

RADIAC RESEARCH CORP (Continued) **1000245435**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12000
Paid penalty amount: 12100

Regulation violated: FR - 40cfr265.32(c)and 265.33
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 04/11/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12000
Paid penalty amount: 12100

Regulation violated: FR - 40cfr265.32(c)and 265.33
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: FR - 40CFR265.16(d)(4) & (e)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6nycrr373-2.5(d)(1), 373-2.2(h
Area of violation: Permits - Application
Date violation determined: 06/28/1996
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6NYCRR373-2.3(f)
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 06/07/1995
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: SR - 6NYCRR373-2.3(f)
Area of violation: TSD - Preparedness and Prevention
Date violation determined: 06/07/1995
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - iNYCRR373-2.2(h)(5)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/07/1995
Date achieved compliance: 04/17/1996
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6NYCRR 376.5(a)(1)(ii)('a')
Area of violation: TSD - Container Use and Management
Date violation determined: 06/07/1995
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 6NYCRR 376.5(a)(1)(ii)('a')
Area of violation: TSD - Container Use and Management
Date violation determined: 06/07/1995
Date achieved compliance: 07/08/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: SR - iNYCRR373-2.2(h)(5)
Area of violation: TSD - General Facility Standards
Date violation determined: 06/07/1995
Date achieved compliance: 04/17/1996
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 03/05/1997
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 12100
Paid penalty amount: 12100

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 12/16/1994
Date achieved compliance: 05/17/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/16/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 12/16/1994
Date achieved compliance: 05/17/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/16/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State

RADIAC RESEARCH CORP (Continued) **1000245435**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 12/16/1994
Date achieved compliance: 01/30/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/16/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 02/01/1991
Date achieved compliance: 01/30/1992
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 05/28/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 40000
Paid penalty amount: 40000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 12/21/1990
Date achieved compliance: 05/28/1991
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/20/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 07/26/1990
Date achieved compliance: 01/30/1992
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 05/28/1991
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Final penalty amount: 40000
Paid penalty amount: 40000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 07/20/1990
Date achieved compliance: 05/28/1991
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/20/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 05/11/1990
Date achieved compliance: 09/24/1990
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/11/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 09/19/1986
Date achieved compliance: 09/30/1986
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/19/1986
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Financial Requirements
Date violation determined: 05/15/1986
Date achieved compliance: 08/20/1986
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/15/1986
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 05/02/1986
Date achieved compliance: 07/11/1986
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/02/1986
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 07/31/1984
Date achieved compliance: 07/12/1985
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 03/27/1985
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 11/28/2006
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/20/2006
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/11/2006
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/24/2004
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 06/24/2004
Evaluation lead agency: State

Evaluation date: 03/10/2004
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

RADIAC RESEARCH CORP (Continued) **1000245435**

Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 02/20/2004
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/27/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 07/08/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/04/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/15/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 07/11/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 03/01/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/01/2002
Evaluation: CASE DEVELOPMENT INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/28/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

RADIAC RESEARCH CORP (Continued) **1000245435**

Evaluation date: 07/12/2001
Evaluation: CASE DEVELOPMENT INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/06/2001
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/08/2001
Evaluation: CASE DEVELOPMENT INSPECTION
Area of violation: Transporters - Manifest and Recordkeeping
Date achieved compliance: 06/21/2001
Evaluation lead agency: State

Evaluation date: 03/09/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/28/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/08/2000
Evaluation: NOT A SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/28/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 09/08/2000
Evaluation lead agency: State

Evaluation date: 03/28/2000
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 09/08/2000
Evaluation lead agency: State

Evaluation date: 09/27/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 09/27/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General

RADIAC RESEARCH CORP (Continued) **1000245435**

Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 06/17/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 08/13/1999
Evaluation lead agency: EPA

Evaluation date: 04/20/1999
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/03/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 03/03/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 03/19/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 03/19/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 02/25/1997
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 02/25/1997
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 04/04/2000
Evaluation lead agency: State

Evaluation date: 07/08/1996
Evaluation: NOT A SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

RADIAC RESEARCH CORP (Continued) **1000245435**

Evaluation date: 06/28/1996
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 04/17/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Permits - Application
Date achieved compliance: 07/08/1996
Evaluation lead agency: EPA

Evaluation date: 04/17/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 12/17/1997
Evaluation lead agency: EPA

Evaluation date: 04/17/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 07/08/1996
Evaluation lead agency: EPA

Evaluation date: 06/07/1995
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 05/24/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Preparedness and Prevention
Date achieved compliance: 07/08/1996
Evaluation lead agency: EPA

Evaluation date: 05/24/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 04/17/1996
Evaluation lead agency: EPA

Evaluation date: 05/24/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Container Use and Management
Date achieved compliance: 07/08/1996
Evaluation lead agency: EPA

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 05/17/1995
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General

RADIAC RESEARCH CORP (Continued) **1000245435**

Date achieved compliance: 05/17/1995
Evaluation lead agency: State

Evaluation date: 09/27/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Manifest/Records/Reporting
Date achieved compliance: 01/30/1995
Evaluation lead agency: State

Evaluation date: 09/20/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/21/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 01/30/1992
Evaluation: NOT A SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/30/1991
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/01/1991
Evaluation: SIGNIFICANT NON-COMPLIER
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 12/21/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 05/28/1991
Evaluation lead agency: EPA-Initiated Oversight/Observation/Training Actions

Evaluation date: 12/21/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 01/30/1992
Evaluation lead agency: State

Evaluation date: 07/20/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 05/28/1991
Evaluation lead agency: EPA

RADIAC RESEARCH CORP (Continued) **1000245435**

Evaluation date: 07/06/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 01/30/1992
Evaluation lead agency: State

Evaluation date: 02/28/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 09/24/1990
Evaluation lead agency: State

Evaluation date: 02/15/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/09/1987
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/11/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA-Initiated Oversight/Observation/Training Actions

Evaluation date: 09/03/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/12/1987
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/11/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA-Initiated Oversight/Observation/Training Actions

Evaluation date: 02/11/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 10/22/1986
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/25/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA-Initiated Oversight/Observation/Training Actions

Evaluation date: 08/25/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 09/30/1986
Evaluation lead agency: State

Evaluation date: 06/11/1986
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/16/1986
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/15/1986
Evaluation: FINANCIAL RECORD REVIEW
Area of violation: TSD - Financial Requirements
Date achieved compliance: 08/20/1986
Evaluation lead agency: State

Evaluation date: 02/28/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 07/11/1986
Evaluation lead agency: State

Evaluation date: 02/28/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA-Initiated Oversight/Observation/Training Actions

Evaluation date: 06/27/1985
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 07/31/1984
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 07/12/1985
Evaluation lead agency: State

RADIAC RESEARCH CORP (Continued) **1000245435**

Evaluation date: 04/30/1984
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 01/04/1984
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

CORRACTS:

EPA ID: NYD049178296
EPA Region: 02
Area Name: SITEWIDE
Actual Date: 02/10/1993
Action: CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
NAICS Code(s): 562112 562211
Hazardous Waste Collection
Hazardous Waste Treatment and Disposal

EPA ID: NYD049178296
EPA Region: 02
Area Name: SITEWIDE
Actual Date: 11/29/1985
Action: CA050 - RFA Completed
NAICS Code(s): 562112 562211
Hazardous Waste Collection
Hazardous Waste Treatment and Disposal

FTTS INSP:
Inspection Number: 2004102123577 1
Region: 02
Inspection Date: 10/21/2004
Inspector: L. PAPPALARDO, CN
Violation occurred: No
Investigation Type: Section 6 PCB Federal Conducted
Investigation Reason: For Cause, Disposal
Legislation Code: TSCA
Facility Function: Disposer

NY MANIFEST:
Document ID: NYG1978605
Manifest Status: Not reported
Trans1 State ID: NYD049178296
Trans2 State ID: Not reported
Generator Ship Date: 01/23/2002
Trans1 Recv Date: 01/23/2002
Trans2 Recv Date: Not reported
TSD Site Recv Date: 01/25/2002
Part A Recv Date: Not reported
Part B Recv Date: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Generator EPA ID:	NYD049178296
Trans1 EPA ID:	CDX109000000
Trans2 EPA ID:	Not reported
TSDF ID:	549V5N
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00300
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	02
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233

Document ID:	NYG1978614
Manifest Status:	Not reported
Trans1 State ID:	NYD049178296
Trans2 State ID:	Not reported
Generator Ship Date:	02/14/2002
Trans1 Recv Date:	02/14/2002
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/14/2002
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	CDX109000000
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES

RADIAC RESEARCH CORP (Continued) **1000245435**

Quantity:	00300
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	02
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233

Document ID:	LAA0000500
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	S76049NY
Trans2 State ID:	Not reported
Generator Ship Date:	861223
Trans1 Recv Date:	861223
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	861227
Part A Recv Date:	870202
Part B Recv Date:	870228
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	LAD981057706
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	19500
Units:	P - Pounds
Number of Containers:	039
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.

RADIAC RESEARCH CORP (Continued) **1000245435**

Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02000
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA3131098
Manifest Status:	Completed copy
Trans1 State ID:	ME677650
Trans2 State ID:	Not reported
Generator Ship Date:	860806
Trans1 Recv Date:	860806
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860808
Part A Recv Date:	860814
Part B Recv Date:	860819
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	05600
Units:	P - Pounds
Number of Containers:	028

RADIAC RESEARCH CORP (Continued) **1000245435**

Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	10200
Units:	P - Pounds
Number of Containers:	028
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA3131313
Manifest Status:	Completed copy
Trans1 State ID:	NYK61911
Trans2 State ID:	Not reported
Generator Ship Date:	860811
Trans1 Recv Date:	860811
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860813
Part A Recv Date:	860819
Part B Recv Date:	860819
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00800

RADIAC RESEARCH CORP (Continued) **1000245435**

Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00600
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	03800
Units:	P - Pounds
Number of Containers:	019
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01000
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233

RADIAC RESEARCH CORP (Continued) **1000245435**

Document ID:	NYA3131807
Manifest Status:	Completed copy
Trans1 State ID:	ME964450
Trans2 State ID:	Not reported
Generator Ship Date:	860717
Trans1 Recv Date:	860717
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860718
Part A Recv Date:	860728
Part B Recv Date:	860731
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01800
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	03200
Units:	P - Pounds
Number of Containers:	016
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	03000
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	05400
Units:	P - Pounds
Number of Containers:	027
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	05800
Units:	P - Pounds
Number of Containers:	029
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	D005 - BARIUM 100.0 MG/L TCLP
Quantity:	00400
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86

RADIAC RESEARCH CORP (Continued) **1000245435**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233

Document ID:	MAB0501900
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	MAINE6776
Trans2 State ID:	Not reported
Generator Ship Date:	860221
Trans1 Recv Date:	860221
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860225
Part A Recv Date:	860303
Part B Recv Date:	860415
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	MAD053452637
Waste Code:	U240 - 2,4 D,SALTS + ESTERS
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00750
Units:	P - Pounds
Number of Containers:	015
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.

RADIAC RESEARCH CORP (Continued) **1000245435**

Specific Gravity:	100
Waste Code:	Not reported
Quantity:	09000
Units:	P - Pounds
Number of Containers:	179
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00750
Units:	P - Pounds
Number of Containers:	015
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA3091252
Manifest Status:	Completed copy
Trans1 State ID:	973TYXNJ
Trans2 State ID:	Not reported
Generator Ship Date:	860923
Trans1 Recv Date:	860923
Trans2 Recv Date:	861002
TSD Site Recv Date:	861002
Part A Recv Date:	860930
Part B Recv Date:	861010
Generator EPA ID:	NYD049178296

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	04800
Units:	P - Pounds
Number of Containers:	024
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	04600
Units:	P - Pounds
Number of Containers:	013
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02000
Units:	P - Pounds
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY

RADIAC RESEARCH CORP (Continued) **1000245435**

Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	LAA0000600
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJ317TRK
Trans2 State ID:	Not reported
Generator Ship Date:	870209
Trans1 Recv Date:	870209
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870215
Part A Recv Date:	870320
Part B Recv Date:	870305
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	LAD981057706
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	09000
Units:	P - Pounds
Number of Containers:	150
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	15840
Units:	P - Pounds
Number of Containers:	264
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA6368193
Manifest Status:	Completed copy
Trans1 State ID:	964449ME
Trans2 State ID:	Not reported
Generator Ship Date:	870629
Trans1 Recv Date:	870629
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870630
Part A Recv Date:	870703
Part B Recv Date:	870710
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	13200
Units:	P - Pounds
Number of Containers:	066
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02600
Units:	P - Pounds
Number of Containers:	013
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01000
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES

RADIAC RESEARCH CORP (Continued) **1000245435**

Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	LAA0672940
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	880-TZXNJ
Trans2 State ID:	Not reported
Generator Ship Date:	871202
Trans1 Recv Date:	871202
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871204
Part A Recv Date:	880127
Part B Recv Date:	871216
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	LAD981057706
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	01600
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.

RADIAC RESEARCH CORP (Continued) **1000245435**

Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	LAA0001300
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJ971TTX
Trans2 State ID:	Not reported
Generator Ship Date:	870402
Trans1 Recv Date:	870402
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870413
Part A Recv Date:	870514
Part B Recv Date:	870422
Generator EPA ID:	NYD049178296

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	Not reported
TSDF ID:	LAD981057706
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	15200
Units:	P - Pounds
Number of Containers:	152
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00100
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00200
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	06500
Units:	P - Pounds
Number of Containers:	065
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY

RADIAC RESEARCH CORP (Continued) **1000245435**

Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA6368148
Manifest Status:	Completed copy
Trans1 State ID:	U53252NY
Trans2 State ID:	Not reported
Generator Ship Date:	870621
Trans1 Recv Date:	870621
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870622
Part A Recv Date:	870703
Part B Recv Date:	870707
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	09250
Units:	P - Pounds
Number of Containers:	037
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	04000
Units:	P - Pounds
Number of Containers:	016
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	07750
Units:	P - Pounds
Number of Containers:	031
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN

RADIAC RESEARCH CORP (Continued) **1000245435**

Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	LAA0001500
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	972-TTXNJ
Trans2 State ID:	Not reported
Generator Ship Date:	870402
Trans1 Recv Date:	870402
Trans2 Recv Date:	870404
TSD Site Recv Date:	870407
Part A Recv Date:	870515
Part B Recv Date:	870423
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NJD054126164
Trans2 EPA ID:	NJD054126164
TSDF ID:	LAD981057706
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	09600
Units:	P - Pounds
Number of Containers:	024
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	05600
Units:	P - Pounds
Number of Containers:	014
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	08400
Units:	P - Pounds
Number of Containers:	021
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01600
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

RADIAC RESEARCH CORP (Continued) **1000245435**

Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233

Document ID:	NYA6254649
Manifest Status:	Completed copy
Trans1 State ID:	693-071ME
Trans2 State ID:	Not reported
Generator Ship Date:	871111
Trans1 Recv Date:	871111
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871112
Part A Recv Date:	871117
Part B Recv Date:	871117
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000632372
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Quantity:	00600
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00250
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.

RADIAC RESEARCH CORP (Continued) **1000245435**

Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA6368319
Manifest Status:	Completed copy
Trans1 State ID:	677-650ME
Trans2 State ID:	Not reported
Generator Ship Date:	870811
Trans1 Recv Date:	870811
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870812
Part A Recv Date:	870827
Part B Recv Date:	870821
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	F003 - UNKNOWN
Quantity:	05400
Units:	P - Pounds
Number of Containers:	022
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00300
Units:	P - Pounds
Number of Containers:	001

RADIAC RESEARCH CORP (Continued) **1000245435**

Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00300
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY

RADIAC RESEARCH CORP (Continued) **1000245435**

Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA6368319
Manifest Status:	Completed copy
Trans1 State ID:	677-650ME
Trans2 State ID:	Not reported
Generator Ship Date:	870811
Trans1 Recv Date:	870811
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870812
Part A Recv Date:	870827
Part B Recv Date:	870821
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	01200
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01400
Units:	P - Pounds
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02400
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02000
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	U122 - FORMALDEHYDE
Quantity:	00800
Units:	P - Pounds

RADIAC RESEARCH CORP (Continued) **1000245435**

Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA3131155
Manifest Status:	Completed copy
Trans1 State ID:	NYS-75004
Trans2 State ID:	Not reported
Generator Ship Date:	870328
Trans1 Recv Date:	870328
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870331
Part A Recv Date:	870408
Part B Recv Date:	870409
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	04400
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Quantity:	01400
Units:	P - Pounds
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02500
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	00500
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE

RADIAC RESEARCH CORP (Continued) **1000245435**

Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA6368166
Manifest Status:	Completed copy
Trans1 State ID:	NY4752TZ
Trans2 State ID:	Not reported
Generator Ship Date:	870511
Trans1 Recv Date:	870511
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870515
Part A Recv Date:	870519
Part B Recv Date:	870522
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01200
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00500
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

RADIAC RESEARCH CORP (Continued) **1000245435**

Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	04400
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233
Document ID:	NYA6368166
Manifest Status:	Completed copy
Trans1 State ID:	NY4752TZ
Trans2 State ID:	Not reported
Generator Ship Date:	870511
Trans1 Recv Date:	870511
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870515
Part A Recv Date:	870519
Part B Recv Date:	870522
Generator EPA ID:	NYD049178296
Trans1 EPA ID:	NYD046765574
Trans2 EPA ID:	Not reported
TSDF ID:	OHD083377010
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)

RADIAC RESEARCH CORP (Continued) **1000245435**

Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00800
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	87
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported
EPA ID:	NYD049178296
Facility Name:	RADIAC RESEARCH CORP
Facility Address:	33 S 1ST ST
Facility City:	BROOKLYN
Facility Address 2:	Not reported
Country:	USA
County:	KI
Mailing Name:	RADIAC RESEARCH CORP
Mailing Contact:	JOHN V TEKIN JR
Mailing Address:	261 KENT AVE
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	Not reported
Mailing Zip4:	4188
Mailing Country:	USA
Mailing Phone:	718-963-2233

Click this hyperlink while viewing on your computer to access
2616 additional NY_MANIFEST: record(s) in the EDR Site Report.

HIST FTTS INSP:

Inspection Number:	2004102123577 1
Region:	02
Inspection Date:	Not reported
Inspector:	L. PAPPALARDO, CN
Violation occurred:	No
Investigation Type:	Section 6 PCB Federal Conducted

RADIAC RESEARCH CORP (Continued) **1000245435**

Investigation Reason: For Cause, Disposal
Legislation Code: TSCA
Facility Function: Disposer

CT MANIFEST:
Manifest No: Not reported
Waste Occurence: Not reported
UNNA: Not reported
Hazard Class: Not reported
US Dot Description: Not reported
No of Containers: Not reported
Container Type: Not reported
Quantity: Not reported
Weight/Volume: Not reported
Additional Description: Not reported
Handling Code: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Manifest No: Not reported
Waste Occurence: Not reported
EPA Waste Code: Not reported
Recycled Waste?: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Year: 1999
Manifest ID: CTF0292970
TSDF EPA ID: CT5000001495
TSDF Name: NORTHEAST LAMP RECYCLING INC
TSDF Address: 250 MAIN ST
TSDF City,St,Zip: EAST WINDSOR, CT 06088
TSDF Country: USA
TSDF Telephone: Not reported
Transport Date: 12/28/99
Transporter EPA ID: NYD049178296
Transporter Name: RADIAC RESEARCH CORP
Transporter Country: USA
Transporter Phone: Not reported
Trans 2 Date: / /
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
Trans 2 Address: Not reported
Trans 2 City,St,Zip: CT
Trans 2 Country: USA
Trans 2 Phone: Not reported
Generator EPA ID: NYD049178296
Gererator Phone: 7189632233
Generator Address: Not reported
Generator City,State,Zip: Not reported
Generator Country: Not reported
Special Handling: Not reported
Discrepancies: No
Date Shipped: 12/28/99
Date Received: 12/29/99
Last modified date: 04/26/04
Last modified by: IG
Comments: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04

RADIAC RESEARCH CORP (Continued) **1000245435**

Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Generator City,State,Zip: Not reported
Generator Country: Not reported
Special Handling: Yes
Discrepancies: No
Date Shipped: 06/06/89
Date Received: 06/06/89
Last modified date: 04/27/04
Last modified by: IG
Comments: Not reported

Manifest No: Not reported
Waste Occurence: Not reported
UNNA: Not reported
Hazard Class: Not reported
US Dot Description: Not reported
No of Containers: Not reported
Container Type: Not reported
Quantity: Not reported
Weight/Volume: Not reported
Additional Description: Not reported
Handling Code: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Manifest No: Not reported
Waste Occurence: Not reported
EPA Waste Code: Not reported
Recycled Waste?: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Year: 1999
Manifest ID: CTF0292970
TSDF EPA ID: CT5000001495
TSDF Name: NORTHEAST LAMP RECYCLING INC
TSDF Address: 250 MAIN ST
TSDF City,St,Zip: EAST WINDSOR, CT 06088
TSDF Country: USA
TSDF Telephone: Not reported
Transport Date: 12/28/99
Transporter EPA ID: NYD049178296
Transporter Name: RADIAC RESEARCH CORP
Transporter Country: USA
Transporter Phone: Not reported
Trans 2 Date: / /
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
Trans 2 Address: Not reported
Trans 2 City,St,Zip: CT
Trans 2 Country: USA
Trans 2 Phone: Not reported
Generator EPA ID: NYD049178296
Gererator Phone: 7189632233
Generator Address: Not reported
Generator City,State,Zip: Not reported
Generator Country: Not reported
Special Handling: Not reported
Discrepancies: No
Date Shipped: 12/28/99

RADIAC RESEARCH CORP (Continued) **1000245435**

Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296

RADIAC RESEARCH CORP (Continued) **1000245435**

Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233

RADIAC RESEARCH CORP (Continued) **1000245435**

Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL

RADIAC RESEARCH CORP (Continued) **1000245435**

Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89

RADIAC RESEARCH CORP (Continued) **1000245435**

Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA

RADIAC RESEARCH CORP (Continued) **1000245435**

TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA

RADIAC RESEARCH CORP (Continued) **1000245435**

Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET

RADIAC RESEARCH CORP (Continued) **1000245435**

TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296

RADIAC RESEARCH CORP (Continued) **1000245435**

Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969

RADIAC RESEARCH CORP (Continued) **1000245435**

TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989

RADIAC RESEARCH CORP (Continued) **1000245435**

Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088

RADIAC RESEARCH CORP (Continued) **1000245435**

TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG

RADIAC RESEARCH CORP (Continued) **1000245435**

Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC

RADIAC RESEARCH CORP (Continued) **1000245435**

TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95

RADIAC RESEARCH CORP (Continued) **1000245435**

Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970

RADIAC RESEARCH CORP (Continued) **1000245435**

TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No

RADIAC RESEARCH CORP (Continued) **1000245435**

Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported

Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Manifest No:	Not reported
Waste Occurence:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

EPA Waste Code: Not reported
Recycled Waste?: Not reported
Date Record Was Last Modified: Not reported
DEO Who Last Modified Record: Not reported
Year: 1999
Manifest ID: CTF0292970
TSDF EPA ID: CT5000001495
TSDF Name: NORTHEAST LAMP RECYCLING INC
TSDF Address: 250 MAIN ST
TSDF City,St,Zip: EAST WINDSOR, CT 06088
TSDF Country: USA
TSDF Telephone: Not reported
Transport Date: 12/28/99
Transporter EPA ID: NYD049178296
Transporter Name: RADIAC RESEARCH CORP
Transporter Country: USA
Transporter Phone: Not reported
Trans 2 Date: / /
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
Trans 2 Address: Not reported
Trans 2 City,St,Zip: CT
Trans 2 Country: USA
Trans 2 Phone: Not reported
Generator EPA ID: NYD049178296
Gererator Phone: 7189632233
Generator Address: Not reported
Generator City,State,Zip: Not reported
Generator Country: Not reported
Special Handling: Not reported
Discrepancies: No
Date Shipped: 12/28/99
Date Received: 12/29/99
Last modified date: 04/26/04
Last modified by: IG
Comments: Not reported
Year: 1995
Manifest ID: CTF0203924
TSDF EPA ID: CTD000604488
TSDF Name: CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address: 51 BRODERICK RD
TSDF City,St,Zip: BRISTOL, CT 06010
TSDF Country: USA
TSDF Telephone: Not reported
Transport Date: 02/09/95
Transporter EPA ID: MAD039322250
Transporter Name: CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country: USA
Transporter Phone: Not reported
Trans 2 Date: / /
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
Trans 2 Address: Not reported
Trans 2 City,St,Zip: CT
Trans 2 Country: USA
Trans 2 Phone: Not reported
Generator EPA ID: NYD049178296

RADIAC RESEARCH CORP (Continued) **1000245435**

Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Manifest No:	Not reported
Waste Occurence:	Not reported
UNNA:	Not reported
Hazard Class:	Not reported
US Dot Description:	Not reported
No of Containers:	Not reported
Container Type:	Not reported
Quantity:	Not reported
Weight/Volume:	Not reported
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Manifest No:	Not reported
Waste Occurence:	Not reported
EPA Waste Code:	Not reported
Recycled Waste?:	Not reported
Date Record Was Last Modified:	Not reported
DEO Who Last Modified Record:	Not reported
Year:	1999
Manifest ID:	CTF0292970
TSDF EPA ID:	CT5000001495
TSDF Name:	NORTHEAST LAMP RECYCLING INC
TSDF Address:	250 MAIN ST
TSDF City,St,Zip:	EAST WINDSOR, CT 06088
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	12/28/99
Transporter EPA ID:	NYD049178296
Transporter Name:	RADIAC RESEARCH CORP
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	12/28/99
Date Received:	12/29/99
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1995
Manifest ID:	CTF0203924
TSDF EPA ID:	CTD000604488
TSDF Name:	CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address:	51 BRODERICK RD
TSDF City,St,Zip:	BRISTOL, CT 06010
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	02/09/95
Transporter EPA ID:	MAD039322250
Transporter Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA

RADIAC RESEARCH CORP (Continued) **1000245435**

Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	02/09/95
Date Received:	02/13/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported
Year:	1989
Manifest ID:	CTC0192702
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/06/89
Transporter EPA ID:	NYD981185903
Transporter Name:	MARINE POLLUTION CONTROL
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	NYD049178296
Gererator Phone:	7189632233
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	06/06/89
Date Received:	06/06/89
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

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303 additional CT MANIFEST: record(s) in the EDR Site Report.

NJ MANIFEST:

Manifest Code:	NJA5062424
EPA ID:	NYD049178296
Date Shipped:	20050104
TSDF EPA ID:	NJD002182897
Transporter EPA ID:	NYD049178296
Transporter 2 EPA ID:	Not reported
Date Trans1 Transported Waste:	050104

RADIAC RESEARCH CORP (Continued) **1000245435**

Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050105
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 04250522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5082859
EPA ID: NYD049178296
Date Shipped: 20050119
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050119
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050119
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03010521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5104138
EPA ID: NYD049178296
Date Shipped: 20050202
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050202
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050203
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 04190521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5062459
EPA ID: NYD049178296
Date Shipped: 20050324
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: NYD049178296
Date Trans1 Transported Waste: 050324
Date Trans2 Transported Waste: 050329
Date TSDF Received Waste: 050329
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 05180522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876755
EPA ID: NYD049178296
Date Shipped: 20050407
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050407
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050412
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 06160522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876770
EPA ID: NYD049178296
Date Shipped: 20050407
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Date Trans1 Transported Waste: 050407
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050412
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 06160522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876756
EPA ID: NYD049178296
Date Shipped: 20050420
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050420
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050421
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 06160522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876765
EPA ID: NYD049178296
Date Shipped: 20050426
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050426
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050427
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 06160522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5104135
EPA ID: NYD049178296
Date Shipped: 20050505
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050505
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050506
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 06010521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5062427
EPA ID: NYD049178296
Date Shipped: 20050526
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050526
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050527
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 07120525
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5062428
EPA ID: NYD049178296
Date Shipped: 20050526
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296

RADIAC RESEARCH CORP (Continued) **1000245435**

Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050526
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050527
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 07120525
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876773
EPA ID: NYD049178296
Date Shipped: 20050607
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050607
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050610
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 07070522
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876766
EPA ID: NYD049178296
Date Shipped: 20050613
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 050613
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 050624
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 08090535
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5082892
EPA ID: NYD049178296
Date Shipped: 20040108
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040108
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040108
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03120421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876657
EPA ID: NYD049178296
Date Shipped: 20040119
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040119
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040123
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03090425
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5082895
EPA ID: NYD049178296
Date Shipped: 20040122
TSDF EPA ID: NJD002182897

RADIAC RESEARCH CORP (Continued) **1000245435**

Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040122
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040123
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03100422
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5082885
EPA ID: NYD049178296
Date Shipped: 20040206
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040206
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040206
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03170421
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA2876658
EPA ID: NYD049178296
Date Shipped: 20040209
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040209
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040210
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03170422
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5082887
EPA ID: NYD049178296
Date Shipped: 20040224
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040224
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040301
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 03300422
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: NJA5082888
EPA ID: NYD049178296
Date Shipped: 20040305
TSDF EPA ID: NJD002182897
Transporter EPA ID: NYD049178296
Transporter 2 EPA ID: Not reported
Date Trans1 Transported Waste: 040305
Date Trans2 Transported Waste: 000000
Date TSDF Received Waste: 040305
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: 04020425
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

MANIFEST:
GEN Cert Date: Not reported
Transporter Recpt Date: Not reported

RADIAC RESEARCH CORP (Continued) **1000245435**

Number Of Containers:	Not reported
Container Type:	Not reported
Waste Code1:	Not reported
Waste Code2:	Not reported
Waste Code3:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Not reported
TSDF ID:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Manifest Docket Number:	Not reported
Waste Description:	Not reported
Quantity:	Not reported
WT/Vol Units:	Not reported
Item Number:	Not reported
Transporter Name:	Not reported
Transporter EPA ID:	Not reported
GEN Cert Date:	Not reported
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	Not reported

AP274 **D61 KENT AVE. BKLYN/RADIA** **LTANKS** **S100166970**
SW **261 KENT AVE.** **HIST LTANKS** **N/A**
1/2-1 **NEW YORK CITY, NY**
3256 ft.

Site 2 of 2 in cluster AP

Relative:
Higher

Actual:
18 ft.

LTANKS:

Site ID:	211204
Spill Date:	12/19/86
Facility Addr2:	Not reported
Facility ID:	8605975
Program Number:	8605975
SWIS:	2401
Region of Spill:	2
Investigator:	UNASSIGNED
Referred To:	Not reported
Reported to Dept:	12/20/86
CID:	Not reported
Spill Cause:	Tank Test Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	08/05/87
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Spill Class:	Not reported
Spill Closed Dt:	08/05/87
Remediation Phase:	0
Date Entered In Computer:	01/08/87
Spill Record Last Update:	09/02/87

D61 KENT AVE. BKLYN/RADIA (Continued) **S100166970**

Spille Namer:	Not reported
Spiller Company:	RADIAC RESEARCH
Spiller Phone:	(718) 632-33
Spiller Extention:	Not reported
Spiller Address:	261 KENT AVE.
Spiller City,St,Zip:	BROOKLYN, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
Program Number:	8605975
DER Facility ID:	175066
Site ID:	211204
Operable Unit ID:	903342
Operable Unit:	01
Material ID:	475115
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1.00
Units:	Not reported
Recovered:	0.00
Resource Affected:	Groundwater
Oxygenate:	False
Site ID:	211204
Spill Tank Test:	1530460
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0.00
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/01/04
Test Method:	Unknown
DEC Memo:	Start DECRemark - 8605975 Prior to Sept, 2004 data translation this spill Lead DEC Field was " " END DECRemark - 8605975
Remarks:	Start CallerRemark - 8605975 TANK TEST FAILURE -AIR PRESSURE TEST END CallerRemark - 8605975

HIST LTANKS:

Region of Spill:	2
Spill Number:	8605975
Investigator:	Not reported
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Spill Date:	12/19/1986
Spill Time:	15:00
Reported to Department Date:	12/20/86
Reported to Department Time:	10:10

D61 KENT AVE. BKLYN/RADIA (Continued) **S100166970**

SWIS:	61
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	RADIAC RESEARCH
Spiller Address:	261 KENT AVE.
Spiller City,St,Zip:	BROOKLYN, NY
Facility Contact:	Not reported
Facility Phone:	(718) 632-33
Facility Extention:	Not reported
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	08/05/87
Cleanup Meets Standard:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Date:	/ /
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Spill Class:	Not reported
Spill Closed Dt:	08/05/87
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/08/87
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	09/02/87
Is Updated:	False
PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	Not reported
Spill Cause:	TANK TEST FAILURE -AIR PRESSURE TEST

275
SSE
1/2-1
3547 ft.

BQE/ANSBACHER COLOR & DYE FACTORY
MEEKER AVENUE
BROOKLYN, NY

SHWS

S106780917
N/A

Relative:
Higher

Actual:
15 ft.

SHWS:

Program: HW
Site Code: 55913
Classification: DOES NOT PRESENT A SIGNIFICANT THREAT TO THE PUBLIC HEALTH OR THE ENVIRONMENT - ACTION MAY BE DEFERRED.
Region: 2
Acres: .600
HW Code: 224016
Record Add: 1999-11-18 12:00:00
Record Upd: 2007-03-19 16:17:00
Updated By: JAAVERSA
Site Description: This site lies underneath the elevated Brooklyn - Queens Expressway (I-278) along Meeker Avenue between Metropolitan and Union Avenues in the Williamsburg Section of Brooklyn. It is believed that during the construction of the BQE, waste material and debris from the former Ansbacher Color & Dye Factory may have been used as fill material in the project area. A Phase II - type investigation was conducted by the New York State Department of Transportation in 1988. The investigation found hazardous levels of arsenic and lead in the soil and elevated levels of arsenic, lead and cyanide in the groundwater. During the reconstruction of the BQE in the early 1990s, the NYSDOT completed an IRM (soil removal) within the project's right-of way. The remaining contaminated soil is located beneath asphalt and concrete. A Preliminary Site Assessment was completed during the summer of 1999 to evaluate the areas outside the BQE footprint. The sampling results indicate that the subsurface soils within the footprint of the former Ansbacher Plant contain elevated levels of arsenic, lead, and mercury. The groundwater in this area is also contaminated with these metals, but the contaminated groundwater has not migrated significantly beyond the footprint of the former factory.
Environmental Problems: The primary contaminants of concern at this site are arsenic, lead, mercury and cyanide. Investigations indicate that the subsurface soils within the footprint of the former Ansbacher Plant contain elevated levels of arsenic, lead, and mercury. The groundwater in this area is also contaminated with these metals. The site does not constitute a significant threat to the environment as the contaminated soil is covered by existing layers of asphalt and concrete, and the contaminated groundwaterhas not migrated significantly beyond the footprint of the former factory.
Health Problems Assesment: Soil with residual arsenic and lead contamination remain under the BQE and is covered with several layers of concrete and asphalt. Contaminated soil also underlies several on-site buildings formerly used by Ansbacher. Contaminated groundwater isnot used if any, in buildings formerly used by Ansbacher. Off-site sampling of surface soils from residential yards adjacent to the site indicated the presence of metals (particularly arsenic and lead) at concentrations above the range of concentrations typically encountered in urban neighborhoods. However, the exact source of the metals in the soils could not be determined from the data collected. The NYSDOH gave the residents advice on how to minimize their exposure to these surface soilcontaminants.
Dump: False
Structure: False
Lagoon: False
Landfill: True
Pond: False
Disp Start: unknown
Disp Term: unknown
Lat/Long: 40:42:52:0 / 73:57:12:0

BQE/ANSBACHER COLOR & DYE FACTORY (Continued) **S106780917**

Dell:	F
Record Add:	11/18/99
Record Upd:	11/18/99
Updated By:	INITIAL
Own Op:	03
Sub Type:	NNN
Owner Name:	Not reported
Owner Company:	ANSBACHER COLOR & DYE FACTORY
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	ZZ
Owner Country:	United States of America
Own Op:	01
Sub Type:	B99
Owner Name:	Not reported
Owner Company:	NYS Department of Transportation
Owner Address:	STATE CAMPUS, BUILDING 5
Owner Addr2:	Not reported
Owner City,St,Zip:	ALBANY, NY 12232
Owner Country:	United States of America
Own Op:	04
Sub Type:	B99
Owner Name:	Not reported
Owner Company:	ANSBACHER COLOR & DYE FACTORY
Owner Address:	MEEKER AVENUE
Owner Addr2:	Not reported
Owner City,St,Zip:	BROOKLYN, NY
Owner Country:	United States of America
Own Op:	01
Sub Type:	NNN
Owner Name:	Not reported
Owner Company:	NYS Department of Transportation
Owner Address:	State Campus - Building 5
Owner Addr2:	Not reported
Owner City,St,Zip:	Albany, NY 12232
Owner Country:	United States of America
Own Op:	04
Sub Type:	B99
Owner Name:	Not reported
Owner Company:	ANSBACHER COLOR & DYE FACTORY
Owner Address:	MEEKER AVENUE
Owner Addr2:	Not reported
Owner City,St,Zip:	BROOKLYN, NY
Owner Country:	United States of America
HW Code:	224016
Waste Type:	LEAD
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	224016
Waste Type:	ARSENIC
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
Crossref ID:	Not reported
Cross Ref Type Code:	Not reported
Cross Ref Type:	Not reported
Record Added Date:	Not reported
Record Updated:	Not reported

BQE/ANSBACHER COLOR & DYE FACTORY (Continued) **S106780917**

Updated By: Not reported

276
WNW
1/2-1
3995 ft.

CON EDISON - EAST 11TH ST. WORKS MGP **Manufactured Gas Plants** **1008407983**
EAST 11TH - EAST 13TH STS. **N/A**
NEW YORK, NY 10002

Relative:
Lower

Actual:
4 ft.

277
WNW
1/2-1
4422 ft.

CON EDISON - EAST 14TH ST. WORKS MGP **Manufactured Gas Plants** **1008407984**
EAST 14TH - EAST 16TH STS. **N/A**
NEW YORK, NY 10009

Relative:
Lower

Actual:
9 ft.

278
ENE
1/2-1
4833 ft.

MOBIL OIL BROOKLYN TERMINAL **DEL SHWS** **S105972445**
300 NORTH HENRY STREET **N/A**
BROOKLYN, NY

Relative:
Higher

Actual:
12 ft.

DEL SHWS:

Year:	Not reported
Site Code Id:	224013
Site Classification:	D1
Region:	2
Epa Id Number:	Not reported
Site Type - Dump:	No
Site Type - Structure:	No
Site Type - Lagoon:	No
Site Type - Landfill:	No
Site Type - Treat Pond:	No
Site Size (Acres):	15 Acres
Site Size Comment:	Not reported
Period Assoc/HW Start:	Not reported
Period Assoc/HW End:	Not reported
Lat/Long:	0 0’ 0" / 0 0’ 0"
Lat/Long Decimal:	0.00000 / 0.00000
Lat/Long (dms):	0 0 0 / 0 0 0
Hazard Waste Disposed:	Not reported
Quantity:	Not reported
Air Data Available:	No
SW Std Contravention:	No
GW Std Contravention:	No
Soil Type:	Not reported
Sediment Data Available:	No
GW Std Contravention:	No
DW Std Contravention:	No
SW Std Contravention:	No
Air Stand Contraventions:	No
Legal Action Type:	Not reported
State Legal Action:	No
Federal Legal Action:	No
Enforce Status Code:	Not reported

MOBIL OIL BROOKLYN TERMINAL (Continued) **S105972445**

Remedial Act Proposed:	No
Rem Act Under Design:	No
Rem Act In Progress:	No
Rem Act Completed:	No
Remedial Action Type:	Complete
Soil Type:	Not reported
Depth To Groundwater:	Not reported
Owner Name:	Not reported
Owner Address:	300 North Henry Street
Owner City,St,Zip:	Brooklyn
Owner Phone:	Not reported
Owner Contact Name:	Not reported
Owner During Disposal:	Mobil Oil
Owner During Use:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City,St,Zip:	Not reported
Operator Phone:	Not reported
Operator Contact Name:	Not reported
Oper During Disposal:	Not reported
Site Type:	Dump
HW Disposal Period:	From: 1900 To: 1985
Analytical Data Available	Not reported
Applicable Std Exceeded	Not reported
Geotech Info:	Not reported
Depth To Groundwater:	Not reported
Status:	Not reported
Nature Of Action:	Not reported
Env Prob Assessment:	Not reported
Site Description:	Large storage area. Facility was built on an old refinery. Possiblity of groundwater contamination due to poor operation. Newton Creek is adjacent to the site.
Confirmed HW:	Gasoline, Kerosene, Fuel Oil, Others: unknown
Environment Assesment	Site has been remediated.
Health Assesment:	Not reported
Disposal Start Date:	Not reported
Disposal Term Date:	Not reported
Air Violation:	Not reported
Groundwater Violation:	Not reported
Drink Water Violation:	Not reported
Surface Water Violation:	Not reported
Legal New York State:	Not reported
Legal Federal:	Not reported
Legal State:	Not reported
Remedial Action Active:	Not reported
Remedial Action Done:	Not reported
NPL Status:	Not reported
Count Operator:	Not reported
Count Owner:	Not reported
NYTM X:	0
NYTM Y:	0
Co Name:	Not reported
Co Addr:	Not reported
Operator Addr:	Not reported
Operator Addr 2:	Not reported
Operator Addr 3:	Not reported
Operator Addr 4:	Not reported

MOBIL OIL BROOKLYN TERMINAL (Continued) **S105972445**

HWDP From:	Not reported
From To:	Not reported
Assessment Of Health:	Not reported
Env Assessment:	Not reported
HW Disposed/Quantity:	Not reported
Description:	Not reported
Assess/Env Prog:	Not reported
Assess/Health Prob:	Not reported
Site Description:	Not reported

279
NE
> 1
5907 ft.

Relative:
Lower

Actual:
7 ft.

FORMER MANHATTAN ADHESIVES PLANT **DEL SHWS** **S105972443**
425-459 GREENPOINT AVENUE **N/A**
BROOKLYN, NY

DEL SHWS:

Year:	Not reported
Site Code Id:	224009
Site Classification:	D1
Region:	2
Epa Id Number:	NYD980780811
Site Type - Dump:	No
Site Type - Structure:	No
Site Type - Lagoon:	No
Site Type - Landfill:	No
Site Type - Treat Pond:	No
Site Size (Acres):	Acres
Site Size Comment:	Not reported
Period Assoc/HW Start:	Not reported
Period Assoc/HW End:	Not reported
Lat/Long:	40 43' 56 / 73 56' 42
Lat/Long Decimal:	0.00000 / 0.00000
Lat/Long (dms):	0 0 0 / 0 0 0
Hazard Waste Disposed:	Not reported
Quantity:	Not reported
Air Data Available:	No
SW Std Contravention:	No
GW Std Contravention:	No
Soil Type:	Not reported
Sediment Data Available:	No
GW Std Contravention:	No
DW Std Contravention:	No
SW Std Contravention:	No
Air Stand Contraventions:	No
Legal Action Type:	Not reported
State Legal Action:	No
Federal Legal Action:	No
Enforce Status Code:	Not reported
Remedial Act Proposed:	No
Rem Act Under Design:	No
Rem Act In Progress:	No
Rem Act Completed:	No
Remedial Action Type:	Not reported
Soil Type:	Not reported
Depth To Groundwater:	Not reported
Owner Name:	Frank Castiglione
Owner Address:	32-02 College Point Boulevard
Owner City,St,Zip:	Flushing, NY 11354

FORMER MANHATTAN ADHESIVES PLANT (Continued) **S105972443**

Owner Phone:	Not reported
Owner Contact Name:	Not reported
Owner During Disposal:	Not reported
Owner During Use:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City,St,Zip:	Not reported
Operator Phone:	Not reported
Operator Contact Name:	Not reported
Oper During Disposal:	Not reported
Site Type:	Structure
HW Disposal Period:	From: To:
Analytical Data Available	Not reported
Applicable Std Exceeded	Not reported
Geotech Info:	Not reported
Depth To Groundwater:	Not reported
Status:	Not reported
Nature Of Action:	Not reported
Env Prob Assessment:	Not reported
Site Description:	Manhattan Adhesives is currently an empty factory building that is located at the foot of the Greenpoint Ave., Bridge in Brooklyn. Besides the Manhattan Adhesives factory, about 10 feet from the northeast wall is a manhole (not a sewer of drain) into which liquid waste was allegedly discharged. This waste came from a condemned oil storage site located at the intersection of Rt. 280, and the NJ Turnpike in NJ. The manhole is suspected of being the opening to an underground tank; however, the quantity of the waste allegedly dumped exceeds the capacity of most tanks. This information was obtained from the State Senate Committee on Crime and the Brooklyn District Attorney's office. Phase I State Superfund has been completed. A partial phase IIinvestigation was completed during 1985 and recommended no further action. The Responsible Party has agreed to undertake an investigation in 1986. An investigation has not found hazardous waste on-site.
Confirmed HW:	Waste oil alleged to contain PCB's: Over 400,000 gal.
Environment Assesment	Not reported
Health Assesment:	Not reported
Disposal Start Date:	Not reported
Disposal Term Date:	Not reported
Air Violation:	Not reported
Groundwater Violation:	Not reported
Drink Water Violation:	Not reported
Surface Water Violation:	Not reported
Legal New York State:	Not reported
Legal Federal:	Not reported
Legal State:	Not reported
Remedial Action Active:	Not reported
Remedial Action Done:	Not reported
NPL Status:	Not reported
Count Operator:	Not reported
Count Owner:	Not reported
NYTM X:	0
NYTM Y:	0
Co Name:	Not reported
Co Addr:	Not reported
Operator Addr:	Not reported
Operator Addr 2:	Not reported
Operator Addr 3:	Not reported
Operator Addr 4:	Not reported

FORMER MANHATTAN ADHESIVES PLANT (Continued) **S105972443**

HWDP From:	Not reported
From To:	Not reported
Assessment Of Health:	Not reported
Env Assessment:	Not reported
HW Disposed/Quantity:	Not reported
Description:	Not reported
Assess/Env Prog:	Not reported
Assess/Health Prob:	Not reported
Site Description:	Not reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BROOKLYN	S105999989	F N W MECHANICAL	139 NORTH 10TH STREET	11211	LTANKS
BROOKLYN	S108146255	BERRY STREET HOUSING PROJECT	SOUTH 10TH STREET	11211	HSWDS
BROOKLYN	S108297543	169-175 NORTH 10TH STREET	169-175 NORTH 10TH STREET	11211	NY Spills
BROOKLYN	S108295828	COMMERCIAL PROPERTY	200 NORTH 11TH STREET	11211	NY Spills
BROOKLYN	1007990548	CON EDISON- #7 FUEL OIL PIPELINE REMOVAL	N 1ST & KENT AVE TO FRANKLIN	11211	RCRA-LQG, NY MANIFEST
BROOKLYN	S105841709	BJR REALTY CORP.	6O SOUTH 2ND STREET (WYTHE ST.)	11211	SWF/LF, SWRCY
BROOKLYN	1008404470	NYCDEP - BORDEN AVE VENTURI FLOW CHAMBER	BORDEN AVE & 11TH ST	11222	RCRA-NonGen
BROOKLYN	1007206519	CON ED - MH 71378	E/S FRANKLIN ST 15' N/O	11222	NY MANIFEST, RCRA-NonGen
BROOKLYN	S106435619	W.H. CHRISTIAN & SONS	22-28 FRANKLIN ST/211 BANKER ST	11222	DRYCLEANERS
BROOKLYN	1010325405	VERIZON	KENT AVE & FLUSHING AVE SWC	11211	RCRA-NonGen
BROOKLYN	1010325406	VERIZON	KENT AVE & FLUSHING AVE SWC	11211	RCRA-NonGen
BROOKLYN	S102872857	BUG, PEOPLES WORKS	KENT AVE.	11211	HSWDS
BROOKLYN	S105842282	NORTH AMERICAN RECYCLING; INC	KENT AVE / CLYMER STREET BROOKLYN NAVY YARD	11211	SWRCY
BROOKLYN	S108076641	LOT 5,TAXBLOCK 2317	KENT AVENUE	11211	E DESIGNATION
BROOKLYN	S108076712	LOT 8,TAXBLOCK 2317	KENT AVENUE	11211	E DESIGNATION
BROOKLYN	S108160952	LOT 25,TAXBLOCK 2128	KENT AVENUE	11211	E DESIGNATION
BROOKLYN	S108160953	LOT 250,TAXBLOCK 2134	KENT AVENUE	11211	E DESIGNATION
BROOKLYN	S108295401	CONSTRUCITON SITE	164 KENT AVE	11211	NY Spills
BROOKLYN	S108297041	CONSTRUCTION SITE	410 KENT AVE	11211	NY Spills
BROOKLYN	S108469823	LOT 3,TAXBLOCK 2317	KENT AVENUE	11211	E DESIGNATION
BROOKLYN	1003863853	BKLYN UNION GAS /WILLIAMSBURGH WORKS	KENT AVE N 12TH ST /E RIV	11211	CERC-NFRAP
BROOKLYN	1003863859	BKLYN UNION GAS /PEOPLES WORKS	KENT AVE S 10TH & 11TH STS	11211	CERC-NFRAP
BROOKLYN	S108145977	MAGNUM BODY SHOP INC	185A MASPETH AVE	11211	SWF/LF
BROOKLYN	S108146009	MS POWER INC	187 MASPETH VE	11211	SWF/LF
BROOKLYN	S108667325	K - EQUITY WORKS	MASPETH AND VANDERVORT AVES.	11211	SHWS
BROOKLYN	S105841740	N. Y. PAVING CO.	957 MEEKER AVE (MEEKER / GARDNER ST.)	11222	SWF/LF
BROOKLYN	S105841749	ORSANO CARTING CO.	852 MEEKER AVE. (THOMAS / STEWART AVE.)	11222	SWF/LF
BROOKLYN	S105841748	ORSANO CARTING	852 MORGAN AVE.AVENUE	11222	SWF/LF
BROOKLYN	S108232338	432 DRIGGS AVENUE CORP	181 NORHT 11TH STREET	11211	NY MANIFEST
BROOKLYN	1010326118	CON EDISON	E SIDE KENT AVE 255 FEET S OF	11211	RCRA-NonGen
BROOKLYN	1010326119	CON EDISON	E SIDE KENT AVE 255 FEET S OF	11211	RCRA-NonGen
BROOKLYN	S105841763	WASTE MANAGEMENT OF NY;LLC (75 THOMAS ST	75 THOMAS ST.;(485 SCOTT AVE.)	11222	SWF/LF, SWRCY
BROOKLYN	1007206420	CON ED - MH 64824	WYTHE AVE 115 N/O 5 ST	11211	NY MANIFEST, RCRA-NonGen
BROOKLYN	S108294674	DUMPSTER	134 WYTHE AVE	11211	NY Spills
LONG ISLAND CITY	S108413225	QUANTA RESOURCES	37-80 REVIEW AVENUE	11101	SHWS, MOSF
NEW YORK CITY	1007207179	MH64829	FRANKLIN STREET 60' N/O DUPONT	11222	NY MANIFEST, RCRA-NonGen
ROTTERDAM JCT	1008188903	SCHENECTADY CHEMICAL CORP	RT. 5 SOUTH	11211	HIST FTTS
ROTTERDAM JCT	1010009467	SCHENECTADY CHEMICAL CORP	RT. 5 SOUTH	11211	FTTS
ROTTERDAM JUNCTION	1008188904	SCHENECTADY CHEMICAL, INC	RT. 5 SOUTH	11211	HIST FTTS
ROTTERDAM JUNCTION	1010009468	SCHENECTADY CHEMICAL, INC	RT. 5 SOUTH	11211	FTTS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: EPA
Telephone: N/A
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: EPA
Telephone: N/A
Last EDR Contact: 08/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: EPA
Telephone: N/A
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/23/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 70

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 12/06/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/21/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 12/06/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 08/08/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/18/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/03/2007
Next Scheduled EDR Contact: 03/03/2008
Data Release Frequency: Quarterly

RCRA-TSDF: RCRA - Transporters, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/21/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/21/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/21/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/21/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/21/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Varies

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/19/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/01/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/16/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Annually

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 08/14/2007
Date Data Arrived at EDR: 08/29/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 43

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/29/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 12/28/2007
Next Scheduled EDR Contact: 03/24/2008
Data Release Frequency: Quarterly

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Semi-Annually

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 11/09/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 08/31/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 41

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 12/10/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/21/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 07/25/2007
Date Data Arrived at EDR: 07/31/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 72

Source: EPA, Region 9
Telephone: 415-972-3336
Last EDR Contact: 12/26/2007
Next Scheduled EDR Contact: 03/24/2008
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/14/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 01/03/2008
Next Scheduled EDR Contact: 03/24/2008
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 69

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 12/18/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 11/14/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/06/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 60

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 07/06/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 09/18/2007
Number of Days to Update: 60

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/15/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/27/2007
Date Data Arrived at EDR: 08/13/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/15/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/04/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/31/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/18/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: EPA
Telephone: (212) 637-3000
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 12/03/2007
Next Scheduled EDR Contact: 03/03/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Inactive Hazardous Waste Disposal Sites in New York State

Referred to as the State Superfund Program, the Inactive Hazardous Waste Disposal Site Remedial Program is the cleanup program for inactive hazardous waste sites and now includes hazardous substance sites

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Annually

HSWDS: Hazardous Substance Waste Disposal Site Inventory

The list includes any known or suspected hazardous substance waste disposal sites. Also included are sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites and non-Registry sites that U.S. EPA Preliminary Assessment (PA) reports or Site Investigation (SI) reports were prepared. Hazardous Substance Waste Disposal Sites are eligible to be Superfund sites now that the New York State Superfund has been refinanced and changed. This means that the study inventory has served its purpose and will no longer be maintained as a separate entity. The last version of the study inventory is frozen in time. The sites on the study will not automatically be made Superfund sites, rather each site will be further evaluated for listing on the Registry. So overtime they will be added to the registry or not.

Date of Government Version: 01/01/2003
Date Data Arrived at EDR: 10/20/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9564
Last EDR Contact: 11/26/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: No Update Planned

DEL SHWS: Delisted Registry Sites

A database listing of sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 06/13/2007
Date Made Active in Reports: 07/24/2007
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Annually

SWF/LF: Facility Register

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 10/26/2007
Date Data Arrived at EDR: 10/29/2007
Date Made Active in Reports: 11/20/2007
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-457-2051
Last EDR Contact: 01/03/2008
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: Semi-Annually

SWRCY: Registered Recycling Facility List
A listing of recycling facilities.

Date of Government Version: 10/26/2007
Date Data Arrived at EDR: 10/29/2007
Date Made Active in Reports: 11/20/2007
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-8705
Last EDR Contact: 01/03/2008
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: Semi-Annually

SWTIRE: Registered Waste Tire Storage & Facility List
A listing of facilities registered to accept waste tires.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 11/15/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8694
Last EDR Contact: 11/16/2007
Next Scheduled EDR Contact: 02/11/2008
Data Release Frequency: Annually

LTANKS: Spills Information Database
Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/24/2007
Date Made Active in Reports: 11/20/2007
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Varies

HIST LTANKS: Listing of Leaking Storage Tanks
A listing of leaking underground and aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills. In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY LTANKS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST: Petroleum Bulk Storage (PBS) Database
Facilities that have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/24/2007
Date Made Active in Reports: 11/30/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: No Update Planned

CBS UST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in underground tanks of any size

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 10/24/2005
Next Scheduled EDR Contact: 01/23/2006
Data Release Frequency: No Update Planned

MOSF UST: Major Oil Storage Facilities Database

Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: Varies

HIST UST: Historical Petroleum Bulk Storage Database

These facilities have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. It is no longer updated due to the sensitive nature of the information involved. See UST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: Varies

AST: Petroleum Bulk Storage

Registered Aboveground Storage Tanks.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/24/2007
Date Made Active in Reports: 11/30/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: No Update Planned

HIST AST: Historical Petroleum Bulk Storage Database

These facilities have petroleum storage capabilities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. No longer updated due to the sensitive nature of the information involved. See AST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: No Update Planned

CBS AST: Chemical Bulk Storage Database

Facilities that store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

MOSF AST: Major Oil Storage Facilities Database

Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/27/2007
Date Data Arrived at EDR: 08/30/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/29/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Annually

SPILLS: Spills Information Database

Data collected on spills reported to NYSDEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/24/2007
Date Made Active in Reports: 11/20/2007
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Varies

HIST SPILLS: SPILLS Database

This database contains records of chemical and petroleum spill incidents. Under State law, petroleum and hazardous chemical spills that can impact the waters of the state must be reported by the spiller (and, in some cases, by anyone who has knowledge of the spills). In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY SPILLS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

ENG CONTROLS: Registry of Engineering Controls

Environmental Remediation sites that have engineering controls in place.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Quarterly

INST CONTROL: Registry of Institutional Controls

Environmental Remediation sites that have institutional controls in place.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Quarterly

VCP: Voluntary Cleanup Agreements

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. The Voluntary Cleanup Program was developed to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfield" sites.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9711
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Semi-Annually

DRYCLEANERS: Registered Drycleaners

A listing of all registered drycleaning facilities.

Date of Government Version: 06/15/2004
Date Data Arrived at EDR: 06/15/2004
Date Made Active in Reports: 07/29/2004
Number of Days to Update: 44

Source: Department of Environmental Conservation
Telephone: 518-402-8403
Last EDR Contact: 05/21/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

BROWNFIELDS: Brownfields Site List

A Brownfield is any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant.

Date of Government Version: 08/15/2007
Date Data Arrived at EDR: 09/12/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-9764
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Semi-Annually

SPDES: State Pollutant Discharge Elimination System

New York State has a state program which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwaters as well as surface waters.

Date of Government Version: 08/06/2007
Date Data Arrived at EDR: 08/07/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 45

Source: Department of Environmental Conservation
Telephone: 518-402-8233
Last EDR Contact: 11/05/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: No Update Planned

AIRS: Air Emissions Data

Point source emissions inventory data.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/05/2007
Date Made Active in Reports: 10/17/2007
Number of Days to Update: 42

Source: Department of Environmental Conservation
Telephone: 518-402-8452
Last EDR Contact: 11/19/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Annually

MOSF: Major Oil Storage Facility Site Listing

These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/24/2007
Date Made Active in Reports: 11/20/2007
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Quarterly

CBS: Chemical Bulk Storage Site Listing
These facilities store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size

Date of Government Version: 10/02/2007
Date Data Arrived at EDR: 10/24/2007
Date Made Active in Reports: 11/20/2007
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/24/2007
Next Scheduled EDR Contact: 01/21/2008
Data Release Frequency: Quarterly

RES DECL: Restrictive Declarations Listing
A restrictive declaration is a covenant running with the land which binds the present and future owners of the property. As a condition of certain special permits, the City Planning Commission may require an applicant to sign and record a restrictive declaration that places specified conditions on the future use and development of the property. Certain restrictive declarations are indicated by a D on zoning maps.

Date of Government Version: 12/31/1992
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 78

Source: NYC Department of City Planning
Telephone: 212-720-3401
Last EDR Contact: 07/17/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

E DESIGNATION: E DESIGNATION SITE LISTING
The (E (Environmental)) designation would ensure that sampling and remediation take place on the subject properties, and would avoid any significant impacts related to hazardous materials at these locations. The (E) designations would require that the fee owner of the sites conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYCDEP before the issuance of a building permit by the Department of Buildings pursuant to the provisions of Section 11-15 of the Zoning Resolution (Environmental Requirements). The (E) designations also include a mandatory construction-related health and safety plan which must be approved by NYCDEP.

Date of Government Version: 03/28/2007
Date Data Arrived at EDR: 08/27/2007
Date Made Active in Reports: 09/21/2007
Number of Days to Update: 25

Source: New York City Department of City Planning
Telephone: 718-595-6658
Last EDR Contact: 10/16/2007
Next Scheduled EDR Contact: 01/14/2008
Data Release Frequency: Varies

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 11/09/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/05/2007
Date Data Arrived at EDR: 10/02/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 9

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/18/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 25

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 12/03/2007
Date Data Arrived at EDR: 12/06/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 22

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 11/30/2007
Date Data Arrived at EDR: 11/30/2007
Date Made Active in Reports: 12/28/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 09/12/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 09/05/2007
Date Data Arrived at EDR: 10/02/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 9

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 08/31/2007
Date Data Arrived at EDR: 08/31/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 41

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 08/27/2007
Date Data Arrived at EDR: 09/07/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 34

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 09/11/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 09/12/2007
Date Data Arrived at EDR: 09/14/2007
Date Made Active in Reports: 10/11/2007
Number of Days to Update: 27

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/15/2007
Next Scheduled EDR Contact: 02/18/2008
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

CORTLAND COUNTY:

Cortland County Storage Tank Listing
A listing of aboveground storage tank sites located in Cortland County.

Date of Government Version: 09/24/2007
Date Data Arrived at EDR: 09/28/2007
Date Made Active in Reports: 11/30/2007
Number of Days to Update: 63

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 11/26/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Quarterly

Cortland County Storage Tank Listing
A listing of underground storage tank sites located in Cortland County.

Date of Government Version: 09/24/2007
Date Data Arrived at EDR: 09/28/2007
Date Made Active in Reports: 11/30/2007
Number of Days to Update: 63

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 11/26/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Quarterly

NASSAU COUNTY:

Registered Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 05/21/2003
Date Data Arrived at EDR: 05/27/2003
Date Made Active in Reports: 06/09/2003
Number of Days to Update: 13

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 10/26/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 08/20/2007
Date Data Arrived at EDR: 10/10/2007
Date Made Active in Reports: 11/19/2007
Number of Days to Update: 40

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 11/05/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Varies

Registered Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 05/21/2003
Date Data Arrived at EDR: 05/27/2003
Date Made Active in Reports: 06/09/2003
Number of Days to Update: 13

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 10/26/2007
Next Scheduled EDR Contact: 01/28/2008
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 08/20/2007
Date Data Arrived at EDR: 10/10/2007
Date Made Active in Reports: 11/19/2007
Number of Days to Update: 40

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 11/05/2007
Next Scheduled EDR Contact: 02/04/2008
Data Release Frequency: Varies

ROCKLAND COUNTY:

Petroleum Bulk Storage Database
A listing of aboveground storage tank sites located in Rockland County.

Date of Government Version: 10/22/2007
Date Data Arrived at EDR: 10/23/2007
Date Made Active in Reports: 11/30/2007
Number of Days to Update: 38

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Quarterly

Petroleum Bulk Storage Database
A listing of underground storage tank sites located in Rockland County.

Date of Government Version: 10/22/2007
Date Data Arrived at EDR: 10/23/2007
Date Made Active in Reports: 11/30/2007
Number of Days to Update: 38

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 01/02/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Quarterly

SUFFOLK COUNTY:

Storage Tank Database
A listing of aboveground storage tank sites located in Suffolk County.

Date of Government Version: 09/13/2006
Date Data Arrived at EDR: 01/11/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 27

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 12/14/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Annually

Storage Tank Database
A listing of underground storage tank sites located in Suffolk County.

Date of Government Version: 09/13/2006
Date Data Arrived at EDR: 01/11/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 27

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 12/14/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Annually

WESTCHESTER COUNTY:

Listing of Storage Tanks
A listing of aboveground storage tank sites located in Westchester County.

Date of Government Version: 05/05/2005
Date Data Arrived at EDR: 05/31/2005
Date Made Active in Reports: 06/30/2005
Number of Days to Update: 30

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 11/26/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Varies

Listing of Storage Tanks

A listing of underground storage tank sites located in Westchester County.

Date of Government Version: 05/05/2005
Date Data Arrived at EDR: 05/31/2005
Date Made Active in Reports: 06/30/2005
Number of Days to Update: 30

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 11/26/2007
Next Scheduled EDR Contact: 02/25/2008
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/15/2007
Date Made Active in Reports: 08/20/2007
Number of Days to Update: 66

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 12/13/2007
Next Scheduled EDR Contact: 03/10/2008
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 09/30/2007
Date Data Arrived at EDR: 12/04/2007
Date Made Active in Reports: 12/31/2007
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/03/2008
Next Scheduled EDR Contact: 03/31/2008
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 12/21/2007
Date Made Active in Reports: 01/10/2008
Number of Days to Update: 20

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 12/10/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/03/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 21

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 11/13/2007
Next Scheduled EDR Contact: 02/11/2008
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 06/08/2007
Number of Days to Update: 42

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 01/07/2008
Next Scheduled EDR Contact: 04/07/2008
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Providers
Source: Department of Health
Telephone: 212-676-2444

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

WILLIAMSBURG MGP
KENT AVE
WILLIAMSBURG, NY 11211

TARGET PROPERTY COORDINATES

Latitude (North):	40.72302 - 40° 43' 22.9''
Longitude (West):	73.95937 - 73° 57' 33.7''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	587887.0
UTM Y (Meters):	4508319.5
Elevation:	10 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	40073-F8 BROOKLYN, NY
Most Recent Revision:	1995

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

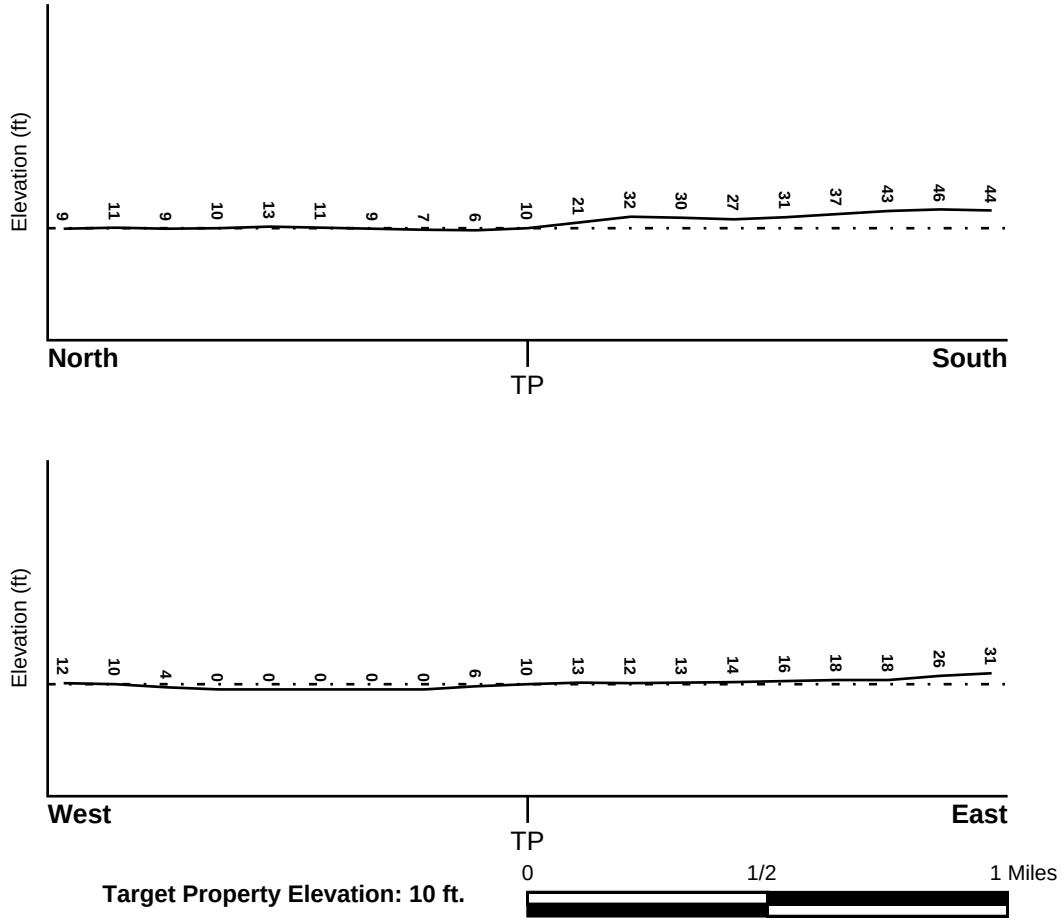
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
KINGS, NY	Not Available

Flood Plain Panel at Target Property:	3604970047B
Additional Panels in search area:	3604970048B 3604970055B 3604970056B

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BROOKLYN	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Ordovician
Series:	Ordovician
Code:	Oe *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	URBAN LAND
Soil Surface Texture:	variable
Hydrologic Group:	Not reported
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 10 inches
Depth to Bedrock Max:	> 10 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
loamy sand
sandy loam
fine sandy loam

Surficial Soil Types: silt loam
loamy sand
sandy loam
fine sandy loam

Shallow Soil Types: sandy loam

Deeper Soil Types: unweathered bedrock
very gravelly - loamy sand
stratified
sandy loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS2117880	1/8 - 1/4 Mile SE
B2	USGS2117852	1/8 - 1/4 Mile SSE
B3	USGS2117845	1/8 - 1/4 Mile SE
A4	USGS2117851	1/8 - 1/4 Mile SE
5	USGS2117862	1/4 - 1/2 Mile WSW
6	USGS2118108	1/4 - 1/2 Mile SSW
C7	USGS2118066	1/4 - 1/2 Mile South
C8	USGS2118055	1/2 - 1 Mile South
10	USGS2118023	1/2 - 1 Mile SW
11	USGS2118072	1/2 - 1 Mile SE
12	USGS2117978	1/2 - 1 Mile ESE
13	USGS2117133	1/2 - 1 Mile North
D14	USGS2118190	1/2 - 1 Mile SSE
D15	USGS2118183	1/2 - 1 Mile SSE
16	USGS2117172	1/2 - 1 Mile NNE
E17	USGS2117797	1/2 - 1 Mile East
E18	USGS2117798	1/2 - 1 Mile East
19	USGS2118298	1/2 - 1 Mile SSE
20	USGS2118278	1/2 - 1 Mile SSW
21	USGS2118332	1/2 - 1 Mile SSW
22	USGS2116938	1/2 - 1 Mile North
23	USGS2117728	1/2 - 1 Mile East

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
9	NY0007257	1/2 - 1 Mile SSE

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

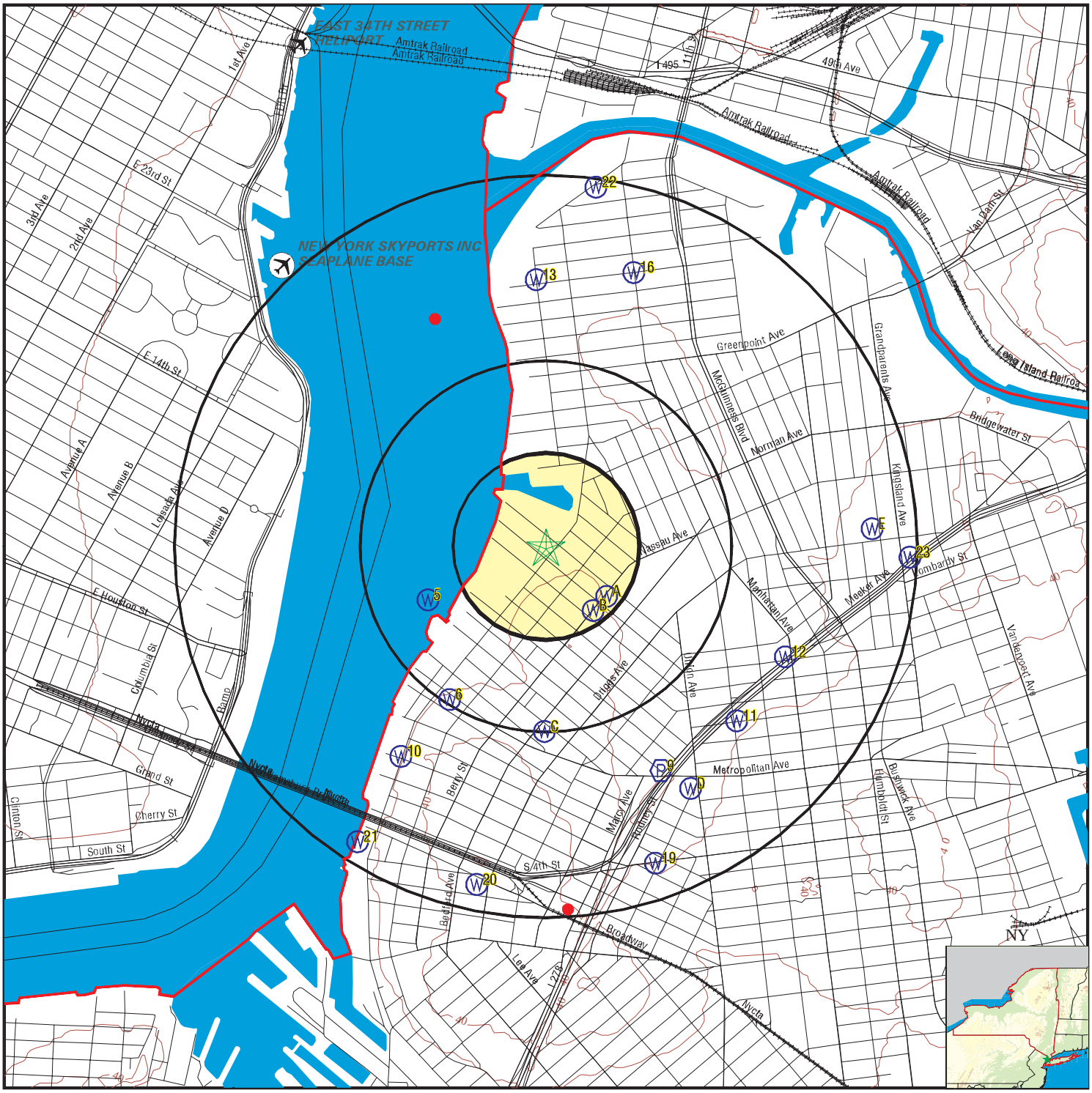
MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

DISTANCE FROM TP (Miles)	DISTANCE FROM TP (Miles)
1/2 - 1 Mile NNW	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 2119865.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Williamsburg MGP	CLIENT:	GEI Consultants Inc.
ADDRESS:	Kent Ave Williamsburg NY 11211	CONTACT:	Melissa Felter
LAT/LONG:	40.7230 / 73.9594	INQUIRY #:	2119865.2s
		DATE:	January 15, 2008 8:35 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
SE
1/8 - 1/4 Mile
Higher

FED USGS **USGS2117880**

Agency cd:	USGS	Site no:	404317073572501
Site name:	K 49. 1		
Latitude:	404317		
Longitude:	0735725	Dec lat:	40.72149123
Dec lon:	-73.95652706	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1106	Map scale:	Not Reported
Altitude:	18.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	333.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

B2
SSE
1/8 - 1/4 Mile
Higher

FED USGS **USGS2117852**

Agency cd:	USGS	Site no:	404314073572801
Site name:	K 50. 1		
Latitude:	404314		
Longitude:	0735728	Dec lat:	40.72065791
Dec lon:	-73.95736042	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1106	Map scale:	Not Reported

Altitude:	16.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	157.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

B3
SE
1/8 - 1/4 Mile
Higher

FED USGS **USGS2117845**

Agency cd:	USGS	Site no:	404313073572508
Site name:	K 463. 1		
Latitude:	404313		
Longitude:	0735725	Dec lat:	40.72038014
Dec lon:	-73.95652706	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1106	Map scale:	Not Reported
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	Not Reported		
Altitude datum:	Not Reported		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	32.	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Peak flow data count: 0
Water quality data end date: 0000-00-00
Ground water data begin date: 1937-11-08
Ground water data count: 106

Water quality data begin date: 0000-00-00
Water quality data count: 0
Ground water data end date: 1939-11-18

Ground-water levels, Number of Measurements: 106

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1939-11-18		3.22	1939-11-11		3.18
1939-11-04		3.26	1939-10-28		3.28
1939-10-25		3.27	1939-10-18		3.26
1939-10-11		3.39	1939-10-04		3.76
1939-09-23		3.83	1939-09-16		3.77
1939-09-08		3.75	1939-09-01		3.85
1939-08-25		4.13	1939-08-18		4.26
1939-08-11		4.39	1939-08-04		4.52
1939-07-28		4.57	1939-07-21		4.58
1939-07-14		4.59	1939-07-07		4.59
1939-06-30		4.56	1939-06-23		4.58
1939-06-16		4.60	1939-06-09		4.61
1939-06-02		4.58	1939-05-26		4.60
1939-05-19		4.61	1939-05-12		4.62
1939-05-05		4.62	1939-04-28		4.63
1939-04-21		4.64	1939-04-15		4.64
1939-04-08		4.67	1939-03-31		4.72
1939-03-24		4.70	1939-03-17		4.69
1939-03-10		4.73	1939-03-03		4.76
1939-02-24		4.72	1939-02-17		4.73
1939-02-10		4.74	1939-02-03		4.76
1939-01-27		4.78	1939-01-20		4.81
1939-01-13		4.83	1939-01-06		4.85
1938-12-30		4.88	1938-12-23		4.91
1938-12-16		4.91	1938-12-09		4.94
1938-12-02		4.95	1938-11-25		5.03
1938-11-18		5.01	1938-11-11		5.04
1938-11-04		5.09	1938-10-28		5.20
1938-10-21		5.30	1938-10-14		5.97
1938-10-07		5.19	1938-09-30		5.24
1938-09-23		5.27	1938-09-16		4.91
1938-09-09		4.41	1938-09-02		4.41
1938-08-26		4.42	1938-08-19		4.42
1938-08-12		4.40	1938-08-05		4.41
1938-07-29		4.41	1938-07-22		4.40
1938-07-15		4.41	1938-07-08		4.40
1938-07-01		4.42	1938-06-25		4.42
1938-06-18		4.43	1938-06-11		4.43
1938-06-04		4.46	1938-05-28		4.48
1938-05-21		4.60	1938-05-14		4.78
1938-05-07		4.79	1938-04-30		4.81
1938-04-23		4.87	1938-04-16		4.88
1938-04-09		5.12	1938-04-02		5.05
1938-03-26		4.65	1938-03-19		4.63
1938-03-12		4.63	1938-03-05		4.66
1938-02-26		4.67	1938-02-19		4.68
1938-02-04		4.72	1938-01-28		4.72
1938-01-21		4.74	1938-01-14		4.77
1938-01-07		4.81	1937-12-31		4.81
1937-12-24		4.86	1937-12-18		4.88

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1937-12-11		4.87	1937-12-04		4.80
1937-11-27		4.76	1937-11-20		4.73
1937-11-13		4.40	1937-11-08		4.40

A4
SE **FED USGS** **USGS2117851**
1/8 - 1/4 Mile
Higher

Agency cd:	USGS	Site no:	404314073572301
Site name:	K 1112. 1		
Latitude:	404314		
Longitude:	0735723	Dec lat:	40.72065791
Dec lon:	-73.95597149	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1116	Map scale:	Not Reported
Altitude:	7.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	55.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

5
WSW **FED USGS** **USGS2117862**
1/4 - 1/2 Mile
Lower

Agency cd:	USGS	Site no:	404315073575701
Site name:	K 688. 1		
Latitude:	404315		
Longitude:	0735757	Dec lat:	40.72093567
Dec lon:	-73.9654162	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1166	Map scale:	Not Reported
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	1		
Altitude datum:	Not Reported		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	111.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

6
SSW
1/4 - 1/2 Mile
Higher

FED USGS **USGS2118108**

Agency cd:	USGS	Site no:	404301073575301
Site name:	K 2591. 1		
Latitude:	404301		
Longitude:	0735753	Dec lat:	40.71704686
Dec lon:	-73.96430506	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1178	Map scale:	Not Reported
Altitude:	2.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST

Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	GLACIAL AQUIFER,UPPER		
Well depth:	Not Reported	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1981-04-13
Water quality data end date:	1983-09-20	Water quality data count:	2
Ground water data begin date:	0000-00-00	Ground water data end date:	0000-00-00
Ground water data count:	0		

Ground-water levels, Number of Measurements: 0

C7
South
1/4 - 1/2 Mile
Higher

FED USGS **USGS2118066**

Agency cd:	USGS	Site no:	404257073573701
Site name:	K 2262. 1		
Latitude:	404257		
Longitude:	0735737	Dec lat:	40.71593578
Dec lon:	-73.95986048	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1198	Map scale:	Not Reported
Altitude:	8.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	61.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C8
South
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2118055**

Agency cd:	USGS	Site no:	404256073573401
Site name:	K 1303. 1		
Latitude:	404256		
Longitude:	0735734	Dec lat:	40.71565801
Dec lon:	-73.95902713	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1198	Map scale:	Not Reported
Altitude:	16.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	90.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

9
SSE
1/2 - 1 Mile
Higher | **FRDS PWS** | **NY0007257**

PWS ID:	NY0007257	PWS Status:	Active
Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	MANSFIELD BUNG COLONY GALE ROAD, BOX 123 MONGAUP VALLEY, NY 12762		
Addressee / Facility:	System Owner/Responsible Party ROSENBERG MAYER C/O MAYER ROSENBURG 570 BEDFORD AVE BROOKLYN, NY 11211		

Facility Latitude:	40 42 51	Facility Longitude:	073 57 14
City Served:	BETHEL (T)		
Treatment Class	Not Reported	Population:	Not Reported

Violations information not reported.

10
SW
1/2 - 1 Mile
Higher

FED USGS **USGS2118023**

Agency cd:	USGS	Site no:	404253073580201
Site name:	K 458. 1		
Latitude:	404253		
Longitude:	0735802	Dec lat:	40.71482468
Dec lon:	-73.96680512	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1169	Map scale:	Not Reported
Altitude:	5.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	1053.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

11
SE
1/2 - 1 Mile
Higher

FED USGS **USGS2118072**

Agency cd:	USGS	Site no:	404258073570001
Site name:	K 691. 1		
Latitude:	404258		
Longitude:	0735700	Dec lat:	40.71621357
Dec lon:	-73.94958241	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1138	Map scale:	Not Reported
Altitude:	18.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	195.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

12
ESE
1/2 - 1 Mile
Higher

FED USGS **USGS2117978**

Agency cd:	USGS	Site no:	404307073565101
Site name:	K 690. 1		
Latitude:	404307		
Longitude:	0735651	Dec lat:	40.71871352
Dec lon:	-73.94708234	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1147	Map scale:	Not Reported
Altitude:	10.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST

Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	194.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

13
North
1/2 - 1 Mile
Lower

FED USGS **USGS2117133**

Agency cd:	USGS	Site no:	404400073573701
Site name:	K 682. 1		
Latitude:	404400		
Longitude:	0735737	Dec lat:	40.73343542
Dec lon:	-73.9598605	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1190	Map scale:	Not Reported
Altitude:	10.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	53.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D14
SSE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2118190**

Agency cd:	USGS	Site no:	404249073570801
Site name:	K 673. 1		
Latitude:	404249		
Longitude:	0735708	Dec lat:	40.71371361
Dec lon:	-73.95180469	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1129	Map scale:	Not Reported
Altitude:	14.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	196.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

D15
SSE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2118183**

Agency cd:	USGS	Site no:	404248073570901
Site name:	K 898. 1		
Latitude:	404248		
Longitude:	0735709	Dec lat:	40.71343584
Dec lon:	-73.95208248	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1220	Map scale:	Not Reported

Altitude:	7.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	46.	Hole depth:	74.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

16
NNE **FED USGS** **USGS2117172**
1/2 - 1 Mile
Higher

Agency cd:	USGS	Site no:	404401073571901
Site name:	K 710. 1		
Latitude:	404401		
Longitude:	0735719	Dec lat:	40.73371321
Dec lon:	-73.95486036	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1019	Map scale:	Not Reported
Altitude:	13.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	54.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

E17
East
1/2 - 1 Mile
Higher

FED USGS **USGS2117797**

Agency cd:	USGS	Site no:	404325073563508
Site name:	K 3260. 1		
Latitude:	404325		
Longitude:	0735635	Dec lat:	40.72371343
Dec lon:	-73.94263778	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1164	Map scale:	Not Reported
Altitude:	28.7		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	GLACIAL AQUIFER,UPPER		
Well depth:	23.	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1981-02-12
Water quality data end date:	1983-07-12	Water quality data count:	2
Ground water data begin date:	1980-04-11	Ground water data end date:	2000-10-24
Ground water data count:	80		

Ground-water levels, Number of Measurements: 80

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2000-10-24		12.89	2000-09-27		12.26
2000-08-24		12.89	2000-07-27		13.11
2000-06-28		13.58	2000-05-23		13.47
2000-04-27		13.00	2000-03-22		12.58
2000-02-29		12.01	1999-12-13		12.83
1999-11-23		12.54	1999-10-19		12.73
1999-09-23		12.52	1999-08-17		11.99
1999-07-20		12.49	1999-06-24		12.86
1999-05-18		13.16	1999-04-28		13.32
1999-03-23		12.97	1999-03-02		12.05

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1999-01-27		11.50	1998-11-24		11.33
1998-09-29		11.65	1998-09-01		12.13
1998-07-28		12.61	1998-05-28		13.04
1998-04-29		12.48	1998-03-24		12.86
1998-02-26		11.94	1998-01-26		10.65
1997-12-29		11.32	1997-11-26		10.69
1997-10-29		10.78	1997-09-29		11.75
1997-03-24		11.56	1996-07-12		10.24
1995-09-29		10.00	1995-06-22		9.94
1995-01-03		10.61	1994-06-28		10.89
1993-11-22		9.93	1993-08-25		10.16
1993-07-22		10.33	1993-06-22		10.58
1993-05-24		10.71	1993-04-28		11.06
1993-03-26		10.29	1993-01-19		9.89
1992-12-28		9.63	1992-11-20		9.96
1992-10-27		9.50	1992-09-18		9.70
1992-08-24		10.04	1992-07-16		11.74
1992-06-23		9.74	1992-06-15		8.22
1985-10-01		10.36	1985-05-21		10.43
1984-12-28		11.59	1984-10-05		11.26
1984-06-27		11.69	1984-03-15		11.43
1984-01-05		11.29	1983-09-29		10.77
1983-06-29		10.29	1983-03-25		10.29
1982-12-20		10.10	1982-10-06		10.29
1982-07-01		10.38	1982-03-24		10.04
1981-12-30		8.94	1981-09-22		9.59
1981-06-24		9.84	1981-03-18		9.89
1981-02-12		9.83	1980-12-22		10.02
1980-09-23		10.89	1980-06-24		11.27
1980-06-10		11.36	1980-04-11		10.86

E18
East
1/2 - 1 Mile
Higher

FED USGS **USGS2117798**

Agency cd:	USGS	Site no:	404325073563509
Site name:	K 3260. 2		
Latitude:	404325		
Longitude:	0735635	Dec lat:	40.72371343
Dec lon:	-73.94263778	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	Not Reported		
Altitude datum:	Not Reported		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	20010716
Date inventoried:	20010716	Mean greenwich time offset:	EST

Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Unconfined single aquifer		
Aquifer:	GLACIAL AQUIFER,UPPER		
Well depth:	42.6	Hole depth:	45.0
Source of depth data:	owner		
Project number:	443600240		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	2001-08-15
Water quality data end date:	2003-08-01	Water quality data count:	2
Ground water data begin date:	2001-07-24	Ground water data end date:	2005-02-15
Ground water data count:	39		

Ground-water levels, Number of Measurements: 39

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2005-02-15		10.95	2005-01-21		11.05
2004-12-15		10.95	2004-11-23		10.98
2004-10-21		11.29	2004-09-21		11.21
2004-08-25		11.08	2004-07-19		10.93
2004-06-16		10.97	2004-05-25		11.13
2004-04-29		11.05	2004-02-25		10.87
2003-12-18		11.04	2003-11-25		10.91
2003-10-29		11.09	2003-09-24		11.24
2003-08-25		11.57	2003-07-21		12.54
2003-06-25		11.55	2003-05-19		11.08
2003-04-28		10.70	2003-01-28		10.66
2002-12-27		10.48	2002-11-26		10.28
2002-10-21		10.03	2002-09-25		9.74
2002-08-27		9.53	2002-07-22		9.75
2002-06-18		9.75	2002-05-29		9.71
2002-04-24		9.50	2002-02-27		9.70
2002-01-28		9.71	2001-12-28		9.87
2001-11-15		10.10	2001-10-24		10.26
2001-09-26		10.31	2001-08-29		10.43
2001-07-24		10.66			

19
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS2118298**

Agency cd:	USGS	Site no:	404238073571501
Site name:	K 672. 1		
Latitude:	404238		
Longitude:	0735715	Dec lat:	40.71065812
Dec lon:	-73.95374919	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1221	Map scale:	Not Reported

Altitude:	20.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	170.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

20
SSW
1/2 - 1 Mile
Higher

FED USGS **USGS2118278**

Agency cd:	USGS	Site no:	404236073574601
Site name:	K 1301. 1		
Latitude:	404235		
Longitude:	0735748	Dec lat:	40.70982478
Dec lon:	-73.96291612	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1272	Map scale:	Not Reported
Altitude:	52.5		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	GLACIAL AQUIFER,UPPER		
Well depth:	92.	Hole depth:	101.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Peak flow data count: 0
Water quality data end date: 0000-00-00
Ground water data begin date: 1961-01-19
Ground water data count: 232
Water quality data begin date: 0000-00-00
Water quality data count: 0
Ground water data end date: 2005-02-15

Ground-water levels, Number of Measurements: 232

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2005-02-15		4.47	2004-11-23		4.03
2004-10-21		3.94	2004-09-21		2.83
2004-04-29		2.83	2003-12-18		3.89
2003-11-25		4.20	2003-10-29		4.08
2003-09-24		2.80	2003-08-25		3.00
2003-07-21		3.08	2003-05-19		3.62
2003-04-28		4.17	2003-02-27		4.37
2003-01-28		4.37	2002-12-27		4.42
2002-11-26		4.42	2002-10-21		4.21
2002-09-25		4.05	2002-08-30		3.99
2002-07-22		4.04	2002-06-18		3.93
2002-05-29		3.89	2002-03-22		4.18
2002-02-27		4.20	2002-01-28		4.20
2001-12-28		4.29	2001-10-24		4.10
2001-09-26		4.16	2001-08-29		4.09
2001-07-24		4.04	2001-05-24		4.03
2001-04-25		4.11	2001-02-22		4.19
2001-01-17		4.17	2000-11-28		4.27
2000-10-24		4.33	2000-09-27		4.09
2000-07-27		4.23	2000-06-28		4.10
2000-05-23		4.12	2000-03-22		4.07
2000-02-29		4.11	1999-12-13		4.27
1999-11-23		4.29	1999-10-19		4.24
1999-09-23		4.07	1999-08-17		3.87
1999-07-20		3.94	1999-06-24		3.92
1999-05-18		4.06	1999-04-28		4.14
1999-03-02		4.14	1999-01-27		4.08
1998-11-24		4.15	1998-07-28		4.15
1998-06-10		4.25	1998-04-29		4.48
1998-03-31		4.47	1997-11-05		4.32
1997-09-29		4.03	1997-07-23		4.01
1997-06-26		4.04	1997-05-29		3.97
1997-02-28		5.36	1997-01-24		5.42
1997-01-07		4.56	1996-09-19		4.14
1996-07-02		4.17	1996-03-13		4.40
1996-01-23		4.37	1995-11-28		3.70
1995-09-26		4.10	1995-07-19		3.99
1995-05-23		3.51	1995-03-14		4.24
1995-01-25		4.29	1994-12-13		4.31
1994-10-18		4.39	1994-09-21		4.04
1994-08-24		4.15	1994-07-27		4.17
1994-06-20		4.09	1994-05-17		4.56
1994-04-26		4.56	1994-03-25		4.57
1994-02-22		4.38	1994-02-02		4.43
1993-12-27		4.33	1993-11-18		4.40
1993-10-28		4.49	1993-09-15		4.06
1993-08-18		4.07	1993-07-15		4.08
1993-06-22		4.08	1993-05-20		4.11
1993-04-29		4.59	1993-01-26		4.46
1992-12-29		4.50	1992-11-24		4.38

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1992-10-28		4.35
1992-08-25		4.06
1992-06-23		3.87
1992-04-14		4.16
1992-02-19		4.24
1991-12-18		4.35
1991-10-16		4.55
1991-08-15		4.34
1991-06-12		3.67
1991-04-15		4.39
1991-02-21		4.44
1990-12-10		2.99
1990-10-10		3.23
1990-08-14		4.61
1990-05-25		4.20
1990-04-04		4.45
1990-01-24		4.46
1989-11-21		3.87
1989-09-29		2.44
1989-07-25		4.68
1989-05-22		4.31
1989-03-29		0.54
1989-01-17		2.37
1988-11-16		4.39
1988-09-14		4.67
1988-07-22		4.21
1988-06-01		4.42
1987-03-10		2.95
1986-06-13		2.74
1985-12-03		4.38
1985-05-21		4.05
1984-10-05		2.37
1984-03-16		4.91
1983-09-29		5.09
1983-03-25		5.33
1982-10-06		4.37
1982-04-02		4.60
1981-09-23		4.72
1981-03-20		4.97
1980-09-23		4.59
1980-03-13		4.55
1979-09-17		4.09
1979-03-26		4.95
1978-10-02		6.08
1978-04-04		5.37
1977-09-23		3.77
1977-03-28		4.47
1976-09-23		4.48
1976-03-23		4.18
1975-10-07		4.60
1975-03-26		4.40
1974-09-04		3.20
1974-03-19		4.40
1973-09-24		4.09
1973-04-03		4.47
1992-09-16		4.11
1992-07-15		3.97
1992-05-12		4.17
1992-03-18		4.13
1992-01-22		4.23
1991-11-14		4.41
1991-09-17		3.63
1991-07-16		4.38
1991-05-15		3.40
1991-03-20		4.62
1991-01-24		4.68
1990-11-13		3.60
1990-09-12		4.60
1990-06-20		4.27
1990-04-24		4.38
1990-02-26		4.32
1989-12-28		4.51
1989-10-27		3.51
1989-08-31		4.74
1989-06-22		4.50
1989-04-28		4.15
1989-02-28		1.24
1988-12-09		4.46
1988-10-19		4.50
1988-08-31		1.27
1988-06-17		4.17
1987-09-10		4.30
1986-09-10		4.00
1986-03-11		3.81
1985-10-03		4.20
1984-12-18		1.82
1984-06-28		2.67
1984-01-05		5.97
1983-06-29		5.47
1982-12-21		4.68
1982-06-30		5.07
1981-12-29		2.47
1981-06-24		4.10
1980-12-30		4.67
1980-06-19		4.42
1979-12-18		5.80
1979-06-28		3.87
1978-12-22		4.57
1978-06-23		5.26
1978-01-03		5.05
1977-07-06		4.61
1976-12-22		4.27
1976-06-28		3.38
1975-12-16		4.37
1975-06-30		4.09
1974-12-19		4.69
1974-06-26		4.48
1974-01-09		4.57
1973-07-09		4.28
1972-12-27		3.58

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1972-09-29		3.84	1972-07-10		3.58
1972-03-28		4.95	1972-01-13		4.84
1971-10-12		4.67	1969-09-03		3.29
1969-04-22		2.95	1968-11-06		2.77
1968-04-22		2.77	1967-10-20		1.64
1967-03-28		2.11	1966-10-24		1.72
1966-05-03		1.49	1965-10-28		1.65
1965-09-14		1.43	1965-05-03		1.69
1964-10-30		1.65	1964-04-23		1.61
1963-04-29		1.43	1962-04-26		0.67
1961-12-28		-0.62	1961-01-19		-7.72

21
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS2118332**

Agency cd:	USGS	Site no:	404241073581001
Site name:	K 686. 1		
Latitude:	404241		
Longitude:	0735810	Dec lat:	40.71149141
Dec lon:	-73.96902741	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KD1251	Map scale:	Not Reported
Altitude:	Not Reported		
Altitude method:	Not Reported		
Altitude accuracy:	1		
Altitude datum:	Not Reported		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	146.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

22
North
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2116938**

Agency cd:	USGS	Site no:	404413073572601
Site name:	K 2227. 1		
Latitude:	404413		
Longitude:	0735726	Dec lat:	40.73704647
Dec lon:	-73.95680486	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1008	Map scale:	Not Reported
Altitude:	10.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	50.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

23
East
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2117728**

Agency cd:	USGS	Site no:	404321073562801
Site name:	K 679. 1		
Latitude:	404321		
Longitude:	0735628	Dec lat:	40.72260234
Dec lon:	-73.94069327	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	047
Country:	US	Land net:	Not Reported
Location map:	KE1175	Map scale:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Altitude:	35.0		
Altitude method:	Level or other surveying method		
Altitude accuracy:	0.1		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Northern Long Island. New York. Area = 915 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	218.
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Direction
Distance | Database | EDR ID Number

NNW
1/2 - 1 Mile | **OIL_GAS** | **NYO1000067**

Api wellno:	31061236780000		
Cnty:	New York		
Hole:	23678	Sidetrck:	0
Completion:	0		
Well nm:	GEO-1		
Coname:	Bishop of North American Region of Sukyo Mahikari		
Opno:	2296		
Dt approv:	Not Reported	Dt spud:	Not Reported
Dt comp:	Not Reported		
Well typ:	Confidential		
Dtd:	0		
Wl status:	Confidential		
Town:	Manhattan	Field:	Confidential
Prodform:	Confidential		
Xloc:	-73.96506		
Yloc:	40.7319		
Confid:	We have confidential information for 6 months.		
Wellst:	CON		
Quad:	Brooklyn	Quadsec:	A
Deepestfor:	Confidential	Elevation:	75
Dt mod:	Not Reported	Site id:	NYO1000067

South
1/2 - 1 Mile | **OIL_GAS** | **NYO1000022**

Api wellno:	31061236030000		
Cnty:	New York		
Hole:	23603	Sidetrck:	0
Completion:	0		
Well nm:	MPP - 5		
Coname:	New York City Dept. of Environmental Protection		
Opno:	2127		
Dt approv:	Not Reported	Dt spud:	Not Reported
Dt comp:	Not Reported		
Well typ:	Stratigraphic		
Dtd:	645		
Wl status:	PA		
Town:	Manhattan	Field:	Not Applicable
Prodform:	Not Applicable		
Xloc:	-73.95824		
Yloc:	40.70885		
Confid:	Released		
Wellst:	Other Well Plugged		
Quad:	Jersey City	Quadsec:	C
Deepestfor:	None Specified	Elevation:	19
Dt mod:	Not Reported	Site id:	NYO1000022

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KINGS County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KINGS COUNTY, NY

Number of sites tested: 51

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	0.750 pCi/L	100%	0%	0%
Basement	1.370 pCi/L	88%	10%	2%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

State Database: NY Radon
Source: Department of Health
Telephone: 518-402-7556
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

STREET AND ADDRESS INFORMATION

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Appendix C

Community Air-Monitoring Plan (CAMP)

Community Air-Monitoring Plan
Williamsburg Former MGP Site

In accordance with NYSDEC and NYSDOH requirements for a CAMP, a perimeter air-monitoring plan will be implemented at the site during each phase of the field activities. The objective of the perimeter air-monitoring plan is to provide a measure of protection for the downwind community (i.e., off-site receptors, including residences and businesses and on-site workers not involved with the site field activities) from potential airborne contaminant releases as a direct result of field activities. The perimeter air-monitoring plan is a stand-alone document and will be available on site. The VOC Monitoring, Response Levels, and Actions are presented as follows.

Air Monitoring Response Levels and Actions

VOCs

Response Level	Actions
>5 ppm above background for 15-minute average	▪ Temporarily halt work activities ▪ Continue monitoring ▪ If VOC levels decrease (per instantaneous readings) below 5 ppm over background, work activities can resume
Persistent levels >5 ppm over background <25 ppm	▪ Halt work activities ▪ Identify source of vapors ▪ Corrective action to abate emissions ▪ Continue monitoring ▪ Resume work activities if VOC levels 200 feet downwind of the property boundary or half the distance to the nearest potential receptor is <5 ppm for a 15-minute average ▪ If VOC levels are >25 ppm at the perimeter of the work area, activities must be shutdown

Particulates

Response Level	Actions
>100 mcg/m3 above background for 15-minute average or visual dust observed leaving the site	▪ Apply dust suppression ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving site
>150 mcg/m3 above background for 15-minute average	▪ Stop work ▪ Re-evaluate activities ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving site

Sources:
New York State Department of Health Community Air Monitoring Plan, June 20, 2000.
New York State Department of Environmental Conservation Technical and Administrative Guidance Memorandum - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 27, 1989.

During excavating and materials handling operations, the air in work areas will also be sampled periodically for the presence of contaminants. A portable PID will be utilized to periodically monitor the levels of organic vapors in the ambient air and a Mini RAM™ PM-10 (or equivalent) particle detector will be used to count inhalable particles (0.1-10 micrometer range) of dust during the fieldwork. PID and

Mini RAM readings will be taken hourly during excavation or more frequently if air quality measurements approach action levels as defined herein. Measurements will be monitored from the breathing zone (4 to 5 feet above ground level) at worker locations to determine working conditions (and whether there is a need to change levels of worker protection).

In addition to VOCs and particulates, cyanide will be monitored in the work zone. The cyanide monitoring methods will be determined prior to mobilization.

In order to make a conservative assessment of when different levels of respiratory protection are needed during the fieldwork, it will be assumed that the organic vapors detected by the air monitoring instruments consist of the most toxic volatile compounds expected to be found on the site. Preliminary evaluation of the risks expected at the site indicates that the most toxic volatiles that are probably present are VOCs (particularly Benzene, Toluene, Ethylbenzene, Xylene [BTEX]). Based on data published by the Occupational Safety and Health Administration (OSHA) and the American Conference of Government Industrial Hygienists (ACGIH), and previous experience with manufactured gas plant (MGP) wastes, the following personal protective equipment (PPE) will be employed when the given concentrations of organic vapor are detected in the breathing zone.

Compound of Concern	Level D	Level C	Level B
Chemical Name	M<X	X<M<Y	M>Y
BTEX and other photoionizable VOCs	M <5 ppm	5 ppm <M <50 ppm	M >50 ppm
Where: M = concentration of organic vapor measured in the field X,Y = concentrations at which different levels of respiratory protection are necessary.			

The PPE requirements may be modified based on compound-specific monitoring results information, with the written approval of the Corporate Health and Safety Specialist (CHSS).

Respiratory protection from dusts will be required when inhalable particulate concentrations from potentially contaminated sources exceed 150 $\mu g/m^3$.

Odors or dusts derived from site contaminants may cause nausea in some site workers, even though the contaminants are at levels well below the safety limits as defined above. Workers may use dust masks or respirators to mitigate nuisance odors with the approval of the site safety officer (SSO).

Whenever practical, work areas should be positioned upwind of organic vapor and dust sources to reduce the potential for worker exposure.

Appendix D

Field Sampling Plan (electronic only)

Field Sampling Plan

Williamsburg Works
Former Manufactured Gas Plant Site

Brooklyn, New York
AOC Index No. A2-0552-0606
Site #: 224055

Submitted to:
National Grid USA
1 MetroTech Center
Brooklyn, NY 11201

Submitted by:
GEI Consultants, Inc.
455 Winding Brook Drive
Glastonbury, CT 06033

May 2008
08090*1002

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H:\TECH\Project\KEYSPAN\Williamsburg\Draft RI WP\Appendix D - FSP\Draft Williamsburg MGP FSP.doc

Abbreviations and Acronyms

ASTM	American Society for Testing and Materials
COC	Chain Of Custody
DNAPL	Dense Non-Aqueous Phase Liquid
DO	Dissolved Oxygen
ELAP	Environmental Laboratory Approval Program
EPA	Environmental Protection Agency
FID	Flame Ionization Detector
FSP	Field Sampling Plan
GEI	GEI Consultants, Inc.
HASP	Health and Safety Plan
KeySpan	Keyspan Corporation
LEL	Lower Explosive Limit
LNAPL	Light Non-Aqueous Phase Liquid
MGP	Manufactured Gas Plant
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NAPL	Non-Aqueous Phase Liquid
NTU	Nephelometric Turbidity Units
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PDA	Personal Data Assistant
PID	Photo Ionization Detector
PM	Project Manager
PPE	Personal Protection Equipment
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RI	Remedial Investigation
SOP	Standard Operating Procedures
SVOC	Semivolatile Organic Compound
USDOT	United States Department of Transportation
VOC	Volatile Organic Compound

1. Purpose

1.1 Introduction

GEI Consultants, Inc. (GEI) has prepared this Draft Field Sampling Plan (FSP) to address the Remedial Investigation (RI) of the Williamsburg Works (Williamsburg) Manufactured Gas Plant (MGP) site located on multiple parcels located along North 12th and North 11th Streets and Kent Avenue and the East River in the Williamsburg Neighborhood in Brooklyn, New York. The FSP is a companion document to the *Draft Williamsburg Works MGP Remedial Investigation Work Plan* dated April 2008 (Work Plan) that was prepared by KeySpan Corporation (KeySpan)) [now part of National Grid]. The project location is shown on Figure 1 of the Work Plan. Proposed sample locations are summarized on Figure 2 of the Work Plan. The FSP was prepared to provide the applicable procedures for collecting, transporting, and logging analytical samples during the Williamsburg Works MGP RI.

A Draft Quality Assurance Project Plan (QAPP) dated April 2008 has been prepared under a separate cover. The QAPP details the project data objectives and quality assurance/quality control (QA/QC) measures that will be implemented during the implementation of the Work Plan.

2. General Field Procedures

2.1 Utility Clearance Procedure

Underground utilities, including electric, telephone, cable television, sewers, water, natural gas, etc., will be identified by owners/operators prior to any intrusive activity. KeySpan will provide underground utility locations on KeySpan property, if necessary. The drilling contractor will place a call to the New York City/ Long Island One Call Center (1-800-272-4480) at least two, but not more than 10 days, prior to the commencement of work activities. The New York City and Long Island One Call Center is open 24 hours a day, 7 days a week. The drilling and excavation contractors will make note of ticket reference number and names of the utility operators that will be notified by the New York City and Long Island One Call Center. Public and privately owned utilities will be located by responsible agencies at least 48 hours prior to field activities. The contractor will check that each notified operator has either marked the work site or given an "all clear" prior to commencing work. Other potential on-site hazards such as sharp objects, known subsurface structures, overhead power lines, and building hazards will be identified during the site reconnaissance visit.

If intrusive activity occurs on private property, then a private mark out company will be contracted to identify any subsurface utilities or obstructions prior to sample collection. As a precaution, the first 5 feet or 1 foot below the nearest identified utility of the boring location will be cleared utilizing hand tools, vacuum excavation, or non-intrusive methods.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.
2. New York City One Call Center & Long Island internet web page online http://www.nycli1calldsi.com accessed on March 5, 2007.

2.2 Field Notebook Procedure

Objective

The field notebook is intended to serve as a record of significant field activities performed or observed during the project. The field notebook will serve as a factual basis for preparing field observation reports, if required, and reports to clients and regulatory agencies.

Procedure

1. Use a separate all-weather bound notebook for each site/location/project number.
2. Write neatly using black or blue waterproof pen (or note if field conditions [i.e., cold or wet weather] require use of pencil).
3. Write the project name, project number, and book number (i.e., 1 of 3) on the front cover. On the inside cover, identify the project name, project number, and "Return Book To:" the office address of the Project Manager (PM).
4. Number all of the pages of the field book starting with the first entry.
5. Record activities as they occur.
6. Neatly cross out mistakes using a single line and initial them. Erasures are not permitted. If an error is made on an accountable document assigned to one individual, that individual will make all corrections. The person who made the entry will correct any subsequent error discovered on an accountable document. All subsequent corrections will be initialed and dated.
7. Sign or initial and date the bottom of every page with an entry. Cross out unused portions of a page.
8. Record the following information upon each arrival at the site:
    a. Date/time/weather/project number
    b. Consultant personnel
    c. Purpose of visit/daily objectives
9. Record conversations with: [Recommendation - If possible, record telephone numbers of individual contacts for the site in the field notebook.]
    a. Contractors
    b. Clients
    c. Visitors (include complete names, titles, and affiliations whenever possible).
    d. Consultant office staff
    e. Landowners (site or abutters)
    f. Note time of arrival and departure of individuals visiting the site.
10. Examples of the field information to be recorded include time of occurrences.
    a. General site work activities
    b. Subcontractor progress
    c. Type and quantity of monitoring well construction materials used
    d. Use of field data sheets or electronic logging equipment (i.e., boring logs, monitoring well sampling logs, etc.)
    e. Ambient air monitoring data
    f. Locations and descriptions of sampling points
    g. Sample media (soil, sediment, groundwater, etc.)
    h. Sample collection method
    i. Number and volume of sample(s) collected and sample bottle preservatives used

j. Sample identification number (s) and date and time of sample collection
k. Approximate volume of groundwater removed before sampling
l. Field observations
m. Any field observations made such as pH, temperature, turbidity, conductivity, water level, etc.
n. References for all maps and photographs of the sampling site(s)
o. Information pertaining to sample documentation such as: bottle lot numbers/ dates and method of sample shipments/chain-of custody record numbers and overnight shipping air bill numbers.
p. Surveying data (including sketches with north arrows)
q. Changes in weather
r. Rationale for critical field decisions
s. Recommendations made to the client representative and PM.

11. Record the following information upon departure.
    a. Include a site sketch or representative site photograph of conditions at the end of the day, if required.
    b. Time
    c. Summarize work completed/work remaining
    d. Place a diagonal line though and sign portions of pages not used or skipped.

Precautions

- Only record facts.
- Do not fail to record an observation because it does not appear to be relevant at that time.
- Identify conditions or events that could affect/impede your ability to observe conditions.
- Do not use spiral notebooks because pages can be easily removed.

References

1. *ASFE Model Daily Field Report* (1991), ASFE, Inc.
2. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

2.3 Daily Activity Report Procedure

Objective

A daily activity report will be generated daily from the field database or field notebook to summarize the activities, observations, and decisions made during the day's fieldwork.

Procedure

At the completion of the day's fieldwork, all pertinent field observations will be recorded in the site database, computer electronic form or on a hard copy paper form. If the electronic database is used, the database will generate the daily activity report that includes all samples collected and submitted to the laboratory for analysis. A daily activity report form is located in Appendix A. This report must be completed at the end of the workday. The daily activity report will be forwarded to the PM and site manager once completed. Field reports will be maintained at the site electronically and/or in hard copy form.

Contents of the report should include, at a minimum, the following information:

1. Date, project name, project number/phase/task, and site location.
2. A record of person(s) present at the site during the workday.
3. A brief description of the daily activities performed (e.g., drilled five borings in the overburden).
4. A summary of any significant field observations to include:
    a. A summary of deviation(s) from the work plan or objectives.
    b. A summary of field decision(s) made, who made it/them, and the basis for such decision(s).
    c. Any recommendations that may result from field observations and any actions that resulted from those recommendations.
5. A summary of specific fieldwork completed (e.g. WWSB-01, drilled depth 20 feet).
6. A summary of samples submitted for laboratory analysis.

Precautions

- The daily activity report should be based solely upon factual information. Any speculation should be clearly noted in the report as such.
- The daily activity report should never be released to anyone other than the PM or client unless explicitly authorized by the PM or client.

2.4 Field Boring Data Logging

Objective

To prepare and record a succinct, accurate representation of subsurface conditions, drilling and soil sampling activities, monitoring well installation details, and borehole abandonment procedures. A completed boring log should contain sufficient information to facilitate the preparation of geologic cross sections, to identify possible contaminant sources or pathways observed, and to offer readers a thorough account of drilling and borehole abandonment procedures.

Procedures

1. All borings will be recorded in a field notebook and/or electronically on a personal data assistant (PDA) utilizing a soil logging program. Prior to beginning drilling activities, generic project header information, project staff, subcontractors, and anticipated geologic formations should be entered into the pLog™ database and downloaded to the PDA. If a field notebook is used, then logging will be completed in accordance with procedures described above in subsection 2.2.
2. Complete the log concurrently with drilling procedures (i.e., do not let the driller work faster than your ability to accurately represent the subsurface conditions).
3. If applicable, record the conventional geotechnical parameters during Standard Penetration Testing as per American Society for Testing and Materials (ASTM)-D1586, including blow counts of the hammer per 6-inch increment, total penetration of the split-spoon sampler, and length of the entire sample recovered. Record the weight of the hammer, size of the split-spoon sampler, and distance of the hammer fall.
4. Record the depth at which casing, augers, or drilling equipment are seated and the sizes of the equipment. Be certain to include sizes and seating depths of telescoped casing (if used).
5. Record the time at which each sample is retrieved from the borehole.
6. Record the results of any headspace tests performed on samples collected from discrete depths and also the type of field equipment used.
7. Provide soil descriptions in accordance with soil description procedures located below in Section 5.
8. Use the field book to record any relevant drilling observations that cannot be recorded on the PDA such as advance rate, water levels, drilling difficulties, changes in drilling method or equipment, amounts and types of any drilling fluids, running sands, and borehole stability.
9. Record the procedures and material used to abandon or seal each borehole upon completion.
10. At the completion of the day's activities, download the PDA to the database and

generate, review, and edit (if necessary) the completed boring log. If a field notebook is used, make photocopies of the field notebook at the end of each day.

Precautions

- Electronic files should be backed up daily to prevent loss of data. A hardcopy of the boring logs for work performed each day should be generated as a backup. Hardcopy documents should be backed up also.
- Keep boring logs and rock core logs focused on actual observations. Record only factual information on the logs.

3. Surface Soil Sample Collection Procedure

The following surface soil sample collection procedure is applicable to the collection of representative surface soil. Alternative methods may be used at the field representative's discretion with the authorization of KeySpan and New York State Department of Environmental Conservation (NYSDEC).

Procedure

1. Surface soil samples will be collected at the locations indicated in the Site Work Plan. Sample management is detailed in the QAPP.

2. Samples will be collected using decontaminated stainless steel equipment.

3. If the selected sampling location is in a vegetated area, the vegetation will be removed over a one square foot area prior to sample collection. The sample will be collected from within the top two (2) inches of the exposed ground surface.

4. Samples will be collected by digging into the soil with a pre-cleaned stainless steel trowel.

5. All samples selected for laboratory analysis will be placed in the appropriate containers provided by the laboratory. Sample containers for volatile organic analysis will be filled first. Next, a sufficient amount of the remaining soil will be homogenized by mixing the sample in a decontaminated stainless steel bowl with a decontaminated steel trowel or disposable scoop. This composite sample will be analyzed for all remaining parameters identified in the Site Work Plan.

6. All samples collected for analysis will be placed immediately into laboratory sample jars and properly stored in a cooler with ice to 4^{o}C before transport to the laboratory.

7. Duplicate samples will be collected at the frequency detailed in the QAPP by alternately filling two sets of sample containers. Composite samples may be required to obtain a sufficient soil volume.

8. Procedures for geologic logging, sample collection, and field classification are presented in Section 5. In addition, the surface soil sample will be described including:

    - Site;

- Location number;
- Interval sampled;
- Date;
- Initials of sampling personnel;
- Soil type;
- Color;
- Moisture content;
- Texture;
- Grain size and shape;
- Relative density;
- Consistency;
- Visible evidence of residues; and
- Miscellaneous observations (including organic vapor readings).

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

4. Subsurface Soil Sample Collection Procedure

The following subsurface soil sample collection procedure is applicable to the collection of representative subsurface soil using direct push Geoprobe® drilling methods. Conventional hollow-stem auger or resonant sonic drilling technologies may also be used if drilling conditions warrant. Alternative methods may be used at the field representative's discretion with the authorization of KeySpan and NYSDEC.

4.1 Sampling Methods

Location, equipment, and sampling situations will dictate the applicable method of sample collection for each boring location. Borings will generally be accomplished through the use of one of the following samplers or techniques:

- Geoprobe® Drilling Techniques
- Conventional Hollow-Stem Auger Drilling Methods
- Resonant Sonic Drilling Methods

These samplers and sampling techniques will result in the collection of representative samples.

4.2 Sample Interferences

Proper sampling procedures will be used to collect samples in accordance with the standard operating procedures (SOP) to prevent cross contamination and improper sample collection. Common causes of sample interferences are listed below to ensure that the samplers can avoid potential sample collection problems.

1. Cross Contamination: Eliminated or minimized through the use of dedicated or disposable sampling equipment where appropriate. Where the use of dedicated or disposable sampling equipment is not possible or practical, the equipment will be decontaminated in accordance with the SOP for Decontamination of Field Sampling Equipment is located in Section 11.

2. Improper Sample Collection: Typical improper sample collection techniques include:

    - Improper decontamination of sampling equipment
    - Use of sampling equipment or sample containers that are not compatible with the contaminants of concern or the laboratory analytical method.
    - Sample collection in an obviously disturbed or non-representative area.

4.3 Equipment/Apparatus

Equipment needed for collection of subsurface soil samples may include (depending on technique chosen):

- Geoprobe® Sampling Apparatus
- Rotary Hollow-Stem Auger Sampling Apparatus
- Rotosonic Sampling Apparatus
- Stainless Steel Sampling Tools
- Laboratory Provided Sample bottles
- Resealable plastic bags
- Ice
- Coolers, packing material
- Chain of Custody (COC) records, custody seals
- Decontamination equipment/supplies
- Maps/plot plan
- Safety equipment
- Tape measure
- Digital Camera
- Field data sheets/Logbook/waterproof pen
- Permanent markers
- Sample bottle labels
- Paper towels
- Personal protection equipment (PPE)

4.4 Subsurface Soil Sample Procedure

Subsurface sampling will be conducted in accordance with the following general procedures and specific guidance for the methods discussed below.

4.4.1 General Procedures

Prior to sampling, New York City and Long Island One Call will be contacted and an accurate utility mark out will be established as described in subsection 2.1. If drilling on private property, then a private mark out company may be contracted to identify any subsurface utilities or obstructions prior to sample collection.

At each location, plastic sheet, plywood sheet, or other suitable cover will be placed around the augers during conventional hollow stem auger drilling rig to contain soil cuttings.

Procedures for geologic logging, sample collection, and field classification are presented in Section 5.

If a boring exhibits the presence of non-aqueous phase liquid (NAPL), drilling will proceed until signs of the free and residual product are no longer visible in accordance with the work plan and the limitations of the drilling equipment. Any deep drilling through nearby impacted zones will ensure that there is no vertical communication caused by the drilling. Specifically, the upper impacted units may be cased and grouted into a lower, more confining unit, if encountered.

All the borings will be backfilled using a tremie pipe from the bottom to the top of the bore hole with cement/bentonite grout in accordance with NYSDEC guidelines for standard grout mixtures:

- One 94-pound bag Type I Portland cement
- 3.9 pounds powdered bentonite
- 7.8 gallons potable water

The boring will be grouted to the surface and allowed to cure overnight. If excessive settling is observed in the borehole due to seepage of the grout into the formation, then additional grout may be applied. The surface conditions including any asphalt/concrete surface will then be restored to its original condition.

Investigation derived wastes will be handled as specified in investigation-derived waste handling procedure located in Section 13.

4.4.2 Direct Push Geoprobe® Procedures

For direct push Geoprobe® methods, discrete soil samples will be collected from each boring using a 4-foot or 5-foot close piston Macro-Core® sampler configuration. Macro-Core® will be advanced to the beginning of the intended sample interval, the piston will be released, and the Marco-Cores® will be driven to the end the intended sample interval. This method will ensure that sampling of "slough" does not occur. The Macro-Core® will then be retrieved and the collected soil core will be extruded from the sampler along with the liner. After decontamination, the Macro-Core® sampler will be re-assembled using a new liner. The Macro-Core®, rods and other sample collection equipment will be decontaminated as indicated below in subsection 11.2.2.

4.4.3 Rotary Hollow Stem Auger Procedures

For rotary hollow-stem auger methods, split-spoon sampling will be conducted in accordance with ASTM Specification D-1586-84 for standard penetration test and split barrel sampling. Soil samples will be collected continuously through split-spoon sampling methods at the boring location. Split spoon samples will be collected ahead of the lead auger flight.

Upon collection of each split spoon sample, the lead auger will be advanced over the sampled interval prior to collection of the next split spoon sample. This method will ensure that "double-spooning" ahead of the augers does not occur. In addition, while the augers are being advanced a temporary auger plug will be placed at the bottom of the lead auger to minimize or eliminate the potential for formation materials to run up into the augers. The use of an auger plug will help assure that split spoon samples are representative of in-situ formation materials. Split-spoons will be decontaminated after each sample is collected as indicated below in subsection 11.2.2.

4.4.4 Rotosonic Procedures

For rotosonic methods, soil samples will be collected utilizing a stainless steel core barrel that is advanced utilizing resonant sonic energy. A larger diameter casing is then advanced over the core barrel. The core barrel is retrieved to the surface for sample extrusion. Core samples will be taken directly from the core barrel by extruding it into a plastic baggie-like sleeve, stainless steel tray, or retained in a clear plastic liner. The core barrel will be cleaned with tap water following each use. The field geologist will classify and sample the soil located within the liner. Upon completion, the excess soil will be placed into a 55-gallon drum for disposal and the inner liner properly disposed as indicated in Section 13. The core barrel will then be advanced within the isolation casing on the same borehole to collect the next soil core interval. The core barrel, casing, and other sample collection equipment will be decontaminated as indicated below in subsection 11.2.2.

References

1. New York State Department of Environmental Conservation, Division of Environmental Remediation, 2003. *Groundwater Monitoring Well Decommissioning Procedures*. NYSDEC, April, 2003.

2. ASTM, 1997. *D1586-84 (1992) Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.* ASTM, West Conshohocken, PA. 1997.

4.5 Shelby Tube Sampling

Shelby tube samples will be collected in accordance with the latest revision of ASTM D/587. When the desired sampling depth is reached, the hollow-stem auger or casing will be cleaned out using whatever method is preferred so as not to disturb the material to be sampled. The Shelby tube will be lowered to the bottom of the borehole, then advanced (pushed) via pressure without rotation by a continuous relatively rapid motion until 24 inches of penetration is achieved. At the discretion of the field geologist, a period of approximately 10 minutes, measured from the time of insertion, will be allowed to provide for sample adhesion

to the tube walls. Prior to removal, the tube may be rotated two complete revolutions to shear the bottom of the sample from the native material.

Upon removal, the field geologist will log the tops and bottoms of the sample for soil classification. Samples recovered via Shelby tube will be preserved in conformance with the latest revision of ASTM D 4220. To preserve the natural moisture content of the samples, the tube ends will be sealed with a minimum of 0.50 inch of paraffin wax. Plastic slip caps will be applied at the ends of the sample tube, taped, then dipped and sealed in wax.

5. Soil/Sediment Description Procedure

The following soil description procedure is applicable for use in describing surface and subsurface soils. This procedure may be varied or changed as required, dependent upon site conditions and equipment limitations. Any deviation from this standard will be documented in the field sampling book and in the final report.

5.1 Description Method

All soils will be described using the Unified Soil Classification System/ASTM D2488. The use of one standard will allow continuity of sampling descriptions between sample locations and personnel.

5.2 Sample Interferences

Proper handling of cores while recording descriptions will be used to ensure that handling does not effect sample collection or cause cross contamination within the core sample.

Cross Contamination: Eliminated or minimized with dedicated or disposable sampling equipment where appropriate. Where the use of dedicated or disposable sampling equipment is not possible or practical, the equipment will be decontaminated in accordance with the procedure for the decontamination of field sampling equipment located below in Section 11.

5.3 Equipment/Apparatus

Equipment needed for description of soil samples may include:

- Stainless steel sampling tools
- Decontamination equipment/supplies
- Safety equipment
- Tape measure
- Camera
- Field data sheets/field notebook/waterproof pen
- Permanent marker
- PPE

5.4 Soil Sample Description Procedure

The sampling procedure is as follows:

All soils are to be logged using ASTM D2488 *Standard Practice for Description and Identification of Soils*. The description of each sample interval should be prepared as follows:

1. The specific intervals for description should be noted for each sample. The description should not necessarily be for the entire subsurface soil interval. Geologic horizons, small-scale units, or other changes in soil conditions within the subsurface soil sample should be identified and described separately.
2. Soil description should include particular notes if the field representative believes that there is a possibility the soil sample being described is not representative of the interval sampled.
3. The following data will be recorded on the sample collection method, if applicable:
    a. Method of collection, hollow stem auger, rotosonic, Geoprobe®, etc.
    b. Interval sampled vs. amount recovered.
    c. Blow counts, weight of hammer, and hammer free fall distance for split spoon samplers, if used.
4. For course grained soils with less than 50% fines:
    a. GROUP NAME (SYMBOL), Structure, % Gravel Sand and Fines in order of predominance, % Cobbles and/or boulders (by Volume), Maximum Particle Size, Other (moisture, depositional descriptions, representativeness), Color, Local or Geologic Name, environmental/geologic descriptions.
5. For fine grained soils with greater than or equal to 50% fines:
    a. GROUP NAME (SYMBOL), Structure, Plasticity, Plasticity characteristics (if performed), % Gravel Sand, and size ranges, Other (moisture, depositional descriptions, representative nature), Color, Local, or Geologic Name, Field Soil Strength measurements (if performed), environmental/geologic descriptions.
6. Specific descriptions of each of the above description categories are described in Appendix B or below.
7. Soil moisture will be described as Dry, Moist, or Wet.
8. Soil color will be described using the color chart in Appendix B. Colors may be combined: e.g., red-brown. Color terms should be used to describe the “natural color” of the sample as opposed to staining caused by contamination.
9. The representative nature of the sample interval should be noted if there is a possibility the soil sample being described is not representative of the interval sampled.

10. Visual evidence of contamination should be described in the sample log with the specific depths or depth intervals where the contamination was noted. Descriptions of visual, olfactory, and product observed should conform to the following standards.
    a. **Sheen** - iridescent petroleum-like sheen. Not to be used to describe a "bacterial sheen" which can be distinguished by its tendency to break up on the water surface at angles, whereas petroleum sheen will be continuous and will not break up. A field test for sheen is to put a soil sample in a jar of water and shake the sample (jar shake test), then observe the presence/absence of sheen on the surface of the water in the jar.
    b. **Stained** - used w/color (i.e., black or brown stained) to indicate that the soil matrix is stained a color other than the natural (non-impacted) color of the soil.
    c. **Coated** - soil grains are coated with tar/free product – there is not sufficient free-phase material present to saturate the pore spaces.
    d. **Blebs** - observed discrete sphericals of tar/free product - but for the most part the soil matrix was not visibly contaminated or saturated. Typically, this is residual product.
    e. **Saturated** - the entirety of the pore space for a sample is saturated with the tar/free product. Care should be taken to ensure that you are not observing water saturating the pore spaces if you use this term. Depending on viscosity, tar/free-phase saturated materials may freely drain from a soil sample.
    f. **Oil**. Used to characterize free and/or residual product that exhibits a distinct fuel oil or diesel fuel like odor; distinctly different from MGP-related odors/impacts.
    g. **Tar**. Used to describe free and/or residual product that exhibits a distinct "coal tar" type odor (e.g., naphthalene-like odor). Colors of product can be brown, black, reddish-brown, or gold.
    h. **Solid Tar**. Used to describe product that is solid or semi-solid phase. The magnitude of the observed solid tar should be described (e.g. discrete granules or a solid layer).
    i. **Purifier Material**. Purifier material is commonly brown/rust or blue/green wood chips or granular material. It is typically associated with a distinctive sulfur-like odor. Other colors may be present.
    j. **Olfactory Descriptors.** Use terms such as " tar-like odor" or "naphthalene-like odor" or "fuel oil-like odor" that provide a qualitative description (opinion) as to the possible source of the odor. Use modifiers such as strong, moderate, faint to indicate intensity of the observed odor.
    k. **Dense Non-Aqueous Phase Liquid (DNAPL)/Light Non-Aqueous Phase Liquid (LNAPL).** A jar shake test should be performed to identify and determine whether observed tar/free-phase product is either denser or lighter than water. In addition, MGP residues can include both light and dense

phases - this test can help determine if both light and dense phase materials are present at a particular location.

l. **Viscosity of Free-Phase Product** – If free-phase product/tar is present, a qualitative description of viscosity should be made. Descriptors such as:

Highly viscous (e.g. taffy-like)
Viscous (e.g. No. 6 fuel oil or bunker crude like)
Low viscosity (e.g. No. 2 fuel oil like)

11. A photo ionization detector or flame ionization detector (PID/FID) will be used to screen all soil samples at the core location at 6 to 12-inch intervals. This screening data may be used to aid in selection of specific analytical sampling intervals. In addition, the PID or FID will be used to screen samples using the jar headspace method described below in subsection 5.5. The maximum readings from the jar headspace screening will be recorded and included on the logs. PID or FID will be calibrated daily at a minimum.

5.5 Soil Screening Procedure

The objective of field screening of soils is to measure the relative concentrations of volatile organic compounds (VOCs) present in soil at the project site. This information can be used to: 1) segregate soil based upon the degree of impacts, 2) to identify samples for laboratory analysis of VOCs, and 3) as a qualitative method to evaluate the presence or absence of VOCs in soils. A PID or FID may be used.

Procedure

1. Prior to sampling event, the instrument must be calibrated to the appropriate standard and have the appropriate detector for the contaminants expected to be encountered at the site. The type of standard and detector to be used is indicated in the Draft QAPP.
2. Record background readings of atmospheric conditions in the work area while walking across the work area. The highest meter response should be recorded in the field notebook.
3. Fill a clean, glass jar approximately half way with soil. Use a clean stainless steel sampling implement. Quickly cover the top of the jar with a sheet of aluminum foil and affix the lid to the jar. Each jar should be labeled to indicate the sample location and depth from which the sample was collected.
4. Allow the soil to volatilize for at least 10 minutes. Shake vigorously at the beginning and at the end of the headspace development period. If ambient temperatures are below 50 °F, headspace development should occur, if possible, with a heated area.

5. After headspace development, gently remove the screw cap and expose the foil seal. Quickly puncture the foil seal with the instruments tip to approximately ½ of the headspace depth.
6. Following the probe insertion through the foil seal, record the highest meter response as the jar headspace concentration. Maximum response should occur within 3 to 5 seconds after probe insertion.

Precautions

- Follow safety procedures defined within the Williamsburg Works MGP Site Health and Safety Plan (HASP).
- The various instruments may work poorly in rain, high humidity, or in cold temperatures. In these instances, headspace readings will be completed in dry or warm areas.
- Care must be taken to prevent water or soil particulates from entering the tip of the instrument. If this occurs, the probe tip should be cleaned before further use.
- While establishing background conditions and performing jar headspace screening, care should be taken to avoid extraneous VOC sources such as vehicle emissions or other organic vapor sources.

5.6 Air Monitoring Procedure

Air monitoring will be conducted as specified in the Work Plan and the HASP dated April 2008 that is provided as part of the RI Work Plan. Air monitoring will be conducted utilizing a PID during all intrusive subsurface soil sampling activities. A multiple gas meter will be used to monitor will be used to monitor for total VOCs, hydrogen cyanide, hydrogen sulfide, lower explosive limit (LEL) and percent oxygen during intrusive subsurface soil sampling activities. During subsurface soil sampling, particulate monitoring will be conducted with a personal mini-ram digital particulate meter up wind and downwind of the work zone. All monitoring equipment will be calibrated at the beginning of the day and more frequently, if needed, with manufacturer specified calibration gas.

5.7 Quality Assurance/Quality Control

There are no specific QA activities that apply to the implementation of these procedures. However, the following general QA procedures apply:

- All data must be documented on field data sheets or within site logbooks.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented.

5.8 Sample Labeling Procedure

All samples collected will be labeled in accordance with the table listed below.

PRIMARY SAMPLES TYPES	QA/QC SAMPLE TYPES
SOIL SAMPLES	**FIELD BLANKS**
Surface Soil-ID (SAMPLE DEPTH-FEET)	SAMPLE-ID – [DATE]
WW-SS-01 (0-0.2)	WW-SS-FB-033108
Test Pit-ID (SAMPLE DEPTH-FEET)	WW-SB-FB-033108
WW-TP-01 (5-6)	WW-MW-FB-033108
Boring -ID (SAMPLE DEPTH-FEET)	**MATRIX SPIKE/DUP**
WW-SB-01 (10-15)	SAMPLE [ID] [DEPTH] [EITHER Matrix Spike (MS) OR Matrix Spike Duplicate (MSD)]
GROUNDWATER SAMPLES	WW-SS-01 (10-15) MS/MSD
Monitoring Well-ID	WW-SB-01 (10-15) MS/MSD
WW-MW-01	WW-MW-01 (10-15) MS/MSD
SOIL VAPOR SAMPLES	**TRIP BLANKS**
Soil Vapor-ID	SAMPLE- ID [DATE]
WW-SV-01	WW-TB-063008
	BLIND DUPLICATES
	SAMPLE -ID[XX][DATE]
	WW-SS-XX-063008
	WW-SB-XX-063008
	WW-MW-XX-063008

In addition to the information listed above, each sample will be labeled with the date and time the sample was collected, laboratory analysis requested, initials of the sampler(s), and the project number. Sample handling procedures are located in the QAPP.

References

1. ASTM *D 2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).* ASTM International, West Conshohocken, PA.

2. ASTM *D 2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).* ASTM International, West Conshohocken, PA.

6. Test Pit Excavation

The following test pit soil sample collection procedure is applicable to the collection of representative subsurface soil using a backhoe. Alternative methods may be used at the field representative's discretion with the authorization of KeySpan and NYSDEC.

6.1 Test Pit Specifications

Test Pits will be installed according to the following specifications:

1. When specified in the Site Work Plan, test pits will be excavated using a rubber-tired backhoe. In the event deep excavations are required, a track hoe will be utilized.
2. Locations of test pits will be finalized in the field, based on the location of potential source areas and existing underground utilities.
3. If the prospective test pit location is covered by asphalt or concrete, the area will be saw cut prior to excavation.
4. During excavation activities, personnel will stand upwind of the excavation area to the extent possible. Air monitoring will be conducted in accordance with the HASP.
5. Test pit materials will be visually described, as well as photographed for future reference.
6. Material removed from the test pit will be placed on polyethylene sheeting.
7. Should sampling of excavated material be performed, samples will be collected from the stockpiled material and/or the backhoe bucket.
8. Upon completion, the materials from the test pit will be placed back in the excavation in the reverse order in which it was excavated.
9. Visually clean soils, such as surface soils, will be segregated from soils that may be impacted. The visually clean soils will be used to cover the impacted soils/source materials when placed back in the excavation.
10. Test pits will be backfilled as soon as possible after completion. No test pit excavation will remain open overnight.
11. For gravel roadways and parking areas, the backfill will be tamped down in 18-inch lifts. A six (6) inch layer of clean run of crushed gravel will be tamped in-place as the final lift. For test pits located in asphalt-covered areas, the surface will be replaced with cold or hot asphalt mix, compacted by rolling, and trimmed flush with the adjoining surface. Test pits located in grassed areas will be reseeded.
12. Following restoration of the excavation, the test pit will be staked to facilitate subsequent location by surveying crews, if necessary.

13. If during test pit activities a pipe or other buried utility is encountered, excavation will cease, the orientation and dimensions will be recorded, the test pit backfilled and a new test pit attempted in the general vicinity of the initial location. If a pipe or underground utility is accidentally severed, the owner of the utility, then KeySpan, will immediately be notified. Liquid flows or electricity will be shut off immediately and appropriate repairs initiated as soon as possible. If a release of liquid occurs, the Consultant/Contractor PM will notify KeySpan who will then notify NYSDEC. Appropriate response actions will be implemented.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

7. Monitoring Well Installation and Development

Monitoring wells will be installed at the completion of the soil boring installation, all permanent wells will be developed prior to the collection of groundwater samples. The following procedures will be used to install and develop all permanent monitoring wells.

7.1 Monitoring Well Specifications

Monitoring wells installed in unconsolidated deposits that do not penetrate a presumed confining layer will be constructed according to the following specifications:

1. Install polyvinyl chloride (PVC) 1.5-inch or 2-inch diameter, threaded, flush-joint casing, 1.5-inch or 2-inch diameter inner diameter screens.
2. Wells will be screened in the unconsolidated deposits. Screens will be 10 feet in length, and slot openings will be 0.010 inch. Alternatives may be used at the discretion of the field geologist, based on site-specific geologic conditions.
3. If appropriate, a sump, at least 2 feet in length, may be attached to the bottom of the screen to collect DNAPLs.
4. Where appropriate, the annulus around the screens will be backfilled with clean silica sand (based on Site-specific geologic conditions and screen slot size) to a minimum height of 1 to 2 feet above the top of the screen.
5. Where appropriate a bentonite pellet seal or bentonite slurry will be placed above the sand pack. If a pellet seal is used, it will be allowed to hydrate for at least 30 minutes before placement of grout above the seal. Where possible, the bentonite pellet seal will be a minimum of 24-inches in depth, except in those instances where the top of the well screen is in close proximity to the ground surface. In these instances, the well will be completed in accordance with specifications provided by the field geologist who will incorporate an adequate surface seal into the well design.
6. The remainder of the annular space will be filled with a cement grout up to the ground surface. The grout will be pumped from the bottom up. The grout will be mixed in the following relative proportions: One 94-pound bag Type I Portland cement, 3.9 pounds powdered bentonite, and 7.8 gallons potable water. The grout will be allowed to set for a minimum of 48 hours before wells are developed.
7. The top of the casing will be finished using flush-mount casings with keyed-alike locks.
8. A concrete surface pad will be sloped to channel water away from the well casing.
9. A weep hole will be drilled at the base of the protective standpipe casing to allow any water between the inner and outer casing to drain.
10. The top of the PVC well casing will be marked and surveyed to 0.01 foot, and elevations will be determined relative to a fixed benchmark or datum. The

measuring point on all wells will be on the innermost PVC casing.

11. Characteristics of each newly installed well will be recorded in the field notebook. A monitoring well checklist is shown on Figure 1 and a generic overburden well monitoring diagram is shown on Figure 2 attached within Appendix C.

Monitoring wells that penetrate a confining layer will be installed via double/ isolation casing.

A typical double-cased monitoring well construction diagram for wells installed in unconsolidated soils that penetrate a presumed confining layer is located in Appendix C. The decision to install double-cased wells will be made on a boring-specific basis by the field geologist. Double-cased wells will be installed when the boring for the monitoring well penetrates a presumed confining layer. The confining layer shall be defined as a minimum five (5) foot thick, predominantly clay unit that has been shown to be laterally continuous across the Site. In the event the field geologist, KeySpan, and NYSDEC PMs decide a reasonable possibility exists for contamination to be deposited in deeper, clean zones during the drilling and installation of a monitoring well, the well will be double-cased. The purpose of the steel protective casing will be to minimize the possibility that residual contamination is deposited at the depth of the screened interval during the drilling process.

Monitoring wells that penetrate confining layers will be installed according to the following specifications:

- 6-inch inner diameter (ID) steel outer casings will be installed to a depth of at least 2 feet below the lower limit of observed or measured contamination and/or the confining layer. This casing will be grouted in place with cement or sealed by alternate methods approved by the NYSDEC to inhibit downward migration of contamination.
- The 6-inch casing will be installed through 6.25-inch ID hollow-stem augers. The augers will be filled with grout prior to their removal to ensure the integrity of the borehole and the grout seal. Then, the 6-inch casing will be installed into the grout and hydraulically pushed approximately 1-foot beyond the bottom of the boring. Potable water will be tremied to the bottom of the inside of the casing to dilute the grout, thereby allowing the grout to be more easily pumped out of the casing. The grout pumped out of the casing will be drummed and staged with other investigation-derived waste (IDW). Alternate isolation methods may be used as approved by the NYSDEC.
- The cement-bentonite grout remaining in the annulus between the casing and the formation will be allowed to set for at least 24 hours before drilling is continued. The drilling will then continue using a 4-inch diameter flush-joint spin casing or other

appropriately sized drill casing and potable water. All lubricant water will be containerized.

The well will be constructed of 2-inch diameter PVC or stainless steel riser pipe and screen, sand pack, bentonite seal, grout, and surface casing as specified for single cased monitoring wells and in accordance with NYSDEC requirements. The bentonite seal may consist of pellets or a mixture of bentonite slurry and sealed with grout. The grout will be mixed in the following relative proportions: One 94-pound bag Type I Portland cement, 3.9 pounds powdered bentonite, and 7.8 gallons potable water. The grout will be allowed to set for a minimum of 48 hours before wells are developed.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

7.2 Monitoring Well Development

After a minimum of 48 hours after completion of permanent monitoring wells, one or a combination of the following techniques will be used in the monitoring well development:

1. Surging;
2. Bailing;
3. Using a centrifugal pump and dedicated polyethylene tubing; and/or
4. Positive displacement pumps and dedicated polyethylene tubing.

Development water will initially be monitored for organic vapors with a PID. In addition, the development water will be observed for the presence of non-aqueous phase liquids NAPLs or sheens. The development water will be contained in a tank and/or 55-gallon steel drums on-site. The purge water will be disposed of in accordance with NYSDEC requirements. The wells will be developed until the water in the well is reasonably free of visible sediment (<50 nephelometric turbidity units (NTU) if possible). Well development will not exceed 10 well volumes. Following development, wells will be allowed to recover for at least two weeks before groundwater is purged and sampled. All monitoring well development will be overseen by a field representative and recorded in the field logbook.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

7.3 In-Situ Hydraulic Conductivity Testing

In-situ hydraulic conductivity testing may be performed on selected monitoring wells as indicated in the Site Work Plan to obtain estimates of groundwater velocities and potential groundwater recovery rates for the aquifer. The objective of the hydrogeologic testing is to determine the hydraulic properties of the aquifer in the vicinity of the Site.

Slug tests may be conducted in selected monitoring wells utilizing the rising or falling head slug test technique. Rising head tests can be performed in unconfined and confined aquifers. Falling head tests should only be performed in confined aquifers. The slug tests will be performed by subjecting water-bearing units in the screened interval to a stress caused by the sudden displacement of the water level within the well. The rising head tests will be conducted as follows:

1. Slugs and other downhole equipment will be decontaminated before and after each test by methods described in Section 10.
2. Prior to conducting each slug test, the static water level in the well will be measured to the nearest 0.01 foot. Water levels will be measured during the test with an electronic water level indicator and with pressure transducers attached to a data logger, thereby providing water level measurements by two independent devices.
3. A weighted slug of known volume will be inserted gently into the well below the water table. The water level will be measured until the water level returns to static conditions.
4. The slug will be suddenly withdrawn from the well and the water level recovery will be monitored at appropriate intervals until recovery is complete and stabilized.
5. Wells that were bailed dry during development may not be able to provide meaningful data through slug tests. Tests will be terminated in wells that do not recover significantly (>80% of static level) within one hour. These wells will be bailed dry and their recovery measured with an electronic water level indicator.

The falling head tests will be conducted as follows:

1. Slugs and other downhole equipment will be decontaminated before and after each test by methods described in Section 10.
2. Prior to conducting each slug test, the static water level in the well will be measured to the nearest 0.01 foot. Water levels will be measured during the test with an electronic water level indicator and with pressure transducers attached to a data logger, thereby providing water level measurements by two independent devices.

3. A weighted slug of known volume will be quickly inserted into the well below the water table. The water level will be measured until the water level returns to static conditions.
4. The test will be terminated in wells that do not recover significantly (>80% of static level) within one hour.

The slug test data will be analyzed using either the Cooper, Bredehoeft, and Papadopulos (1967) type curve method or the Bouwer and Rice (1976, 1989) method. The Cooper et al. analysis assumes that the well penetrates a confined aquifer, and the Bouwer and Rice method applies where unconfined conditions are prevalent.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

8. Groundwater Sampling Procedure

The following is a step-by-step sampling procedure to be used to collect groundwater samples from the monitoring wells and temporary groundwater monitoring points. Well sampling procedures will be recorded in the field notebook. Sample management is detailed in the QAPP.

1. Groundwater samples will not be collected until at minimum, two weeks following well development of permanent wells.
2. Prior to sampling, a round of groundwater elevation measurements will be collected. The measurements will be made from the surveyed well elevation mark on the top of the inner PVC casing with a decontaminated electric water/product level probe. The measurements will be made in as short a time frame as practical to minimize temporal fluctuations in hydraulic conditions. The time, date, and measurement to nearest 0.01 foot will be recorded in the field logbook.
3. Place a plastic sheet on the ground to prevent contamination of the bailer rope and/or the tubing associated with the purging (pump) equipment.
4. Each monitoring well will be purged with a centrifugal, submersible, peristaltic, or whale pump and dedicated polyethylene tubing, or other methods at the discretion of the field geologist, and with the prior approval of KeySpan and NYSDEC.
5. Monitoring wells will be purged at a rate to minimize drawdown within the well to the extent practicable.
6. The water quality parameters of temperature, pH, conductivity, oxygen reduction potential, turbidity, and dissolved oxygen (DO) will be measured and recorded, at 3 to 5 minute intervals with a multi-parameter water quality probe. At least, 1 well volume of water will be removed prior to sampling. When the parameters stabilize over 3 consecutive readings, sampling may commence. Stability is achieved when pH is within 0.1 standard unit, temperature is within 0.5ºC, Eh is within 10% and specific conductivity is within 10% for three consecutive readings. Record results in the field logbook prior to sample collection.
7. Collect VOC samples with a dedicated polyethylene bailer lowered by a dedicated polypropylene rope or other methods as indicated. Other parameters may be collected with a submersible, or peristaltic pump using the low-flow sampling technique. The pump should be capable of throttling to a low flow rate suitable for sampling.
8. If the well goes dry before the required volumes are removed, the well may be sampled when it recovers sufficiently.

9. After all samples are collected, the water level in the monitoring well will be gauged and the locking cap will be re-installed.
10. Investigation derived water and PPE will be disposed of dedicated disposable sampling equipment in garbage bags or stored in temporary 5-gallon containers.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.
2. *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples From Monitoring Wells,* published July 30, 1996 by the United States Environmental Protection Agency (EPA).

9. Soil Vapor and Indoor Air Sampling Procedure

9.1 Soil Vapor Sample Collection

This set of procedures outlines the general steps to collect soil vapor samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

9.1.1 Soil Vapor Probe Installation

Permanent and temporary soil vapor probes will be installed using the procedure outlined below:

- Record weather information (temperature, barometric pressure, rainfall, wind speed, and wind direction). Record substantial changes to these conditions that may occur during the course of the probe installation. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).
- Install soil vapor probes using a direct-push drill rig (e.g., GeoProbe® or similar) or manually using a slide hammer. Probes will consist of stainless-steel drive points with stainless steel screens attached to food-grade (inert) Teflon or polyethylene tubing through which the soil vapor sample will be drawn.
- Attach the drive points to a drive rod (stainless-steel tube) and drive the rod to the target depth, as define in the work plan.
- Withdraw the drive rods from the hole, leaving the drive point and tubing.
- Place filter pack material, such as glass beads or clean silica sand, in the annular space surrounding the tubing directly above the sample point to a height of approximately 1 to 2 feet. The depth of the filter pack material should always be adequate to prevent the bentonite slurry above from going over the drive point and sample inlet screen.
- Place bentonite slurry in the annulus above the filter pack material to provide a seal in the borehole. Ideally, place the bentonite annular seal at least 3 feet thick, although adjustments to this thickness may be required based on site-specific conditions. The entire borehole must be filled to the ground surface with either entirely bentonite or with natural fill between two bentonite seals (one above the filter pack material and one at the ground surface). Permanent installations must have a surface seal made of cement or cement/bentonite grout.
- For permanent installations, install flush-mounted protective covers to protect the probe and the tubing.
- Cut the end of the tubing to allow proper closure of the flush-mounted protective cover, but with a sufficient length of tubing exposed at the surface to facilitate connection of sampling equipment.

- Close or cap the sample tubing following installation and following collection of each sample.

9.1.2 Collection of Soil Vapor Samples

Collecting soil vapor samples will be accomplished by using the following procedure:

- Record weather information (i.e., temperature, barometric pressure, rainfall, wind speed, and wind direction) at the beginning of the sampling event. Also, record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).
- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).
- Identify sampling locations on a plot plan that also identifies buildings, other landmarks, and potential sources of VOC contamination to both the surface and outdoor air. Record the depth of the probe screen below grade.
- If necessary, connect additional tubing to the tubing extending from the soil vapor probe to allow for connection to sample collection equipment.
- Calculate the volume of air in the probe, tubing (volume = $\pi r^2 h$), including any additional tubing added in the step above and the annular space between the probe and the native material if sand or glass beads were used.
- Connect a vacuum pump or gas-tight syringe (~60 cubic centimeters [cc]) to the sample tubing. At a flow rate of no more than 0.2 liter per minute (lpm), purge air from the tubing until one to three of the above-calculated air volumes are removed.
- During purging, evaluate the potential for ambient air to be introduced in the soil vapor sample through the annulus of the soil vapor probe or tubing connections using a tracer gas such as helium. The procedures for the tracer gas evaluation are described below. Note that the bentonite used in the probe installation should have sufficient time to seal before the samples are collected. The tracer gas evaluation will verify if the seal is sufficient.
- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the soil vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as identified in the project-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be batch certified as clean by the laboratory.
- Remove the protective brass plug from the canister. Connect the pre-calibrated flow controller to the canister.
- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by

the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the soil vapor probe to the flow controller.
- Completely open the valve on the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.
- Photograph the canister and the area surrounding the canister.
- Monitor the vacuum pressure in the canister routinely during sampling.
- Stop sample collection when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.
- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.
- Remove the flow controller from the canister and replace the protective brass plug.
- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.
- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.
- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.
- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.
- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).
- Provided that no additional sampling is expected to be conducted, either pull out (if practical) or abandon in place the sampling probe. When abandoning, cut the tubing back as far down as practical and cover to surface with native soil.

All laboratory analytical data will be validated by a data validation professional in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, January 2005 and the USEPA Region II SOP for the Validation of Organic Data modified to accommodate the USEPA Method TO-15.

9.1.3 Tracer Gas Evaluation

The tracer gas evaluation provides a means to evaluate the integrity of the soil vapor probe seal and assess the potential for introduction of ambient air into the soil vapor sample. A tracer gas evaluation should be conducted on all soil vapor probes. After the initial round of sampling and with the approval of the regulating agency, the use of tracer gas may be reduced to a minimum of 10 percent for permanent and semi-permanent probes if the initial round results showed installations with competent seals.

The following tracer gas evaluation procedure uses in-field tracer gas measurements and tracer gases (e.g., helium) that can be measured by portable detectors.

- Retain the tracer gas around the sample probe by filling an air-tight chamber (such as a plastic bucket) positioned over the sample location.
- Make sure the chamber is suitably sealed to the ground surface.
- Introduce the tracer gas into the chamber. The chamber will have tubing at the top of the chamber to introduce the tracer gas into the chamber and a valved fitting at the bottom to let the ambient air out while introducing tracer gas. A tracer gas detector will be attached to the valve fitting at the bottom of the chamber to verify the presence of the tracer gas. Close the valve after the chamber has been enriched with tracer gas at concentrations >50%.
- The chamber will have a gas-tight fitting or sealable penetration to allow the soil vapor sample probe tubing to pass through and exit the chamber.
- After the chamber has been filled with tracer gas, attach the sample probe tubing to a pump that will be pre-calibrated to extract soil vapor at a rate of no more than 0.2 lpm. Purge the tubing using the pump. Calculate the volume of air in the tubing and probe and purge one to three tubing/probe volumes prior measuring the tracer gas concentration.
- Use the tracer gas detector to measure the tracer gas concentration in the pump exhaust.
- Record the tracer gas concentrations in the chamber and in the soil vapor sample. If the evaluation indicates a high concentration of tracer gas in the sample (>10% of the concentration of the tracer gas in the chamber), then the surface seal is not sufficient and requires improvement via repair or replacement prior to commencement of the sample collection. A nondetectable level of tracer gas is preferred; however, if the evaluation indicates a low potential for introduction of ambient air into the sample (<10% of the concentration of the tracer gas in the chamber), then proceed with the soil vapor sampling. While lower concentrations of tracer gas are acceptable, the impact of the detectable leak on sample results should be evaluated in the sampling report.

9.2 Sub-Slab Soil Vapor Collection

This set of procedures outlines the general steps to collect sub-slab vapor samples. The Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

9.2.1 Sub-Slab Vapor Probe Installation

Temporary sampling probes will be installed using the following procedures:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).
- If appropriate, record weather information (temperature, barometric pressure, rainfall, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).
- Identify sampling location(s) on a floor plan that also identifies any slab breeches (e.g., utility penetrations, sumps, drains, and cracks) and locations of HVAC equipment.
- Insert a section of food-grade (inert) Teflon® or other appropriate tubing through a 3/8-inch (approx.) hole drilled through the slab. If necessary, advance the drill bit 2 to 3 inches into the sub-slab material to create an open cavity.
- Install the tubing inlet to the specified sampling depth below the slab, not to exceed 2 inches.
- Seal the annular space between the hole and tubing using 100% beeswax or another inert, non-shrinking sealing compound such as permagum.

9.2.2 Sub-Slab Vapor Sample Collection

Sub-slab vapor samples will be collected by following the steps outlined below.

- Purge the tubing using a vacuum pump or gas-tight syringe (~60 cc). Calculate the volume of air (volume = $\pi r^2 h$) in the tubing and purge one to three tubing volumes prior to sample collection at a rate no greater than 0.2 liter per minute (lpm).
- Use an evacuated Summa® passivated (or equivalent) canister to collect the sub-slab vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be batch certified as clean by the laboratory.
- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.
- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.
- Connect the tubing from the sub-slab vapor sampling probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve is opened (beginning of sampling) and the canister pressure on the vacuum gauge.
- Photograph the canister and the area surrounding the canister.
- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical).
- Complete the NYSDOH building survey and chemical survey form.
- Stop sample collection after the scheduled duration of sample collected, but when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.
- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.
- Remove the flow controller from the canister and replace the protective brass plug.
- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.
- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.
- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.
- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.
- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).
- For temporary probes, remove the probe and seal the slab hole with cement. Repair flooring, if any.

All laboratory analytical data will be validated by a data validation professional in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, January 2005 and the USEPA Region II SOP for the Validation of Organic Data modified to accommodate the USEPA Method TO-15 and natural gas analysis by ASTM D-1945.

9.2.3 Tracer Gas Evaluation

The tracer gas evaluation provides a means to evaluate the integrity of the soil vapor probe seal and assess the potential for introduction of ambient air into the soil vapor sample. A tracer gas evaluation should be conducted on all soil vapor probes. After the initial round of sampling and with the approval of the regulating agency, the use of tracer gas may be reduced to a minimum of 10 percent for permanent and semi-permanent probes if the initial round results showed installations with competent seals.

The following tracer gas evaluation procedure uses in-field tracer gas measurements and tracer gases (e.g., helium) that can be measured by portable detectors.

- Retain the tracer gas around the sample probe by filling an air-tight chamber (such as a plastic bucket) positioned over the sample location.
- Make sure the chamber is suitably sealed to the ground surface.
- Introduce the tracer gas into the chamber. The chamber will have tubing at the top of the chamber to introduce the tracer gas into the chamber and a valved fitting at the bottom to let the ambient air out while introducing tracer gas. A tracer gas detector will be attached to the valve fitting at the bottom of the chamber to verify the presence of the tracer gas. Close the valve after the chamber has been enriched with tracer gas at concentrations >50%.
- The chamber will have a gas-tight fitting or sealable penetration to allow the soil vapor sample probe tubing to pass through and exit the chamber.
- After the chamber has been filled with tracer gas, attach the sample probe tubing to a pump that will be pre-calibrated to extract soil vapor at a rate of no more than 0.2 lpm. Purge the tubing using the pump. Calculate the volume of air in the tubing and probe and purge one to three tubing/probe volumes prior measuring the tracer gas concentration.
- Use the tracer gas detector to measure the tracer gas concentration in the pump exhaust.
- Record the tracer gas concentrations in the chamber and in the soil vapor sample. If the evaluation indicates a high concentration of tracer gas in the sample (>10% of the concentration of the tracer gas in the chamber), then the surface seal is not sufficient and requires improvement via repair or replacement prior to commencement of the sample collection. A nondetectable level of tracer gas is preferred; however, if the evaluation indicates a low potential for introduction of ambient air into the sample (<10% of the concentration of the tracer gas in the chamber), then proceed with the soil vapor sampling. While lower concentrations of tracer gas are acceptable, the impact of the detectable leak on sample results should be evaluated in the sampling report.

9.3 Indoor Air Sample Collection

This set of procedures outlines the general steps to collect indoor air samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sampling locations and other indoor air requirements (inventory, etc.).

Indoor air samples will be collected by following the steps outlined below:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).
- Record weather information (temperature, barometric pressure, relative humidity, wind speed, and wind direction) and indoor temperature and humidity at the beginning of the sampling event. Record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).
- Identify sampling location(s) on a floor plan that also identifies locations of HVAC equipment, chemical storage areas, garages, doorways, stairways, sumps, drains, utility perforations, north direction, and separate footing sections
- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the outdoor air sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be individually certified as clean by the laboratory.
- Place the canister at the sampling location. The sample should be collected from breathing height (e.g., 3 to 5 feet above ground). Either mount the canister on a stable platform or attach a length of inert tubing to the flow controller inlet and support it such that the sample inlet will be at the proper height.
- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.
- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of custody form for each sample.
- Completely open the valve on the vacuum pressure in the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.
- Photograph the canister and the area surrounding the canister.
- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical). During monitoring, note the vacuum pressure on the gauge.
- Complete the NYSDOH building survey and chemical survey form.
- Stop sample collection after the scheduled duration of sample collection, but make sure that the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.
- Record the final vacuum pressure and close the canister valves. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.
- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.
- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.
- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.
- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.
- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

All laboratory analytical data will be validated by a data validation professional in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, January 2005 and the USEPA Region II SOP for the Validation of Organic Data modified to accommodate the USEPA Method TO-15.

9.4 Ambient Air Sample Collection

This set of procedures outlines the general steps to collect ambient air samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations and sampling duration.

The following procedures will be followed for the collection of ambient air samples:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).
- Select a location upwind of the building or other area that is being evaluated. If possible, select a location upwind or near the HVAC air intake for the building being sampled.
- Record weather information (i.e., temperature, barometric pressure, relative humidity, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).
- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the ambient air sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be individually certified as clean by the laboratory.

- Place the canister at the sampling location. If the sample should be collected from breathing height (e.g., 3 to 5 feet above ground), then mount the canister on a stable platform such that the sample inlet will be at the proper height.
- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.
- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of custody form for each sample.
- Completely open the valve on the vacuum pressure in the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.
- Photograph the canister and the area surrounding the canister.
- Document on a field form an outdoor plot sketch that indicates the building being sampled, streets, sampling location, location of potential outdoor air sources, north direction and paved areas. Also record pertinent observations such as odors, readings from field instrumentation, and significant activities in the vicinity that result in air emissions.
- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical). During monitoring, note the vacuum pressure on the gauge.
- Stop sample collection after the scheduled duration of sample collection but make sure that the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.
- Record the final vacuum pressure and close the canister valves. Record the date and time that sample collection was stopped.
- Remove the flow controller from the canister and replace the protective brass plug.
- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.
- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.
- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.
- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

All laboratory analytical data will be validated by a data validation professional in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, January 2005 and the USEPA Region II SOP for the Validation of Organic Data modified to accommodate the USEPA Method TO-15.

References

1. *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, New York State Department of Health, October 2006.

2. *Draft Standard Operating Procedure for Soil Vapor Intrusion Evaluations at National Grid Sites in New York State*, National Grid, March 2008.

10. Sediment Sampling Procedure

The following standard sediment sampling procedure is applicable to the collection of representative sediment core samples from the East River. This procedure may be varied or changed as required, dependent upon site conditions and equipment limitations. Any deviation from this standard will be documented in the field notebook and in the final report.

10.1 Sampling Methods

Location, equipment, and sampling situations will dictate the applicable method of sample collection for each point. Sediment sampling will generally accomplished through the use of one of the following samplers or techniques:

- Ponar/Shipek Grab Sampler
- Vibracore Sampler
- Remote Sampler

These samplers and sampling techniques will likely result in the collection of representative sediment samples from the East River and Bushwick Inlet.

10.2 Sample Interferences

Proper sampling procedures will be used to collect samples in accordance with this SOP to prevent cross contamination and improper sample collection. Common causes of sample interferences are listed below to ensure that the samplers can avoid potential sample collection problems.

1. Cross Contamination: Eliminated or minimized through the use of dedicated or disposable sampling equipment where appropriate. Where the use of dedicated or disposable sampling equipment is not possible or practical, the equipment will be decontaminated in accordance with the SOP for Decontamination of Field Sampling Equipment located in Section 11.
2. Improper Sample Collection: Typical improper sample collection techniques include:
    - Improper decontamination of sampling equipment.
    - Use of sampling equipment or sample containers that are not compatible with the contaminants of concern or the laboratory analytical method.
    - Sample collection in an obviously disturbed or non-representative area.

10.3 Equipment/Apparatus

Equipment needed for collection of sediment samples may include (depending on technique chosen):

- Vibracore Sampling Rig
- Ponar/Shipek Sampler
- Stainless Steel Sampling Tools
- Laboratory Provided Sample bottles
- Resealable plastic bags
- Ice
- Coolers, packing material
- Chain of custody records, custody seals
- Decontamination equipment/supplies
- Maps/plot plan
- Safety equipment
- Tape measure
- Camera
- Field data sheets/field notebook/waterproof pen
- Permanent markers
- Sample bottle labels
- Paper towels
- Personal protection equipment (PPE)
- Global positioning system (GPS)

10.4 Pre-Sampling Procedures

10.4.1 Sample Location

A GPS navigation system will be used to identify and record sample location coordinates. The base station will be located on land based survey control point tied into the New York State Plane coordinate system. If required, the proposed locations may be adjusted based upon access and obstructions.

10.5 Sample Collection

10.5.1 Ponar/Shipek Sampler

Surficial sediment samples will be collected from the upper 6 inches (approximate) using a Ponar or Shipek type grab sampler. Both of these sampling devices have the advantages of being relatively easy to handle and operate, readily available, moderately priced, and

versatile in terms of the range of substrate types they can effectively sample. In addition, both of these grab samplers provide sufficient sample volume (7.5 or 3 cubic liters, respectively) to allow sub sampling for multiple analytes.

Careful use of grab samplers is required to avoid problems such as loss of fine-grained surface sediments from the bow wave during descent, mixing of sediment layers upon impact, lack of sediment penetration, and loss of sediment from tilting or washout upon ascent

The sampling procedure is as follows:

1. Prior to sample collection, the grab sampler will be decontaminated.
2. When deploying the grab sampler, the speed of descent should be controlled, with no "free fall" allowed. In deep waters, use of a winching system is recommended to control both the rate of descent and ascent.
3. The sampler will be carefully lowered the last few feet to minimize dispersal of fine material due to a sampler-induced shock wave.
4. At the time of the sample collection, the sample location will be surveyed with GPS survey equipment.
5. After the sample is collected, the sampling device should be lifted slowly off the bottom, and raised to the surface at a slow and steady rate.
6. Sediments in direct contact with sides or teeth of the grab sampler will be excluded from samples to prevent potential contamination from the grab sampling device when possible.
7. Prior to sampling directly from the grab sampler, the overlying water will be removed by opening the jaws of the ponar slightly and allowing the water to drain. If the overlying water is turbid, then the suspended solids will be allowed to settle, if possible, prior to draining.
8. Where sampling directly from the sampler is not possible or feasible, the sampler will be slowly opened over a sample platform. The sampler will be placed such that the sample may be deposited with minimal disturbance.
9. Photograph the sample in color with a camera. Place a small label with sample field Identification (ID) number and approximate depth so that it appears in each frame.
10. Sediments will be described in accordance with the soil description procedure listed above in Section 5.
11. Place sediment samples into pre-cleaned laboratory provided jars for the appropriate analyses as determined in the work plan. Label each jar with the unique grab sample identification number and depth of the sample.
12. Place the sample containers into plastic sealable bags or bubble wrap and place them in an iced cooler until transfer shipment to the analytical laboratories. Add sample to the chain of custody form.

If the above sampling protocols are followed, it will minimize the effects of typical disadvantages to Ponar or Shipek samplers such as possible shock wave and loss of very fine grained surface deposits, potential for water column contamination, and nearby down current sediment re-deposition. The potential does exist for larger materials such as twigs and stones to prevent jaw closure that will result in collection of unacceptable sample. In areas with significant debris in sediment, collection of a representative sediment surface sample may not be possible due to method and equipment limitations.

10.5.2 Vibracore Sampler

A Vibracore Sampler will be used to collect samples at depth that maintain a representative vertical profile of the sediment stratigraphy. The corer is slowly lowered to the substrate and vibrated into the sediments. Vibrations from the core barrel do cause minimal realignment of sediment grains; however, compaction and strata-bending are nearly eliminated.

The sample collection procedure is as follows:

1. The core location will be located via GPS and recorded in boat's navigational software and/or project field book.
2. Measure the water depth using appropriate means, such as a sounding line, marked pole or fathometer.
3. Press and vibrate the core barrel into the sediment until it is inserted 20 feet, or until refusal occurs. Note insertion length in the field book.
4. Retrieve the core barrel containing the sample.
5. With the Lexan sleeve and the barrel held vertically in the boat, drill a hole in the Lexan tube just above the top of the sediment column to drain off water.
6. Cut off the Lexan tube just above the sediment surface and cap both ends.
7. Label the tube lengths with sample station ID codes using a permanent marker.
8. Section the core into five 48-inch sections, capping each end, and ensuring the upper ends are marked with the depth interval.
9. Stow the core sections upright on the boat in a vertical rack.
10. Transport core sections ashore and place in an enclosed vertical rack with ice for processing as soon as possible.

Once on shore, the cores will be transported to the Williamsburg MGP site for processing. Core samples for visual logging and analytical sampling shall be processed as follows:

1. Place core section on the core-processing table and secure with the cutting guides.
2. Using the metal guides, cut the Lexan core liner lengthwise using a router or other vibrating cutter tool with a guide such that the cutting bit penetrates the Lexan liner and does not cut significantly into the sediment core. Rotate the core 180 degrees and repeat the process. Disturbed sediment adjacent to the liner wall should not be

sampled, but it is important not to contaminate the undisturbed interior of the core with plastic chips or other debris from the cutting process.

3. Once the liner wall is cut through along opposite sides (top and bottom of the horizontal core), use a 6-foot length of stainless steel wire to separate the core into two half-cylinders. With the core secured on the core processing table, line the wire up along the top saw cut. Draw the wire evenly thought the core vertically until the core is separated.
4. If the core material cannot be separated using the wire, a thin rectangular stainless steel blade should be used to separate the core using a series of vertical cuts along the core's axis. Vertical cutting in discrete steps, rather than "dragging" the blade through the core, insures that the layered structure of the core is not obscured, and that contaminants are not spread across layers. Between each vertical cut, decontaminate the blade as described in Section 11.
5. Arrange the two half-cylinders of the core section side-by-side, with the cut surfaces facing up. Extend a tape measure along them, starting at the original top end of the core.
6. Photograph the core in color with a camera. Insure that the wet surface of the core does not reflect light directly into the camera lens. Photograph the core section in overlapping frames; place a small label with core field ID number so that it appears in each frame. Advance the tape measure appropriately for any additional sections of the same core.
7. Sediments will be described in accordance with the soil description procedure (Section 5).
8. Collect each analytical sample, as pre-determined in the work plan, from the undisturbed core interior with a clean, stainless steel spoon or spatula. Do not sample any obviously "non-sediment" objects in the core interval; bottle caps, broken glass, sticks, large rocks, etc.
9. Place sediment samples into pre-cleaned laboratory provided jars for the appropriate analyses as determined in the work plan. Label each jar with the unique core identification number and depth of the sample.
10. Place the samples containers into plastic sealable bags or bubble wrap and place them in an iced cooler until transfer shipment to the analytical laboratories.

10.5.3 Remote Sampler

A remote sampler will be used to collect surficial sediment samples at shallow depths where either ponar/Shipek or vibracore methods are inaccessible.

The sample collection procedure is as follows:

1. Prior to sample collection, the remote sampler will be thoroughly decontaminated.

2. The remote sampler may consist of a stainless steel or Teflon scoop attached to a telescoping pole or other similar device.
3. The remote sampler is extended to the location of the sediment sample targeted for collection.
4. Once a sufficient volume of material is collected in the scoop, then the sampler should be retrieved slowly to avoid the loss of extremely fine material as the sampler passes thru the water column.
5. The sample is then transferred directly to a pre-cleaned laboratory container.
6. This process may be repeated if additional sample volume is necessary.

10.6 Quality Assurance/Quality Control

QA/QC procedures that apply to the these activities include QA/QC laboratory samples including blind duplicate, MS/MSD samples, and field blank samples. QA/QC samples are detailed in the Draft Work Plan and Draft QAPP. Prior to collection of the QA/QC samples, equipment will decontaminated in accordance with procedures described in Section 11.

The following general QA procedures apply:

All data must be documented on field data sheets or within site field notebooks.
All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented as indicated in the Draft QAPP.

References

U.S. Environmental Protection Agency, Office of Water, Office of Science & Technology. 2001. *Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual*. EPA-823B-01-002, October 2001

State of Ohio, Environmental Protection Agency, Division of Surface Water. 2001. *Sediment Sampling Guide and Methodologies, Second Edition.* November 2001

ASTM, 2003. *D4823-95 (2003) Standard Guide for Core Sampling Submerged, Unconsolidated Sediments.* ASTM International, West Conshohocken, PA. August 2003.

11. Equipment Decontamination Procedure

The following equipment decontamination procedure is applicable for use in decontaminating sampling tools used in collection of analytical samples from surface soils, subsurface soils, and groundwater. Equipment decontamination will prevent cross-contamination and maintain analytical sample integrity. This procedure may be varied or changed as required, dependent upon site conditions and equipment limitations. Any deviation from this standard should be documented in the field-sampling book and in the final report.

11.1 Equipment/Apparatus

Equipment needed for decontamination of sampling equipment may include:

- Alconox or non-phosphate soap
- Simple Green
- Methanol
- 10% Nitric acid solution
- De-ionized water
- Decontamination buckets
- Secondary containment vessels
- Plastic sheeting
- Scrub brushes
- PPE

11.2 Equipment Decontamination Procedure

Equipment will be decontaminated in accordance with procedures specified in the Work Plan as summarized below. Equipment decontamination procedures are also detailed within the Draft QAPP.

11.2.1 Sampling Equipment and Tools

Prior to sampling, all non-dedicated equipment (i.e., bowls, spoons, bailers, and soil sampling apparatus (i.e. Macro-Core Shoe and split spoon equipment) will be decontaminated as follows.

- Decontamination of sampling equipment and hand tools may take place at the sampling location as long as all liquids are contained in pails, buckets, etc.
- All sampling equipment will be washed with water and a non-phosphate detergent (Alconox, Simple Green, etc.) to remove gross contamination.

- All sampling equipment will then be rinsed with de-ionized water.
- All equipment used to collect samples for VOC and semivolatile organic compounds (SVOC) analysis will then receive a methanol rinse followed by a de-ionized water rinse.
- All equipment used to collect samples for metals analysis will then receive a 10% nitric acid solution rinse followed by a de-ionized water rinse.
- At no time will decontaminated equipment be placed directly on the ground.
- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location, where appropriate.

11.2.2 Drill Rig and Backhoe Decontamination

A decontamination pad will be constructed of High Density Polyethylene (HDPE) sheeting on a prepared surface sloped to a sump. If possible, the decontamination pad will be constructed onsite, even if work is to be performed offsite. If contaminated soils are encountered offsite, the need for a temporary off-site decontamination pad will need to be evaluated.

The size of the pad shall be sufficient to drive the drill rig on without tearing the sides or bottom of the plastic sheet. Sides of the pad will be bermed so that all decontamination water is contained. Upon completion of all field activities, the decontamination pad will be properly decommissioned. To accomplish decommissioning, all free liquids will be removed from the surface of the HDPE sheeting, including the sump area, and allowed to air dry. The HDPE sheeting will then be cut to manageable size, folded or rolled, and placed in the waste container (roll-off container or 55-gallon drum). The wood timbers used to construct the containment berm will be inspected to ascertain if the material has come in contact with decontamination liquids during use. If they have, the materials will be steam cleaned or disposed in the waste container for subsequent disposal at an appropriate facility. If the materials have not been in contact with decontamination liquids, they may be reused.

Geoprobe® rig drilling implements will be decontaminated with water and a non-phosphate detergent and water rinse. Decontamination will be completed in close proximity to the proposed borings and will be completed over a temporary decontamination pad or plastic containers because of site constraints. The macro-core sampling shoe will be decontaminated in accordance with subsection 11.2.1.

All equipment used in intrusive work including backhoe, drilling rig, augers, bits, tools, split-spoon samplers, and tremie pipe will be cleaned with a high-pressure hot water or steam cleaning unit. The equipment will be broom-cleaned with a wire brush to remove dirt, grease, and oil before beginning fieldwork and before leaving the project Site upon completion of the last sampling activity. Tools, drill rods, and augers will be placed on

sawhorses or polyethylene plastic sheets following steam cleaning. Direct contact with the ground should be minimized. The augers, rods, and tools will be decontaminated between each drilling location according to the above procedures. The backhoe bucket, arm, and any other part of the equipment, which may have contacted excavated soil, will be decontaminated between each test pit location. Decontamination water will be containerized on-site prior to disposal.

Unless sealed in manufacturers packaging, monitoring well casing and screens will be steam cleaned immediately before installation. The screen and casing shall then be wrapped in polyethylene plastic and transported from the designated decontamination area to the well location.

11.3 Quality Assurance/Quality Control

There are no specific QA activities that apply to the implementation of these procedures. However, the following general QA procedures apply:

- All data must be documented on field data sheets or within site field notebooks.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.
2. U.S. Environmental Protection Agency, 1993. U.S. EPA Contract Laboratory Program – Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration. Document ILMO1.0-ILO-1.9, 1993. U.S. Environmental Protection Agency, Washington, DC.

12. Analytical Sample Handling and Transport

Subsurface soils collected will be handled and submitted for laboratory analysis according to the following procedure. The QAPP provides a detail description of sample handling and transport.

1. Samples will be transferred from the sample equipment into suitable, labeled sample containers specific for the laboratory analyses to be performed. Use laboratory-provided, pre-preserved sample bottles for specific analyses. Do not overfill bottles if they are pre-preserved.
2. Secure the sample container with the appropriate cap, place the sample container in a resealable plastic bag or bubble wrap, and place it inside of a sample cooler provided by the laboratory. Use ice to cool the sample cooler to 4 degrees Celsius.
3. Record all pertinent sample identification data in the site database and/or field notebook.
4. Print the completed COC record from the database, sign, and photocopy. If necessary, a hard copy COC may be used in the place of the electronic database. A COC is attached in Appendix D. Place the original COC in a resealable plastic bag and affix it to the inside of the top of the cooler/or will transmitted to the laboratory courier upon a sample pick-up.
5. Attach a custody seal to the outside of the cooler prior to shipment/pickup.

13. Investigation-Derived Waste Handling Procedure

13.1 General Waste Handling Procedures

The following procedure provides guidelines for the management of investigation derived wastes. Wastes anticipated to be generated as part of the Williamsburg Works MGP RI include the following materials: subsurface soils, groundwater, decontamination fluids, PPE, and miscellaneous investigation-derived field supplies. All wastes will be segregated into sediment and subsurface soil, fluids and PPE/miscellaneous investigation-derived materials. Investigation derived wastes will be placed in a United States Department of Transportation (USDOT)-approved 55-gallon drum, roll-off or tank. Each waste vessel will labeled with a "Non-Hazardous Waste Label" designated with "Pending Characterization."

Information on the label should include:

Generator: KeySpan Corporation
Address: 1 MetroTech Center, Brooklyn, NY 11201

At the end of each day, each waste container should be secured and placed onto the drum containment pad. Each container should be covered and sealed at the end of waste handling activities. The field representative will document the number and type of investigation derived wastes. Investigation -derived wastes will be documented on the waste tracking sheet and provided to the KeySpan PM. A waste tracking sheet is attached in Appendix E.

13.2 Investigation Derived Waste Sample Collection Procedure

If required, the field representative will obtain a waste profile sample of soil and fluid investigation derived wastes. A sample will be collected from each of the investigation-derived wastes that require analysis for disposal. Soil wastes will be collected by using shovels, hand auger or other equipment, composited and then placed into laboratory provided sample jars. The waste profile parameters will be provided to the field representative prior to collection of the waste profile sample. Samples will be collected into laboratory-preserved bottles, chilled with ice, and submitted to the laboratory under COC as described in above Section 12.

References

1. Field Sampling Plan For Site Investigations At Manufactured Gas Plants, KeySpan Corporation, March 2004.

Appendix A

Daily Activity Report (electronic only)

DAILY ACTIVITY REPORT

DATE:	**Consultant Personnel:**	
PROJECT:	**KeySpan Personnel:**	
PROJECT NO.:	**Other Personnel:**	
SITE LOCATION:	**NYSDEC Personnel:**	
	Site Visitors:	

Description of Activities and Summary of Significant Field Observations (Indicate Times as Appropriate)

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Drilling Summary

Completed Boring ID	Completed Well ID	Total Depth of Soil Sampling	Well Screen Bottom Depth	Well Screen Top Depth	Isolation Casing Depths	Other

Summary of Soil Samples Submitted for Laboratory Analyses

Soil Sample ID	Boring ID	Depth Interval	Time Collected	Analyses Requested	Duplicate Sample ID	MS/MSD (yes/no)

Summary of Groundwater Samples Submitted for Laboratory Analyses

Groundwater Sample ID	Well ID	Time Collected	Analyses Requested	Sample Tube Intake Depth	Purge/Sample Flow Rate	Duplicate Sample ID

Appendix B

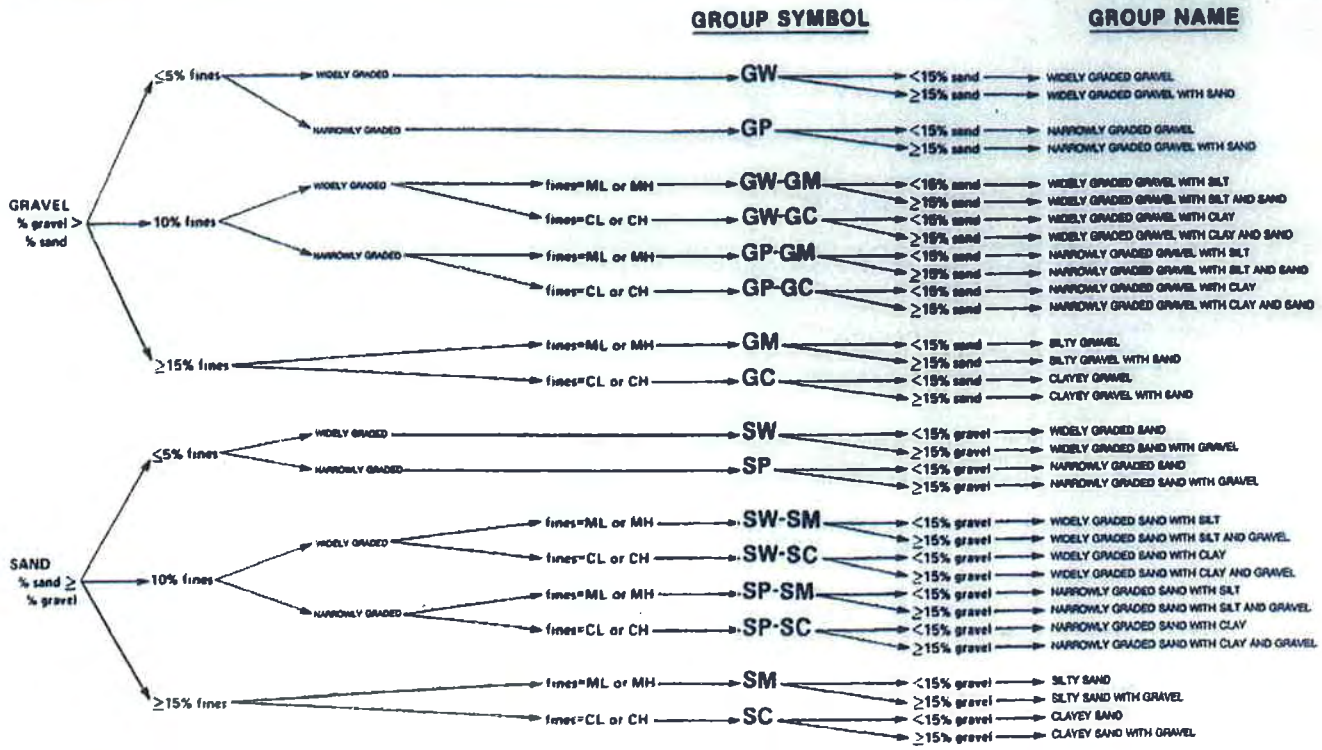
Visual-Manual Description Standards (electronic only)

GEI Consultants

COARSE GRAINED SOILS

VISUAL-MANUAL DESCRIPTIONS

FOR SOILS WITH <50% FINES

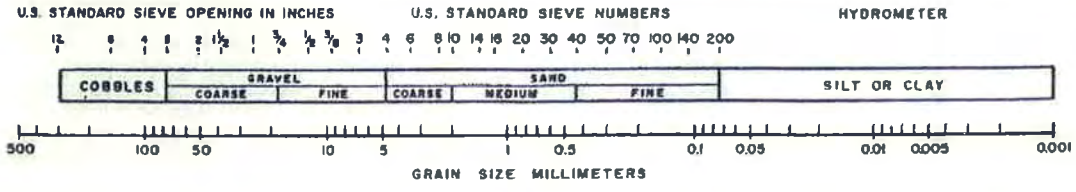


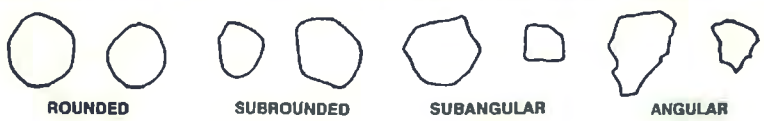
SOIL DESCRIPTION FORMAT

1. GROUP NAME and SYMBOL
2. Structure: stratified, laminated (layers <6 mm thick), lensed, homogeneous
3. Percent gravel, sand, fines (by dry weight), in order of predominance:
   - gravel - fine, coarse, and angularity
   - sand - fine, medium, coarse, and angularity
   - fines - plasticity characteristics
4. Percent cobbles and/or boulders (by volume)
5. Maximum particle size
6. Other - if appropriate - odor, roots, cementation, reaction with HCl, particle shape, moisture condition
7. Color
8. Local or geologic name

EXAMPLES

1. NARROWLY GRADED SAND (SP); mostly fine sand; <5% fines; brown.
2. SILTY SAND WITH GRAVEL (SM); ~60% fine to coarse, subangular sand; ~20% silty fines with low plasticity; ~20% fine, subangular gravel, max. size 10 mm; sample contained ~5% (by volume) subrounded cobbles to 200 mm; gray, Basal Glacial Till.
3. CLAYEY SAND (SC) and WIDELY GRADED SAND (SW); stratified layers ranging from ~6 to 20 mm thick; SC layers consist of fine sand with low plasticity clayey fines ranging from ~20 to 40%; SW layers consist of fine to coarse subrounded sand with <5% fines; SC layers are olive-gray, SW layers are brown; Hydraulic Fill.





TYPICAL SOIL COLORS

STANDARD\GEOLOGY_SOIL_CHARTS.DWG

GEI Consultants

FINE GRAINED SOILS
VISUAL-MANUAL DESCRIPTIONS

FOR SOILS WITH ≥50% FINES

GROUP SYMBOL				GROUP NAME
CL	<30% plus No. 200	<15% plus No. 200		LEAN CLAY
		15-25% plus No. 200	% sand ≥% gravel	LEAN CLAY WITH SAND
			% sand <% gravel	LEAN CLAY WITH GRAVEL
	≥30% plus No. 200	% sand ≥% of gravel	<15% gravel	SANDY LEAN CLAY
			≥15% gravel	SANDY LEAN CLAY WITH GRAVEL
		% sand <% gravel	<15% sand	GRAVELLY LEAN CLAY
			≥15% sand	GRAVELLY LEAN CLAY WITH SAND
ML	<30% plus No. 200	<15% plus No. 200		SILT
		15-25% plus No. 200	% sand ≥% gravel	SILT WITH SAND
			% sand <% gravel	SILT WITH GRAVEL
	≥30% plus No. 200	% sand ≥% of gravel	<15% gravel	SANDY SILT
			≥15% gravel	SANDY SILT WITH GRAVEL
		% sand <% gravel	<15% sand	GRAVELLY SILT
			≥15% sand	GRAVELLY SILT WITH SAND
CH	<30% plus No. 200	<15% plus No. 200		FAT CLAY
		15-25% plus No. 200	% sand ≥% gravel	FAT CLAY WITH SAND
			% sand <% gravel	FAT CLAY WITH GRAVEL
	≥30% plus No. 200	% sand ≥% of gravel	<15% gravel	SANDY FAT CLAY
			≥15% gravel	SANDY FAT CLAY WITH GRAVEL
		% sand <% gravel	<15% sand	GRAVELLY FAT CLAY
			≥15% sand	GRAVELLY FAT CLAY WITH SAND
MH	<30% plus No. 200	<15% plus No. 200		ELASTIC SILT
		15-25% plus No. 200	% sand ≥% gravel	ELASTIC SILT WITH SAND
			% sand <% gravel	ELASTIC SILT WITH GRAVEL
	≥30% plus No. 200	% sand ≥% of gravel	<15% gravel	SANDY ELASTIC SILT
			≥15% gravel	SANDY ELASTIC SILT WITH GRAVEL
		% sand <% gravel	<15% sand	GRAVELLY ELASTIC SILT
			≥15% sand	GRAVELLY ELASTIC SILT WITH SAND
OL/OH	<30% plus No. 200	<15% plus No. 200		ORGANIC SOIL
		15-25% plus No. 200	% sand ≥% gravel	ORGANIC SOIL WITH SAND
			% sand <% gravel	ORGANIC SOIL WITH GRAVEL
	≥30% plus No. 200	% sand ≥% gravel	<15% gravel	SANDY ORGANIC SOIL
			≥15% gravel	SANDY ORGANIC SOIL WITH GRAVEL
		% sand <% gravel	<15% sand	GRAVELLY ORGANIC SOIL
			>15% sand	GRAVELLY ORGANIC SOIL WITH SAND

SOIL DESCRIPTION FORMAT

1. GROUP NAME and SYMBOL
2. Structure; stratified, laminated, fissured, slickensided, blocky, lensed, homogeneous
3. Plasticity
4. Plasticity characteristics (if performed) - dilatancy, dry strength, toughness at PL
5. Percent gravel, sand; size ranges
6. Other - if appropriate - odor, roots, cementation, reaction with HCl, particle shape, moisture condition
7. Color
8. Local or geologic name
9. Field soil strength measurements:
   Q_p = unconfined compressive strength from pocket penetrometer
   S_v = undrained shear strength from torvane

EXAMPLES

1. LEAN CLAY (CL); homogeneous, medium plasticity, occasional small shell fragments, gray, Boston Blue Clay.
2. SANDY SILT (ML); hetergeneous till structure, nonplastic, ~30% fine to coarse, subangular sand; ~10% angular to subangular fine gravel, max. size 88 mm; brown, Glacial Till.
3. ELASTIC SILT WITH GRAVEL (MH); homogeneous, medium plasticity, medium dry strength, no dilantancy, low toughness; ~20% fine gravel, max. size 10 mm; brown, Q_p = 0.70, 0.75 tsf; S_v = 0.35, 0.40, tsf

TABLE 12 Identification of Inorganic Fine-Grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot be formed
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

TABLE 11 Criteria for Describing Plasticity

Description	Criteria
Nonplastic	A ⅛-in. (3-mm) thread cannot be rolled at any water content
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit

TABLE 9 Criteria for Describing Dilatancy

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing

TABLE 8 Criteria for Describing Dry Strength

Description	Criteria
None	The dry specimen crumbles into powder with mere pressure of handling
Low	The dry specimen crumbles into powder with some finger pressure
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure
High	The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface
Very high	The dry specimen cannot be broken between the thumb and a hard surface

TABLE 10 Criteria for Describing Toughness

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft
Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness
High	Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness

Appendix C

Monitoring Well Information (electronic only)

Figure 1

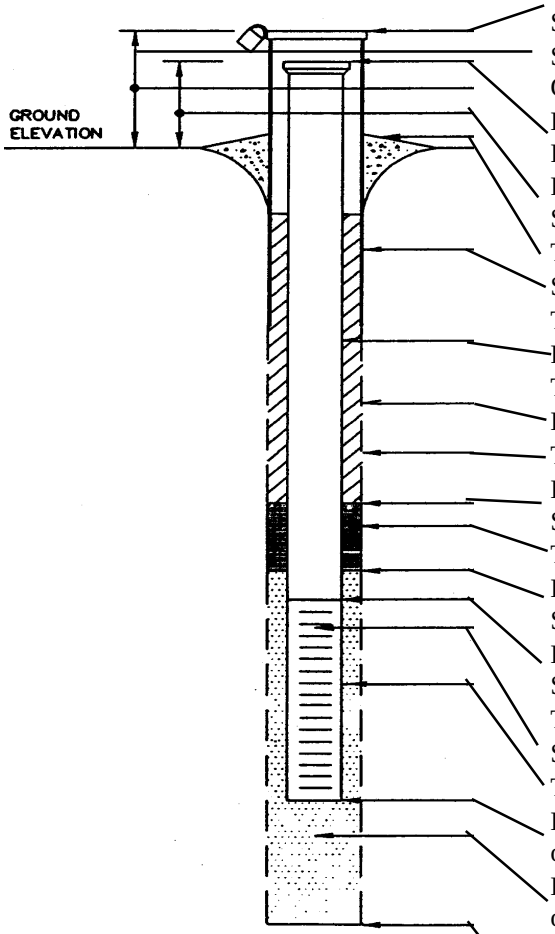
WELL INSTALLATION CHECKLIST

Project Name		Drilling Co.		Boring No.	
Project Number		Drillers		Date Started	
Project Location				Date Completed	
Site Location		Inspector			

Final depth of boring and bore hole diameter	
Depth bottom of sand pack and sand used (e.g. Morie #0)	
Type of casing (e.g. 2-in SCH 40 PVC)	
Depth bottom of screen and screen type (e.g. 10-slot)	
Depth top of screen	
Depth top of sand pack	
Depth top of seal and type of seal (e.g. cement/bentonite grout)	
Type of surface seal	
Well completion (e.g. stickup or flush mount)	

Figure 2
Overburden Monitoring Well Construction Diagram

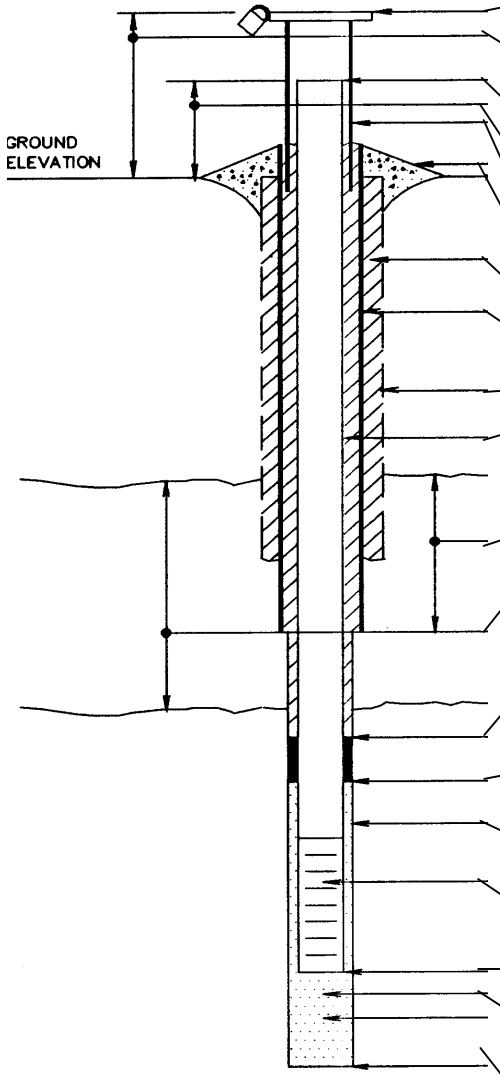
Project		Driller	
Project No.		Drilling Method	
Date		Development Method	
Elevation		Boring No.	
Field Geologist		Well No.	



Elevation of Top of Surface Casing	
Stick Up Casing Above Ground Surface	
Elevation of Top of Riser Pipe	
Riser Pipe Above Ground Surface	
Type of Surface Seal	
Surface Casing I.D.	
Type of Surface Casing	
Riser Pipe I.D.	
Type of Riser Pipe	
Borehole Diameter	
Type of Backfill	
Elevation/Depth Top of Seal	
Type of Seal	
Elevation/Depth Top of Sand Pack	
Elevation/Depth Top of Screen	
Type of Screen	
Slot Size and Length	
Type of Sand Pack	
Elevation/Depth Bottom of Screen	
Elevation/Depth Bottom of Sand Pack	
Type of Backfill Below Monitoring Well	
Elevation/Depth of Hole	
NOT TO SCALE	

Figure 3
Double Cased Monitoring Well Construction Diagram

Project		Driller	
Project No.		Drilling Method	
Date		Development Method	
Elevation		Boring No.	
Field Geologist		Well No.	



Elevation of Top of Surface Casing	
Stick Up Casing Above Ground Surface	
Elevation of Top of Riser Pipe	
Riser Pipe Above Ground Surface	
Surface Casing I.D.	
Type of Surface Seal	
Type of Surface Casing	
Upper Aquifer Casing I.D.	
Borehole Diameter/Depth	
Riser Pipe I.D.	
Type of Riser Pipe	
Type of Backfill	
Depth Casing is Set In Confining Layer	
Approximate Thickness Confining Layer	
Elevation/Depth Top of Seal	
Type of Seal	
Elevation/Depth Top of Sand Pack	
Type of Sand Pack	
Borehole Diameter/Depth	
Type of Screen	
Slot Size and Length	
Elevation/Depth Bottom of Screen	
Elevation/Depth Bottom of Sand Pack	
Type of Backfill Below Monitoring Well	
Elevation/Depth of Hole	

NOT TO SCALE

Groundwater Sample Log Sheet

Client: KeySpan Well Identification: _____

Project Number: _____ Date: _____

Site Name / Location: _____ _____Depth to Water (ftbtoc): _____

Weather: _____

Well PID (ppm): _____

Purging Information

Time	pH	Specific Cond. (mS/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (ºC)	Salinity	ORP (Eh) (mV)	Rate (lpm)	Comments (color, odor, etc.)
3@3-5 m.	+/- 0.1	3%	10%	10%	3%		+/- 10 mV		

Approximate Purge Volume:_____

Sampling Information Personnel: _____

Analysis	Number	Size	Type	Preserv.	Sample Collection Sample Name:	Time:

Notes:

Appendix D

Chain-of-Custody (electronic only)

Chain of Custody Record

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484
Tel: 203-929-8140

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number 00732
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page ____ of ____
City / State / Zip Code	Site Contact	Lab Contact	
Project Name and Location (State)	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By			1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Appendix E

Waste Tracking Form (electronic only)

Monthly Tracking Inventory of Former MGP Site Investigation Derived Waste:

Site Name	Address	Project Start Date(dd/mm/yy)	Project Completion Date(dd/mm/yy)	Profile samples collected(Y/N)	Description of Waste On-site			
					55-gal. Drums	Roll-Offs	Frac Tank	Miscellaneous

Appendix E

Health and Safety Plan (electronic only)

HEALTH AND SAFETY PLAN (HASP)

Site:	**WILLIAMSBURG WORKS FORMER MANUFACTURED GAS PLANT**
Location:	**BROOKLYN, NEW YORK**
Date Prepared:	**FEBRUARY 2008**
Revision:	**0**
Project Description:	**SUBSURFACE SOIL SAMPLING, SURFACE SOIL SAMPLING, GROUNDWATER SAMPLING AND SEDIMENT SAMPLING**
Potential Waste types:	Dense non-aqueous phase liquid (DNAPL) tar, tar-impacted soil and groundwater
Characteristics:	Volatile Compounds, Toxic
Unusual Site Features:	The Williamsburg Works Former Manufactured Gas Plant site is developed with commercial and industrial buildings, and a garage.
Status:	Manufacturing land use. Utilities are located within the street right-of-ways and on privately-owned parcels.
Background Review:	Site Records Review
Overall Hazard:	Low

NATIONAL GRID USA (NGRID) CORPORATION, NATIONAL GRID USA (NGRID) CORPORATION CONTRACTORS AND SUBCONTRACTORS DO NOT GUARANTEE THE HEALTH OR SAFETY OF ANY PERSON ENTERING THIS SITE. DUE TO THE NATURE OF THIS SITE AND THE ACTIVITY OCCURRING THEREON, IT IS NOT POSSIBLE TO DISCOVER, EVALUATE, AND PROVIDE PROTECTION FOR ALL POSSIBLE HAZARDS THAT MAY BE ENCOUNTERED. STRICT ADHERENCE TO THE HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR INJURY AT THIS SITE. THE HEALTH AND SAFETY GUIDANCE IN THIS PLAN WAS PREPARED TO SERVE AS AN EXAMPLE TO POTENTIAL CONTRACTORS AND SUBCONTRACTORS THAT MAY WORK AT THIS SITE AND SHOULD NOT BE USED ON ANY SPECIFIC PROJECT WITHOUT PRIOR RESEARCH AND EVALUATION BY TRAINED HEALTH AND SAFETY SPECIALISTS.

CONTRACTOR CERTIFICATIONS

By their signature, the undersigned hereby certify that this HASP has been reviewed and approved for use at the National Grid USA (NGRID), formerly KeySpan Corporation Williamsburg Works Former Manufactured Gas Plant Site located in Brooklyn, New York.

PROJECT MANAGER	DATE
SITE SAFETY OFFICER	DATE
CORPORATE ENVIRONMENTAL AND SAFETY MANAGER	DATE

Health and Safety Plan
Williamsburg Works Former MGP
Remedial Investigation
Brooklyn, New York

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1.0 INTRODUCTION

1.1 Purpose

This Health and Safety Plan (HASP) addresses the health and safety practices that will be employed by workers participating in investigation activities at the Williamsburg Works Former Manufactured Gas Plant (MGP) Site (Site) that are under the direction of the Consultant. This work will be performed on behalf of National Grid USA (NGRID), formerly KeySpan Corporation at the Site located in the Williamsburg neighborhood of Brooklyn, New York. The HASP takes into account the specific hazards inherent to the Site, and presents procedures to be followed by the Consultant, Contractor, Subcontractor(s), and all site visitors in order to avoid and if necessary, protect against health and/or safety hazards.

Activities performed under this HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926 and attached NGRID policies and procedures. A copy this HASP will be maintained at the Site for the duration of work.

All workers who may participate in activities at the Site are required to comply with the provisions specified in this HASP. All site visitors who enter designated work zones must also comply with this HASP. Refusal or failure to comply with the HASP or violation of any safety procedures by field personnel and/or subcontractors performing work covered by this HASP may result in immediate removal from the Site following consultation with the Contractor.

1.2 Scope of Work

This HASP addresses all general activities listed below:

Mobilization/Demobilization

- Mobilization/demobilization of equipment and supplies
- Establishment of site security, work zones, and staging areas

Pre-Investigation Activities

- Location of all utilities to and from the Site
- Location and protection of all active utility lines on the Site

Investigation Activities

- Surface soil sample collection
- Test pit installation and sample collection
- Subsurface soil boring installation and sample collection
- Monitoring well and temporary groundwater monitoring point installation and sample collection

- Sediment sample collection
- Air monitoring
- Investigation-derived waste handling and storage activities

2.0 PROJECT ORGANIZATION AND RESPONSIBILTIES

This section includes the project organization and structure, and establishes the specific chain-of-command for responsibilities and communications. The organizational structure shall be reviewed and updated as necessary to reflect the current status of project operations.

2.1 National Grid USA

NGRID will have final responsibility and authority for all aspects of the project, and is also responsible for approving all changes to this HASP.

A NGRID project-specific organization chart with contact information is included in Appendix A.

2.2 Consultant

Consultant provides general health and safety oversight as NGRID Agent. The Consultant also conducts perimeter air monitoring and work zone monitoring for Consultant employees. The Consultant will monitor daily operations and will serve as the Contractor's primary point of contact with NGRID and regulatory agencies for health-and-safety related matters. Consultant health-and-safety roles for this project include:

- Project Manager
- Site Safety Officer
- Corporate Environmental Safety Manager

The Consultant's health-and-safety roles and responsibilities are structured the same as the Contractors. Details of these roles are presented below in Section 2.3.

Task	**Consultant**
General Health-and-Safety Oversight of The Williamsburg Works Former MGP Site Remedial Investigation	

A Consultant project-specific organization chart with contact information is included in Appendix A.

2.3 Contractor

Contractor is responsible for all work detailed in the project work plan and/or Contractor Statement of Work. The Contractor is also responsible for the health and safety of Contractor and Subcontractor employees, and conducts work zone monitoring for Contractor and Subcontractor workers. Specific Contractor health and safety roles include:

Project Manager – responsibilities include the following:

- Ensures implementation of this program
- Conducts periodic inspections
- Participates in incident investigations
- Ensures the HASP has all of the required approvals before any site work is conducted
- Ensures that the Site Safety Officer is informed of project changes which require modifications of the site health and safety plan
- Has overall project responsibility for Project Health and Safety.

Site Safety Officer (SSO) - responsibilities include the following:

- Ensures that the HASP is implemented and that all health-and-safety activities identified in site safety plans are conducted and/or implemented
- Ensures that field work conducted safely and enforces site health and safety rules
- Ensures that adequate communication between field crews and emergency response personnel is maintained
- Ensures that field site personnel are medically cleared and adequately trained and qualified to work at the Site and that proper personal protective equipment is utilized by field teams
- Investigate and report all accidents/incidents to the PM and to the Corporate Environmental and Safety Manager (CESM)
- Conducts and documents daily safety briefings
- Stops work if necessary
- Identifies operational changes which require modifications to health-and-safety procedures and site safety plans, and ensures that the procedure modifications are implemented and documented through changes to the HASP, with CESM approval
- Directs and coordinates health-and-safety monitoring activities
- Evaluates air monitoring data relative to site and activity-specific action levels
- Ensures that monitoring instruments are calibrated
- Reports to the CESM to provide summaries of field operations and progress

- Conducts routine safety inspections of their work areas
- Conducts incident investigations and together with the CESM, prepares appropriate reports (i.e., OSHA 300 Report)
- Maintains files on all personal monitoring results, laboratory reports, calculations, and air sampling data sheets
- Ensure that all necessary information including emergency phone numbers, hospital directions, and warning signs are kept posted in an area accessible to all site employees
- Maintain a daily list of workers and visitors present on the Site.

Corporate Environmental and Safety Manager (CESM) - responsibilities include the following:

- Provides for the development and approval of the HASP
- Serves as the primary contact to review health and safety matters that may arise
- Approves revised or new safety protocols for field operations
- Coordinates revisions of this HASP with field personnel
- Coordinates upgrading or downgrading of personal protective equipment with the SSO
- Maintains a copy of fit test certification, documents of medical clearance, and exposure reports from site activities.
- Assists in the investigation of all accidents/incidents.

Site Personnel - responsibilities include the following:

- Reports any unsafe or potentially hazardous conditions to the SSO
- Maintains knowledge of the information, instructions and emergency response actions contained in the HASP
- Complies with rules, regulations and procedures as set forth in the HASP and any revisions
- Prevents admittance to work sites by unauthorized personnel
- Inspect all tools and equipment, including personal protective equipment (PPE), prior to use.

A Contractor project-specific organization chart with contact information is included in Appendix A.

3.0 SITE HISTORY AND PROJECT DESCRIPTION

3.1 Location

The Williamsburg Works Former MGP site is located in an industrial and commercial section of the Williamsburg neighborhood of Brooklyn, New York. Figure 1 in Appendix B shows the location of the Site. The Site is bordered by North 12th Street to the northwest, Wythe Avenue to the southwest, North 11th Street to the southeast, and the East River to the northeast.

3.2 Site History and Current Site Conditions

The site history of the Williamsburg Works Former MGP and surrounding area was developed through the review of available Sanborn Fire Insurance (Sanborn) Maps.

3.2.1 MGP History

The Williamsburgh Gas Light Company was incorporated in 1850 (Murphy, 1995). The Williamsburg MGP is first shown on the 1887 Sanborn Map. The MGP gas production facilities were isolated to the 2 North 11th Street and 20 and 21 North 12th Street properties and consisted of coal gas production facilities including a retort house, an engine room, a meter house, and a condenser house. Gas storage and purification facilities included three gas holders, a governor house, a purifying house, two tar tanks, scrubbers and lime houses. By 1905 a gas holder was constructed at 35 Kent Avenue. These structures are shown on Plate 1. Based upon their age of construction of these holders were likely pit style holders with sub-grade foundations.

In 1895, the Williamsburgh Gas Light Company and others merged to form the Brooklyn Union Gas Company, a predecessor to NGRID. The 1905 Sanborn indicates that the MGP was referred to as the Brooklyn Union Gas Williamsburg Branch.

According to 1905 Sanborn maps, the gas production facilities at 2 North 11th Street remained relatively unchanged with the exception of the addition of iron tanks and a pump house. One circular gas tank, a generator house, a condenser house, and exhauster houses were noted at 20 North 11th Street. Purifying houses were noted at 21 North 12th Street. By 1905 a gas holder was constructed at 35 Kent Avenue. By 1916, the MGP appears to have converted to water gas production as evidenced by the addition of generators and conversion of the retort house to a generator house at 20 North 11th Street. An additional gas holder was noted on the 35 Kent Avenue property (Plate 1).

The Williamsburg Former MGP ceased operation prior to 1941. The MGP structures were dismantled and vacant lots are shown in the 1941 Sanborn map.

3.2.2 Post MGP History

The Williamsburg MGP was subdivided and redeveloped for commercial, industrial and manufacturing uses. A brief history of the post-MGP use was developed from available Sanborn maps and is presented below by current parcel address and tax lot.

- 2 North 11th Street [Block 2287 Lot 30]: The property was used for oil truck parking from 1978 until 1982. The current warehouse building was constructed in 1985 and used for lumber storage from 1988 until 1995 according to Sanborn maps.

- 20 North 12th Street [Block 2287 Lot 16]: In 1965 a repair shop, office and scrap metal storage were on the property. By 1978 the property and buildings were vacant except for the office. In 1983 the buildings had been demolished and the property was used fpr parking. The current warehouse building was constructed in 1985 and used for lumber storage from 1988 until 1995 according to Sanborn maps.

- 21 North 12th Street [Block 2287 Lot 1]: A warehouse/industrial building was constructed by 1951 and was occupied by the Ferro-Co. Corp. for sheet metal product manufacturing. By 1965, the building was occupied by Commercial Corrugated Container Corp. By 1978, the property was occupied by a New York City sanitation garage which currently occupies the site according to Sanborn map information.

- 35 Kent Avenue [Block 2288 Lot 1]: The property was developed as a garage in 1949. The garage had a gasoline storage tank as part of the operations according to Sanborn maps. Colonial Tempered Glass currently operates the garage.

3.2.3 Current Site Conditions

The current site conditions and the surrounding area are shown on the aerial photograph in Plate 1 of the Work Plan. As discussed above in the site history, the site was subdivided into four parcels. As shown in the aerial photograph, the majority of the Williamsburg former MGP Site is either paved or developed with buildings. The site conditions of each parcel are summarized below.

Williamsburg Former MGP

Address	Current Owner	Block	Lot	Land Use Description
2 North 11th Street Brooklyn, NY 11211	10th Street, LLC.	2287	30	Warehouse
20 North 12th Street	10th Street, LLC.	2287	16	Warehouse

Brooklyn, NY 11211				
21 North 12th Street (50 Kent Avenue) Brooklyn, NY 11211	Fifty Kent Avenue Associates	2287	1	Garage/Gas Station
35 Kent Avenue Brooklyn, NY 11211	Fourth Avenue Associates	2288	1	Industrial-Factory Building

The Williamsburg MGP and surrounding area are zoned for manufacturing (M3-1), as a result the site is surrounded by commercial and manufacturing businesses. The Williamsburg MGP is bordered by the East River to the northwest, North 12th Street, a Bay Side Oil terminal to the northeast and by warehouses to the southeast and southwest. Kent Avenue bisects the Williamsburg former MGP.

The Williamsburg former MGP is developed with buildings that are secured with locked entrances or brick walls with gates.

3.3 Project Description

National Grid USA will retain a consultant and other contractors as specified in Section 2 of the HASP to perform a Remedial Investigation program at the Williamsburg Works Former MGP Site in the Williamsburg neighborhood of Brooklyn, New York. This Remedial Investigation was prepared to investigate the potential impacts to the Site from the manufacture of and storage of gas at the Williamsburg Works Former MGP.

The purpose of the Remedial Investigation program is to evaluate the nature and extent of chemical compounds within soils and groundwater that may be associated with the operation of the Williamsburg Works Former MGP and will also evaluate if human health or the fish and wildlife resources are or may be exposed to any identified impacts.

The scope of the Remedial Investigation sampling program is presented in the Draft Williamsburg Works Former MGP Remedial Investigation Work Plan dated January 2008. A summary of the Remedial Investigation will include the following tasks:

- Site Mobilization
- Site Utility Survey
- Subsurface Soil Boring Installation and Soil Sample Collection
- Surface Soil Sample Collection
- Test Pit Installation and Soil Sample Collection
- Monitoring Well and Temporary Groundwater Monitoring Point Installation and Groundwater Sample Collection
- Sediment Sample Collection

- Survey

The selected contractor will sample subsurface soils and install monitoring wells and temporary groundwater monitoring points. Soil borings, monitoring wells and temporary groundwater monitoring points are located within the Williamsburg Works Former MGP and outside of the MGP footprint within New York City street rights-of-ways (ROWs).

4.0 POTENTIAL SITE HAZARDS

This section presents an assessment of potential chemical, physical, and biological hazards that may be encountered during the project work. This section also includes an activity hazard analysis (AHA) to assess and control potential site hazards for each general project task. A more detailed Contractor Project specific AHA is included in Appendix C, which addresses the health and safety hazards of each specific project task or operation and includes requirements and procedures for worker protection. The following appendices include information on additional programs, which will be used to mitigate potential hazards:

Appendix D - Hazard Communication Program
Appendix E - Cold Stress Program
Appendix F – Heat Stress Program
Appendix G – Personal Protective Equipment Program
Appendix H – Lock Out / Tag Out Program
Appendix I – Confined Space / Hot Work Permitting Procedure
Appendix J- Incident Reporting
Appendix K Addendum

4.1 Chemical Hazards

The characteristics of compounds that may be encountered at the Site are discussed below in the following subsections for informational purposes. Adherence to the safety and health guidelines in this HASP should reduce the potential for exposure to the compounds discussed below. Chemical characteristics and potential exposure information for the compounds that may be encountered during site activities are presented in Table 4-1 below. Material safety data sheets (MSDS) for commonly used compounds and compounds that may be encountered during the Remedial Investigation activities are located in Appendix K.

4.1.1 Volatile Organic Compounds (VOCs)

Volatile organic chemicals (VOCs), such as benzene, toluene, ethyl benzene, and xylene (BTEX) are potentially present within subsurface soils and groundwater at the Site because of its former use for manufactured gas manufacture and storage, oil truck parking, New York City sanitation garage and a garage. In some cases, the chemical components may be present in non-aqueous phase liquids (NAPL) such as fuels, oils, or tar within subsurface soils at the Site. These compounds generally have a depressant effect on the central nervous system (CNS), may cause chronic liver and kidney damage, and some are suspected human carcinogens. Benzene is a known human carcinogen. Acute exposure may include headache, dizziness, nausea, and skin and eye irritation.

The primary route of exposure to VOCs is through inhalation and therefore air monitoring and respiratory protection is the primary control against exposure to VOCs. Air monitoring will be completed as specified in Section 8.0 to minimize airborne exposures. Community air monitoring of the area immediately surrounding the work zone will be completed in accordance with the Remedial Investigation Work Plan and Appendix K of the HASP. Exposure through direct contact is possible and will be minimized through the use of PPE as prescribed in Section 6.0.

4.1.2 Coal Tar and Oil Products

Coal tar and petroleum products contain semi-volatile organic compounds (SVOCs). SVOCs consist of a mixture of acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(e)pyrene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methyl naphthalene, naphthalene, phenanthrene, phenols, pyrene and other compounds.

Coal tar products, petroleum products, and other SVOCs are potentially present within subsurface soils and groundwater at the site. Coal tar products within subsurface soils may have been associated with the former gas storage. Petroleum products within subsurface soils could be associated with the former used truck sales.

Coal tar products such as those listed above may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. Coal tar is considered to be very toxic, if ingested. High levels of exposure to coal tar, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever anemia, liver damage, vomiting convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of exposure of SVOCs during work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil, and groundwater samples. Exposure through direct contact is possible and will be minimized through the use of PPE as prescribed in Section 6.0. Inhalation of SVOCs may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne or through the volatilization of naphthalene. Air monitoring will be completed as specified in Section 8.0 to minimize airborne exposures. Community air monitoring of the area

immediately surrounding the work zone will be completed in accordance with the Remedial Investigation Work Plan and Appendix K of this HASP.

4.1.3 Heavy Metals

The subsurface soil may contain elevated levels of metals including: arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, thallium, and zinc.

As with SVOCs, the primary route of metal exposure is through inhalation of dust particles when subsurface soils are disturbed and become airborne. Air monitoring will be completed as specified in Section 8.0 to minimize airborne exposures during subsurface soil investigations. Community air monitoring of the area immediately surrounding the work zone will be completed in accordance with the Remedial Investigation Work Plan and Appendix K of this HASP.

4.1.4 Asbestos-Containing Materials

Asbestos containing materials (ACM) can be present at investigation sites in the form of demolition debris, ACM pipe insulation, and asbestos cement pipe. Chronic exposure to asbestos may cause asbestosis and mesothelioma. The primary route of exposure for asbestos is inhalation during the disturbance and/or removal of asbestos from the pipe insulation and cement pipes.

Asbestos is strictly regulated under OSHA 29 CFR 1910.1001/1926.1101. Employees that may be potentially exposed to ACM must participate in a medical surveillance program, have specific training in the hazards and controls of exposure to asbestos and wear respirators with high-efficiency particulate air (HEPA) filters. All work must be conducted in demarcated regulated areas to minimize the amount of people within the exposure area. Employers must conduct air sampling and provide signs and labels regarding the presence of asbestos.

4.1.5 Polychlorinated Biphenyls

It is not likely that polychlorinated biphenyls (PCBs) are of concern based on previous land uses at the Site. PCBs have historically been used from a number of sources including, but not limited to; electrical systems, hydraulic oils, lubricants, cutting oils, printer's ink, and asphalt. Exposure to PCBs can occur through unbroken skin without immediate pain or irritation. Acute affects of PCB exposure can include eye, skin, nose, and throat irritation. Chronic effects of PCB exposure can include skin swelling and redness, gastro-intestinal disturbances, and neurological effects such as headache, dizziness, nervousness and numbness of extremities. PCBs are suspected human carcinogens that can cause liver cancer. PCBs can accumulate in fatty tissues and result

in health effects after the initial exposure has occurred. The primary route of exposure for PCBs is inhalation, dermal contact, and ingestion.

4.1.6 Cyanide

Cyanide compounds are common by-products of manufactured gas production but are also used in rat poisons, silver and metal polish, photographic solutions, fumigating solutions, and electroplating solutions. Hydrogen cyanide is toxic because it is a chemical asphyxiant. It replaces the oxygen in the blood and thereby suffocates the cells. Ferrocyanides (which are associated with purifier waste from gas manufacture) are not considered toxic because the hydrogen cyanide ion is bound tightly to the iron and cannot therefore replace the oxygen. It takes a great amount of heat and/or acid to release hydrogen cyanide gas from the ferrocyanide molecule. Air monitoring will be completed as specified in Section 8.0 to minimize airborne exposures during subsurface soil investigations.

4.1.7 Hydrogen Sulfide

Hydrogen sulfide is a by-product of manufactured gas production and is also associated with the breakdown of sewage by bacteria in sewer pipes. Exposure to lower concentrations can result in eye irritation, a sore throat and cough, shortness of breath, and fluid in the lungs. These symptoms usually go away in a few weeks. Long-term, low-level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness. Breathing very high levels (>800 ppm) of hydrogen sulfide can cause death within just a few breaths. The primary route of exposure is through inhalation, and therefore respiratory protection is the primary control against exposure to hydrogen sulfide. Air monitoring will be completed as specified in Section 8.0 to minimize airborne exposures during subsurface soil investigations.

4.1.8 Evaluation of Organic Vapor Exposure

Air monitoring reduces the risk of overexposure by indicating when action levels have been exceeded and when PPE must be upgraded or changed. Action levels for volatile organic compounds and associated contingency plans for the work zone are discussed within Section 8.0 of this Health and Safety Plan. Community air monitoring of the area immediately surrounding the work zone will be completed in accordance with the Remedial Investigation Work Plan and Appendix K of this HASP.

Exposure to organic vapors shall be evaluated and/or controlled by:

- Monitoring air concentrations for organic vapors in the breathing zone with a photoionization detector (PID) or a flame ionizing detector (FID)

- When possible, engineering control measures will be utilized to suppress the volatile organic vapors. Engineering methods can include utilizing a fan to promote air circulation, utilizing volatile suppressant foam, providing artificial ground cover, or covering up the impacted material with a tarp to mitigate volatile odors.
- When volatile suppression engineering controls are not effective and organic vapor meters indicate concentrations above the action levels, then appropriate respiratory protection (i.e. air purifying respirator with organic vapor cartridge) will be employed.

Table 4-1
Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Asbestos	1332-21-4	0.1 f/cc	0.1 f/cc over 8 hr period or 1.0f/cc over 30 min.	Inhalation Ingestion Skin Contact	Asbestosis (chronic exposure); mesothelioma, breathing difficulty, interstitial fibrosis' restricted pulmonary function, finger clubbing; irritate eyes, potential carcinogen	Respiratory system, eyes	White, greenish, blue, or gray-green fibrous solids FP: NA IP: NA LEL: NA UEL NA VP: 0 mm
Arsenic	7440-38-2	0.01 mg/m^3	0.01 mg/m^3 A.L. 0.5mg/m3	Inhalation Skin Absorption Ingestion Skin Contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, hyper pigmentation of skin, potential carcinogen	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin-white, brittle, odorless solid FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Benzene	71-43-2	0.5 ppm (Skin)	1 ppm TWA 5 ppm STEL	Inhalation Skin Absorption Ingestion Skin Contact	Irritation of eyes, skin, nose, respiratory system, giddiness, headache, nausea; staggering gait, fatigue, anorexia, weakness, dermatitis, bone marrow depression, potential carcinogen	Eyes, skin, CNS, bone marrow, blood	FP: 12^o F IP: 9.24 eve LEL: 1.2% UEL:7.8% VP: 75 mm
Chromium (Chromic Acid and Chromates)	1333-82-0	0.05 mg/m^3	0.1 mg/m^3	Inhalation Ingestion Skin Contact	Irritates respiratory system, nasal, septum perforation, liver and kidney damage, leucocytosis (increased blood leucocytes), leukopenis (reduced blood leucocytes), moncytosis (increased monocytes), Eosinophilia, eye injury, conjunctivitis, skin ulcer, sensitivity dermatitis, potential carcinogen	Blood, respiratory system, liver, kidney, eyes, skin, lung cancer	FP:NA IP:NA VP: Very Low LEL: NA UEL: NA
Ethyl benzene	100-41-4	100 ppm	100 ppm	Inhalation Ingestion Skin Contact	Eye, skin, mucous membrane irritation; headache; dermatitis, narcosis; coma	Eyes, skin, respiratory system, CNS	FP: 55^o F IP: 8.76 eV LEL: 0.8% UEL:6.7% VP: 7 mm

Table 4-1
Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Hydrogen cyanide	74-90-8	4.7 ppm (5 mg/m^3) STEL [skin]	10 ppm (11 mg/m^3) [skin]	Inhalation Ingestion Absorption Skin/Eye Contact	Asphyxia; weakness, headache, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow and gasping; thyroid, blood changes	CNS, CVS, thyroid, blood	Colorless or pale-blue liquid or gas (above 78°F) with a bitter, almond-like odor. VP: 630 mmHg IP: 13.60 eV
Hydrogen sulfide	7783-06-4	10 ppm TWA, 15 ppm STEL	20 ppm C, 50 ppm [10-min. Maximum peak]	Inhalation Skin/Eye Contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, fatigue, irritability, insomnia; gastrointestinal disturbance; liquid: frostbite	Eyes, respiratory system, CNS	Colorless gas with a strong odor of rotten eggs. VP: 17.6 atm IP: 10.46 eV
Lead	7439-92-1	0.050 mg/m^3	0.05 mg/m^3 A.L. 0.03 mg/m3	Inhalation Ingestion Skin Contact	Weakness, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis of wrist and ankles; irritates eyes, hypo tension	Eyes, GI tract, CNS, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid. FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Mercury	7439-97-6	0.025 mg/m^3	0.10 mg/m3	Inhalation Ingestion Skin Contact Skin Absorption	Irritates eyes and skin, chest pain, cough, difficulty breathing, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, Gastrointestinal disturbance, weight loss, proteinuria	Eyes, skin, respiratory tract, central nervous system	Silver-white, heavy odorless liquid FP: NA IP: unknown LEL: NA UEL:NA VP: 0.0012 mm

Table 4-1
Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
PAH's as Coal tar pitch Volatiles (CTPV)	65996-93-2	0.2 mg/m3	0.2 mg/m3	Inhalation Skin contact Ingestion	Irritant to eyes, swelling, acne contact dermatitis, chronic bronchitis	Respiratory system, CNS, liver, kidneys, skin, bladder, carc	Black or dark brown amorphous residue.
PCBs	11097-69-1	0.5 mg/m^3 (Skin)	0.5 mg/m^3 (Skin)	Inhalation Skin Absorption Ingestion Skin Contact	Irritate eyes; chloracne; liver damage;	Skin, eyes, liver, reproductive system	Colorless liquid or solid with a mild, hydro-carbon odor VP = 0.00006 mm
Phenol	108-95-2	10 ppm (skin)	5 ppm (19 mg/m^3) [skin]	Inhalation Skin Absorption Ingestion Skin Contact	Irritates eyes, nose, throat, anorexia, weight loss, weakness, muscle ache, pain, dark urine, cyanosis, liver and kidney damage, skin burns, dermatitis, tremors, convulsions, twitching,	Eyes, skin, respiratory system, liver, kidneys	Colorless to light pink crystalline solid with sweet, acrid odor. FP:175 ^{o}F IP:8.5 LEL:1.8% UEL: 8.6% VP: 0.4 mm
Selenium	7782-49-2	0.2 mg/m^3	0.2 mg/m^3	Inhalation Ingestion Skin Contact	Irritant to eyes, skin, nose and throat, visual disturbance, headache, chills, fever, breathing difficulty, bronchitis, metallic taste, garlic breath, GI disturbance, dermatitis, eye and skin burns,	Eyes, skin, respiratory system, liver, kidneys, blood spleen	Amphorous or crystalline, red to gray solid FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Toluene	108-88-3	50 ppm	200 ppm	Inhalation Skin Absorption Ingestion Skin Contact	Eye, nose irritation; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, tearing of eyes; nervousness, muscle fatigue, insomnia, tingling in limbs; dermatitis	Eyes, skin, respiratory system, CNS, liver, kidneys	FP: 40^{o}F IP: 8.82 eV LEL: 1.1% UEL:7.1% VP: 21 mm
Xylene	1330-20-7	100 ppm	100 ppm	Inhalation Skin Absorption Ingestion Skin Contact	Eye, skin, nose, throat irritation; dizziness, excitement, drowsiness; incoordination, staggering gait; corneal damage; appetite loss, nausea, vomiting, abdominal	Eyes, skin, respiratory system, CNS, GI tract, blood, liver, kidneys	FP: 90^{o}F IP: 8.56 eV LEL: 0.9% UEL: 6.7% VP: 9 mm

Table 4-1
Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
					pain; dermatitis		

Abbreviations

C = ceiling limit, not to be exceeded	LEL = Lower explosive limit
CNS = Central Nervous System	mm = millimeter
CVS = Cardiovascular System	ppm = parts per million
eV = electron volt	Skin = significant route of exposure
FP = Flash point	STEL = Short-term exposure limit (15 minutes)
IP = Ionization Potential	TWA = Time-weighted average (8 hours)
GI = Gastro-intestinal	UEL = Upper explosive limit
A.L. = Action Level	VP = vapor pressure approximately 68° F in mm Hg (mercury)

4.1.9 Evaluation of Respirable Dust Inhalation

Inhalation of respirable dust containing metals, crystalline silica, asbestos, and SVOCs is possible when surrounding ground cover is disturbed by heavy equipment, conducting demolition work, or using power tools on surfaces that contain these materials. Contaminated particulate matter (soil, pavement, lead paint, insulation, etc.) becomes suspended in air due to a combination of factors including lack of vegetative cover and/or dry or dusty conditions. Air monitoring reduces the risk of overexposure to respirable dust inhalation by indicating when action levels have been exceeded and when PPE must be upgraded or changed. Action levels for respirable dust and associated contingency plans for the work zone and perimeter of the Site are discussed within Section 8.0 of this HASP. Community air monitoring of the area immediately surrounding the work zone will be completed in accordance with the Remedial Investigation Work Plan and Appendix K of this HASP.

Control of respirable dust shall be conducted at this Site as follows:

- When possible, dust control measures will be utilized to suppress the dust. These methods include wetting down the area, providing artificial ground cover, or covering up the material with a tarp.
- When dust suppression is not possible and respirable dust meters indicate concentrations above the action levels, a HEPA Filter must be used to prevent against inhalation of contaminated dusts.

4.1.10 Evaluation of Skin Contact and Absorption

Skin contact by contaminants may be controlled by use of proper hygiene practices, PPE, and good housekeeping procedures. The proper PPE (e.g., Tyvek® gloves, safety glasses) as described in Section 6.0 will be worn for all activities where contact with potential contaminated media or materials are expected.

4.1.11 Other Chemical Hazards

Chemicals not identified in this HASP may be used during the Remedial Investigation activities. Prior to the initiation of any on-site tasks, each Contractor, Subcontractor, or Consultant shall provide MSDS's to the SSO for each of the chemicals to be used. The MSDS's will be maintained at the Site by the SSO and all site workers and visitors who may potentially be exposed to the chemicals will be made aware of these hazards and the location of the on-site MSDS's during a hazard briefing session by the SSO. MSDS of commonly used compounds are located in Appendix K.

4.2 Physical Hazards

4.2.1 High Loss Potential Physical Hazards

Activities to be conducted at the Site may involve operations that have the potential for a serious injury to occur, and can include the following:

- Lockout/Tag out
- Heavy Equipment Operation
- Excavation and Trenching
- Confined Space Entry
- Line Breaking
- Work within a Temporary Structure

Subsurface utilities will likely be located in the vicinity of the subsurface soil borings.

4.2.1.1 Lockout-Tag out

Site personnel will assume that all electrical equipment at surface, subsurface, and overhead locations is energized, until the equipment has been designated as de-energized by a NGRID representative. If the equipment cannot de-energized, then work will stop and the SSO will consult with the PM and CESM. The Contractor will notify NGRID prior to working adjacent to this equipment, and will verify that the equipment is energized or de-energized in the vicinity of the excavation location. The Control of Hazardous Energy Program "Lock Out/Tag Out" is included in Appendix H.

All power lines, which have been indicated by NGRID to be de-energized must be locked out, such that the lines cannot be energized when personnel are working near them. The lines shall not be unlocked and re-energized until the Contractor notifies NGRID that they have completed work in the area and that all personnel are clear of the area. NGRID representatives will thoroughly familiarize Contractor personnel with site-specific lockout/tagout procedures during the site orientation. The lockout procedures must be equivalent in effectiveness to those found in Appendix H.

If power lines cannot be de-energized, the SSO will consult with the local utility provider safety personnel to determine the safe working distance from the energized line. Work tasks will only commence after determination that a safe working distance can be maintained and all personnel working in the area have been informed of the limitation.

4.2.1.2 Heavy Equipment Operation

Heavy equipment will be operated under the following conditions:

- The operation of heavy equipment will be limited to authorized personnel specifically trained in its operation. Subcontractor site supervisors must provide this information to the SSO.
- Equipment shall be inspected daily to ensure that there are no exposed belts, fans, etc.
- When not in use, hydraulic and pneumatic components shall be left in down or "dead" position.
- Roll-over protection shall be provided on hilly terrain.
- Maintain all emergency shut-offs in sound working condition.
- The operator will use the safety devices provided with the equipment, including seat belts. Backup warning indicators and horns will be operable at all times.
- While in operation, all personnel not directly required in the area will keep a safe distance from the equipment.
- Personnel directly involved in activity will avoid moving in the path of operating equipment or any portion thereof. Areas blinded from the operator's vision will be avoided. Spotters will be used when personnel may be in areas where the operator's view is obstructed.
- Additional riders will not be allowed on equipment unless it is specifically designed for that purpose.

4.2.1.3 Excavation and Trenching

The safety requirements for each excavation must be determined by a competent person who is capable of identifying existing and predictable hazards and work conditions that are unsanitary, hazardous, or dangerous to employees. The competent person must also have the authorization to take prompt corrective measures to eliminate unsatisfactory conditions.

Subsurface utilities will likely be located in the vicinity of the Remedial Investigation points.

The following are general requirements for work activities in and around excavations:

- Prior to initiation of any excavation activity (or ground intrusive activity, such as drilling), the location of underground installations will be determined. The New York State one-call center will be contacted by the Contractor/Subcontractor a minimum of 72 hours prior to excavation activities. It may also be necessary to temporarily support underground utilities during

excavation. When excavations approach the estimated location of underground installations, the exact location of the underground installations shall be determined by means that are safe to workers, i.e., hand dig, test pits, etc.

- All excavations will be inspected daily by the competent person prior to commencement of work activities. Evidence of cave-ins, slides, sloughing, or surface cracks or excavations will be cause for work to cease until necessary precautions are taken to safeguard employees.
- Excavated and other materials or equipment that could fall or roll into the excavation shall be placed at least 5 feet from the edge of the excavation.
- Vehicular traffic and heavy equipment shall remain at least four feet from the face of the excavation.
- All excavation operations will cease immediately during hazardous weather conditions such as high winds, heavy rain, lightning and heavy snow.

4.2.1.4 Excavation Entry Safety

Personnel entering a trench or excavation that is greater than 4-feet deep shall implement the following procedures:

- The sides of all excavations in which personnel will be exposed to the danger of moving ground or potential cave-in will be adequately sloped, shored or contained within a trench box, or similar support structure designed and sealed by a professional engineer.
- The air in the excavation will be tested for oxygen deficiency, explosivity, organic vapors, carbon monoxide and hydrogen sulfide. The bottom, middle, top and corners of the excavation will be tested prior to entry and continuously during excavation entry.
- Ramps or ladders will be used to provide access and sufficient egress to the excavation. Ladders must be supplied for every 25 feet of lateral travel. Ladders must be securely anchored at the top or bottom and must extend at least 3 feet above the ground surface. A competent person is required to design ramps (those used exclusively for employee access/egress). Such ramps are constructed of wood, steel or earth. Structural ramps, used for vehicle/equipment access (steel or wood) must be designed by a competent person qualified in structural design. Vehicle ramps built of earth are not considered “structural ramps.”
- Employees shall not work in excavations where there is an accumulation of water or in excavations where water is accumulating unless adequate precautions have been taken to protect employees against the hazard s posed by water accumulation.
- Emergency rescue equipment such as breathing apparatus, a safety harness

and line, or a basket stretcher shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation.

4.2.1.5 Working within a Temporary Enclosure

Any work conducted within a temporary enclosure shall employ work zone and ambient monitoring in accordance with the Air Monitoring Plan and Section 8.0 of this HASP. If internal combustion engine equipment is used within the temporary enclosure, engineering controls or additional air monitoring parameters will need to be evaluated. If monitoring indicates the enclosure atmosphere meets the definition of a Permit Required Confined Space (PRCS), then the procedures of Appendix I will apply in accordance with OSHA 1910.146 and 1910.134.

4.2.2 Line Breaking

During line breaking activities, the potential exists for exposure to suspect asbestos containing materials (ACM). If suspect ACM is encountered, work will stop and will not resume until asbestos trained personnel have been upgraded to the proper PPE, and water is available to keep the work area and the suspect ACM wetted. All workers are to have completed asbestos awareness training prior to working with suspect ACM. The project management team (NGRID Project Manager, Consultant Project Manager, and Contractor Project Manager and CESM) is to be notified if suspect ACM is encountered.

4.2.3 Fire and Explosion

Subsurface utilities including gas lines and electrical lines may be located in the vicinity of the subsurface soil borings.

When conducting excavating activities, the opportunity of encountering fire and explosion hazards also exists from contamination in the soils and the possibility of free product in the underground structures and pipelines. Additionally, the use of a diesel–powered excavating equipment could present the possibility of encountering fire and explosion hazards. Prevention and management of fire and explosion potential is addressed in the Contractor Project Specific AHA included in Appendix C of this HASP. All Contractor and Subcontractor activities shall conform with all applicable state, federal, and local regulations pertaining to fire and explosion prevention procedures.

4.2.4 Cold Stress

At certain times of the year, workers may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia as well as slippery surfaces, brittle equipment, poor judgment and unauthorized procedural changes. The procedures to be followed are found in Appendix E, the Cold Stress Program.

4.2.5 Heat Stress

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke. A heat stress prevention program will be implemented when ambient temperatures exceed 70ºF for personnel wearing chemical protective clothing. The procedures to be followed are found in Appendix F, the Heat Stress Program.

4.2.6 Noise

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps and generators. Site workers who will perform suspected high noise tasks and operations for short durations (less than 1 hour) shall wear earplugs. If deemed necessary by the SSO, the CESM will be consulted on the need for additional hearing protection and the need to monitor sound levels for site activities. Other workers who do not need to be in proximity of the noise should distance themselves from the equipment generating the noise.

4.2.7 Hand and Power Tools

In order to complete the various tasks for the project, personnel will utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Work gloves, safety glasses, and hard hats will be worn by the operating personnel at all times when utilizing hand and power tools and Ground Fault Circuit Interrupter GFCI-equipped circuits will be used for all power tools.

4.2.8 Slips, Trips, and Falls

Working in and around the Site will pose slip, trip, and fall hazards due to slippery surfaces that may be oil covered, or from surfaces that are wet from rain or ice. Excavation at the Site will cause uneven footing in the trenches and around the spoil piles. Contractors shall employ good work practice and housekeeping procedures to minimize the potential for slip, trip, and fall hazards.

4.2.9 Manual Lifting

Manual lifting of heavy objects such as sections of pipe may be required. Failure to follow proper lifting technique can result in back injuries and strains. Site workers should use power equipment to lift heavy loads when ever possible and should evaluate loads before trying to lift them (i.e., they should be able to easily tip the load and then return it to its original position). Carrying heavy loads with a buddy and proper lifting techniques include: 1) make sure footing is solid, 2) make back straight with no curving or slouching, 3) center body over feet, 4) grasp the object firmly and as close to your

body as possible, 5) lift with legs, and 6) turn with your feet, don't twist. In addition, hand digging may present lifting/ergonomic hazards.

4.2.10 Steam, Heat, Splashing

Exposure to steam/heat/splashing hazards can occur during steam cleaning activities. Exposure to steam/heat/splashing can result in scalding/burns, eye injury, and puncture wounds. Proper PPE will be worn during all steam cleaning activities including rain gear or Tyvek®, hardhat equipped with splashguard, and water resistant gloves and boots.

4.3 Biological Hazards

During the course of the project, there is a potential for workers to come into contact with biological hazards such as animals, insects, plants, and sewage. Workers should be aware of these potential hazards that are discussed below.

4.3.1 Animals

During the conduct of site operations, wild animals such as stray dogs or cats, raccoons, and rats may be encountered. Workers shall use discretion and avoid all contact with wild animals. If these animals present a problem, efforts will be made to remove these animals from the Site by contacting a licensed animal control technician.

4.3.2 Insects

Insects, including bees, wasps, hornets, mosquitoes, ticks, and spiders, may be present at the Site making the chance of a bite possible. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition. Some insect bites can transmit diseases such as Lyme Disease or a virus such as West Nile; any individuals who have been bitten or stung by an insect should notify the SSO. The following is a list of preventive measures:

- Apply insect repellent prior to performing any field work and as often as needed throughout the work shift
- Wear proper protective clothing (work boots, socks and light colored pants)
- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible
- Field personnel who may have insect allergies shall have bee sting allergy medication on site and should provide this information to the SSO prior to commencing work.

4.3.2.1 Lyme Disease

Lyme disease is caused by infection from a deer tick that carries a spirochete. During the painless tick bite, the spirochete may be transmitted into the bloodstream often after

feeding on the host for 12 to 24 hours. The ticks that cause the disease are often no bigger than a poppy seed or a comma in newsprint. The peak months for human infection are from May to September.

Symptoms appear in three stages. First symptoms usually appear from 2 days to a few weeks after a person is bitten by an infected tick. Symptoms usually consist of a ring-like red rash on the skin where the tick was attached. The rash is often bulls-eye like with red on the outside and clear in the center. The rash may be warm, itchy, tender, and/or "doughy." Unfortunately, this rash appears in only 60 to 80% of infected persons. An infected person also has flu-like symptoms of a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. These symptoms often disappear after a few weeks. The second stage symptoms, which occur weeks to months later include meningitis, severe headache, drooping of the muscles on the face, called Bell's Pals, encephalitis, numbness, withdrawal and lethargy. These symptoms may last for several weeks to several months. Third stage symptoms, which occur months or years later include arthritis, heart problems, and loss of memory. The third stage symptoms may mimic multiple sclerosis and Alzheimer's disease.

It is recommended that personnel check themselves when in areas that could harbor deer ticks, wear light color clothing and visually check themselves and their buddy when coming from wooded or vegetated areas. If a tick is found biting an individual, the SSO should be contacted immediately. The tick can be removed by pulling gently at the head with tweezers. If tweezers are not available, cover your fingers (e.g., tissue paper) and use to grasp the tick. It is important to grasp the tick as close to the site of attachment and use a firm steady pull to remove it. Wash hands immediately after with soap and water. The affected area should then be disinfected with an antiseptic wipe. All mouth parts must be removed from the skin. If the tick is removed with breaking off the mouth parts, an irritation or infection may occur. Also, the organism that is causing the disease can still enter the body through the skin. The employee will be offered the option for medical treatment by a physician, which typically involves antibiotics. If personnel feel sick or have signs similar to those above, they should notify the SSO immediately.

Treatment with antibiotics is effective and recovery is usually complete. In the first stage antibiotics are usually given orally. Second and third stage treatment, however is prolonged and recovery may take longer. Antibiotic treatment is usually provided intravenously for second and third stage Lyme disease.

4.3.2.2 West Nile Virus

West Nile Virus (WNV) is a mosquito-borne infection transmitted through the bite of an infected mosquito. The symptoms of WNV can be asymptomatic (no symptoms) or in more serious cases can lead to West Nile fever. West Nile Fever can include fever, headache, tiredness, body ache, an occasional rash on the trunk of the body, and swollen lymph glands. In severe cases, people have developed West Nile encephalitis or meningitis which symptoms include fever, headache, neck stiffness, tremors, coma and in some cases death. The incubation period for the disease is usually 2 to 15 days. The symptoms can range from a few days to several weeks.

Since the initial outbreak in 1999, the virus has spread rapidly throughout New York State. There are about 65 different species of mosquitoes in New York State, but only a small percentage has been associated with the WNV. Most mosquitoes are not infected and the chance of infection from a mosquito bite of an on-site worker is very small. All residents of areas where virus activity has been identified are at risk of getting WNV, but those of the highest risk for becoming seriously ill from WNV are people are over 50 and individuals with some immunocompromised person (transplant patients).

The following precautions will be used to help reduce the risk of mosquito bites:

- Reduce mosquito-breeding areas by making sure wheelbarrows, buckets, and other containers are turned upside down when not used so that they do not collect standing water.
- Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many mosquitoes are most active (between dawn and dusk).
- Use mosquito repellant according to the manufacturer's directions when outdoors for long periods of time and when mosquitoes are most active.

4.3.3 Plants

The potential for contact with poisonous plants exists when performing fieldwork in undeveloped and wooded areas. Poison ivy, sumac, and oak may be present on site. Poison ivy can be found as vines on tree trunks or as upright bushes. Poison ivy consists of three leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison ivy is red in the early spring and turns shiny green later in the spring. Poison sumac can be present in the form of a flat-topped shrub or tree. It has fern-like leaves, which are velvet "down." Poison sumac has white, "hairy" berry clusters. Poison oak can be present as a sparingly branched shrub. Poison oak is similar to poison ivy in that it has the same leaflet configuration;

however, the leaves have slightly deeper notches. Prophylactic application of Tecnu® may prevent the occurrence of exposure symptoms. Post exposure over the counter products are available and should be identified at the local pharmacist. Susceptible individuals should identify themselves to the SSO.

Contact with poison ivy, sumac, or oak may lead to a skin rash, characterized by reddened, itchy, blistering skin which needs first aid treatment. If you believe you have contacted one of these plants, immediately wash skin thoroughly with soap and water, taking care not to touch your face or other body parts.

4.3.4 Blood Poisoning

Blood poisoning is a term used to indicate a large number of bacteria present in the circulating blood. The most common symptom of blood poisoning is the reddening of skin which advances toward the heart. For example, if the point of contact is the hand, then a red line will appear at the hand and extend up the arm towards the heart.

Signs and symptoms include swelling, stiffness and tenderness in the affect area, fatigue chills and fever, pustules, abscesses. If allowed to progress without treatment, the organisms may multiply and cause an overwhelming infection which can lead to death.

Personal protective equipment shall be worn to prevent direct contact with equipment that may be contaminated with bacteria such as well caps and soil.

4.4 Hazard Analysis

This section includes an AHA to assess and control potential site hazards for each general project task. A more detailed Contractor Project-specific AHA is included in Appendix C, which addresses the health and safety hazards of each specific project task or operation and includes requirements and procedures for worker protection.

WORK TASK	POTENTIAL HAZARDS	CONTROLS
Activity: Site Mobilization and Utility Clearance		
Site Mobilization/Activity	Biological Hazards.	Proper clothes, body inspections, insect repellant.
	Slip, Trip, Fall Hazards	Identify and repair potential tripping hazards. Maintain safe and orderly work areas.
	Traffic Hazards	Use traffic cones, signage, and traffic safety vests in accordance with New York City Traffic Regulations. Use a traffic spotter.
	Adverse Weather	Monitor weather daily. Discontinue work as necessary based on lightning, limited visibility, impaired mobility, etc.
	Noise	Distancing form noise, hearing protection
	Heat/Cold Stress	Acclimatization, work/rest regimes, drinking warm/cold fluids.
Activity: Test Pit Installation and Sample Collection		
Test Pit Installation and Sample Collection	Heavy Equipment / Proximity to Heavy Equipment	Distancing, safe work practices, inspections, wear hearing protection.
	Adverse Weather	Monitor weather daily. Discontinue work as necessary based on lightning, limited visibility, impaired mobility, etc.
	Heat/Cold Stress	Acclimatization, work/rest regimes, drinking warm/cold fluids.
	Slip/Trip/Fall	Maintain safe and orderly work areas. Unloading areas should be on even terrain. Identify and repair potential tripping hazards.
	Noise	Distancing form noise, hearing protection
	Tool Use	Use proper guarding, inspections, wear safety glasses with side shields, hearing protection.
	Contaminant Contact	Wear protective coveralls (e.g., Tyvek®) (if needed) with shoe covers, nitrile gloves, and safety glasses when handling samples. Dispose of gloves after sampling. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.

WORK TASK	POTENTIAL HAZARDS	CONTROLS
	Exposure to vapors from contaminated soils	Use work zone air monitoring equipment including photoionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit, hydrogen sulfide and hydrogen cyanide), and dust monitor to monitor the workzone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist, then upgrade to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of the HASP. Community air monitoring of the area immediately surrounding the work zone will be completed in accordance with the RI Work Plan and Appendix K of this HASP.
Activity: Subsurface Boring Installation and Sample Collection		
Subsurface Boring Installation and Sample Collection	Heavy Equipment / Proximity to Heavy Equipment	Distancing, safe work practices, inspections, wear hearing protection.
	Adverse Weather	Monitor weather daily. Discontinue work as necessary based on lightning, limited visibility, impaired mobility, etc.
	Heat/Cold Stress	Acclimatization, work/rest regimes, drinking warm/cold fluids.
	Slip/Trip/Fall	Maintain safe and orderly work areas. Unloading areas should be on even terrain. Identify and repair potential tripping hazards.
	Noise	Distancing form noise, hearing protection
	Tool Use	Use proper guarding, inspections, wear safety glasses with side shields, hearing protection.
	Contaminant Contact	Wear protective coveralls (e.g., Tyvek®) (if needed) with shoe covers, nitrile gloves, and safety glasses when handling samples. Dispose of gloves after sampling. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.
	Exposure to vapors from contaminated soils	Use work zone air monitoring equipment including photoionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit, hydrogen sulfide and hydrogen cyanide), and dust monitor to monitor the workzone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist, then upgrade to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of the HASP. Community air monitoring of the area immediately surrounding the work zone will be completed in accordance with the RI Work Plan and Appendix K of this HASP.

Activity: Sediment Sample Collection

Moving barge to exploration locations; set up barge to sample by lowering anchors.	Interaction with other boat traffic. Drowning.	Wear PFD. Follow USGC Safe Boating Practices.
Advancing borings and sampling.	Subsurface hazards (utilities especially).	Review available utility plans and evaluate geophysical survey data obtained during bathymetry survey. Visually confirm clearance from known utilities.
	Contact with equipment, especially moving parts. Overhead hazard (rods).	Stay alert and maintain suitable clearance from moving and overhead equipment. Do not wear loose clothing, jewelry, or equipment, which could get caught by moving equipment. Inspect equipment daily. Train all personnel on use of emergency shutoff switches.
	Weather related equipment hazards (slippage in rain, lightning).	Cease operations prior to and during electrical storms. Cease operations if equipment cannot be operated safely under wet conditions.
	Slip/trip/fall.	Keep trafficked areas on boat or barge free of slip/trip/fall hazards.
	Drowning.	Wear PFD.
	Loud noise (outboard motor, generator, VC sampler).	Use hearing protection during the operation of equipment that produces loud noise.
	Contact with contaminated surface water or sediments.	Wear protective coveralls (e.g., Tyvek® or equivalent) with shoe covers, nitrile gloves, safety glasses, face shield when handling samples. Dispose of gloves after sampling. If exposed to the sediments or surface waters of the East River, wash the exposed skin immediately with anti-bacterial wipes/gel and wash with soap and water. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.
	Exposure to vapors from contaminated sediments.	Use work zone air monitoring equipment including photoionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit, hydrogen sulfide, and hydrogen cyanide) to monitor the works zone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist then change to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of this HASP.
Lift and secure anchors. Relocate to next exploration location.	Heavy lifting. Slip/Trip/Fall. Drowning.	Use proper lifting technique. Stay alert to moving or overhead equipment. Keep trafficked areas on boat or barge free of slip/trip/fall hazards. Wear PFD. Anchoring equipment and boat deck will be rinsed to remove accumulated sediments prior to demobilization at the end of the day.

WORK TASK	POTENTIAL HAZARDS	CONTROLS
Activity: Sediment Core Handling		
Opening Cores/Collecting Samples	Cuts or abrasions (cutting aluminum, lexan, or acetate core barrel).	Wear Kevlar or leather gloves over nitrile gloves.
	Loud noise (generator).	Use hearing protection if working near the generator. Stage generator away from work area.
	Electrical Hand Tools (cutting aluminum, lexan, or acetate core barrel).	Ensure electrical equipment is connected to a Ground Fault Circuit Interrupter (GFCI).
	Weather related equipment hazards (slippage in rain, lightning).	Cease operations prior to and during electrical storms. Cease operations if equipment cannot be operated safely under wet conditions.
	Slip/trip/fall.	Keep trafficked areas on boat or barge free of slip/trip/fall hazards.
	Loud noise (outboard motor, generator, VC sampler).	Use hearing protection during the operation of equipment that produces loud noise.
	Contaminant contact.	Wear protective coveralls or aprons (e.g., Tyvek®) with shoe covers, nitrile gloves, safety glasses, and face shield when handling samples. Dispose of gloves after sampling. If exposed to the sediments or surface waters of the East River, wash the exposed skin immediately with anti-bacterial wipes/ gel and wash with soap and water. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.
	Exposure to vapors from contaminated sediments	Use work zone air monitoring equipment including photoionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit and hydrogen cyanide) to monitor the works zone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist then change to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of this HASP.
	Heavy lifting. Slip/Trip/Fall. Drowning.	Use proper lifting technique. Stay alert to moving or overhead equipment. Keep trafficked areas free of slip/trip/fall hazards.

5.0 TRAINING

5.1 General Health and Safety Training

In accordance with 29 CFR 1910.120, hazardous waste site workers shall, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations unless otherwise noted in the above reference. At a minimum, the training shall have consisted of instruction in the topics outlined in the standard. Personnel who have not met the requirements for initial training shall not be allowed to work in any site activities in which they may be exposed to hazards (chemical or physical). Proof of training shall be submitted to the SSO prior to the start of field activities.

5.2 Annual Eight-Hour Refresher Training

Annual eight-hour refresher training will be required of all hazardous waste site field personnel in order to maintain their qualifications for fieldwork. The training will cover a review of 29 CFR 1910.120 requirements and related company programs and procedures. Proof of current 8-hour refresher training shall be submitted to the SSO prior to the start of field activities.

5.3 Supervisor Training

Personnel acting in a supervisory capacity shall have received 8 hours of instruction in addition to the initial 40 hours training.

5.4 Site Safety Officer (SSO)

The SSO shall have completed the following training and work experience prior to the commencement of site activities:

- One year of construction experience
- 40-Hour Hazardous Materials training course
- Training specific to work activities (i.e., excavation and trenching activities, lock out/tag out, etc.

5.5 Site-Specific Training

Prior to commencement of field activities, the SSO will ensure all field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the site operations. It will include site and facility layout, hazards and emergency services at the Site and will highlight all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities

regarding safety and operations for their particular activity. Personnel that have not received site-specific training will not be allowed on site.

5.6 On-Site Safety Briefings

Project personnel and visitors will be given health and safety briefings daily by the SSO to assist site personnel in safely conducting work activities. The briefings will include information on new operations to be conducted, changes in work practices or changes in the site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. The meetings will also be an opportunity to periodically update the crews on monitoring results.

5.7 First Aid and CPR

The SSO will identify individuals certified in first aid and CPR, or identify individuals for such training in order to ensure that emergency medical treatment is available during field activities. The training will be consistent with the requirements of the American Red Cross Association and will include training on blood borne pathogens.

5.8 Hazard Communication

Hazard communication training will be provided in accordance with the requirements contained in the Hazard Communication Program in Appendix D.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The PPE specified in Table 6-1 represents PPE selection required by 29 CFR 1910.132, and is based on the AHA of Section 4. Specific information on the selection rationale for each activity can be found under Appendix G - Personal Protective Equipment (PPE) Program.

The PPE program addresses elements, such as PPE selection based on site hazards, use and limitations, donning and doffing procedures, maintenance and storage, decontamination and disposal, training and proper fitting, inspection procedures prior to/during/and after use, evaluation of the effectiveness of the PPE program, and limitations during temperature extremes, heat stress, and other appropriate medical considerations.

A summary of PPE for each level of protection is as follows:

Safety Equipment	Level A	Level B	Level C	Level D
Tyvek® suit or work overalls				•
Hard hats with splash shields and/or safety glasses			•	•
Steel-toe boots with over boots			•	•
Chemical-resistant gloves as appropriate for work being performed and materials handled			•	•
Disposable Respirator/ Half- or full-face respirators as approved by the CESM/SSO			•	
Tyvek® splash-resistant suit or chemical resistant clothing appropriate for the work being performed or materials handled			•	
Chemical-resistant clothing		•		
Pressure-demand, full-face SCBA or pressure-demand supplied air respirator with escape SCBA	•	•		
Inner and outer chemical-resistant gloves	•	•		
Chemical-resistant safety boots or shoes	•	•		
Two-way radio	•	•		
Fully encapsulating chemical-resistant suit	•			

Table 6-1 describes the anticipated task-specific PPE. For activities not covered by Table 6-1, the SSO/CESM will revise the hazard assessment and select the PPE using the information provided in Appendix G.

6.1 PPE Abbreviations and Selection

HEAD PROTECTION HH = Hard Hat HEARING PROTECTION EP = ear plugs	EYE/FACE PROTECTION PFS =Plastic Face shield SG = ANSI approved safety glasses with side shields	RESPIRATORY PROTECTION Level D = No respiratory protection required Level C = Half face or full face air purifying respirator with approved cartridges (HEPA filter/organic vapor cartridge) Level B = Full face air supplied respirator with escape bottle
HAND PROTECTION LWG = Leather Work Gloves Nit = Nitrile Gloves	BODY PROTECTION Poly = Polyethylene coated Tyvek® coveralls or apron WC = Work clothes	FOOT PROTECTION OB = Over boot STB = Leather work boots with steel toe

Table 6.1-PERSONAL PROTECTIVE EQUIPMENT SELECTION

TASK	HEAD	EYE/FACE	FEET	HANDS	BODY	HEARING	RESPIRATOR
Mobilization/Demobilization							
Mobilization/ demobilization of equipment and supplies	HH as needed	SG as needed	STB	LWG as needed	WC	EP as needed	Level D
Establishment of site security, work zones and staging area	HH as needed	SG as needed	STB	LWG as needed	WC	EP as needed	Level D
Locate all utilities to and from the site	HH as needed	SG as needed	STB	LWG as needed	WC	EP as needed	Level D
Locate all active utility lines on site	HH as needed	SG as needed	STB	LWG as needed	WC	EP as needed	Level D
Remedial Investigation Activities							
Surface Soil Sampling	HH as needed	SG	STB, OB as needed	Nit	WC	EP as needed	Level D
Test Pit Installation and Sampling	HH	SG	STB, OB as needed	Nit	WC	EP	Level D initially, Level C-If action levels exceeded (see Section 8 of HASP)
Subsurface Soil Boring and Monitoring Well Installation and Sampling	HH	SG	STB, OB as needed	Nit	WC, Poly as needed	EP	Level D initially, Level C-If action levels exceeded (see Section 8 of HASP)
Sediment Sampling	HH	SG	STB, OB as needed	Nit	WC, Poly as needed	EP	Level D initially, Level C-If action levels exceeded (see Section 8 of HASP)
Survey	HH as needed	SG as needed	STB	LWG as needed	WC	EP as needed	Level D
Monitoring Well Development	HH as needed	SG as needed	STB	Nit	WC	EP as needed	Level D

TASK	HEAD	EYE/FACE	FEET	HANDS	BODY	HEARING	RESPIRATOR
Groundwater Sampling	HH as needed	SG	STB, OB as needed	Nit	WC, Poly as needed	EP as needed	Level D
Waste Handling	HH	SG	STB, OB as needed	LWG and Nit as needed	WC, Poly as needed	EP as needed	Level D initially, Level C-If action levels exceeded (see Section 8 of HASP)

7.0 MEDICAL SURVEILLANCE

All personnel performing field work where potential exposure to contaminants exists at the Site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120(f) and, where applicable, expanded health standards.

7.1 Medical Surveillance Requirements

A physician's medical release for work will be confirmed by the SSO before a worker can enter the exclusion zone. The examination will be taken annually at a minimum and upon termination of hazardous waste site work if the last examination was not taken within the previous six months. Additional medical testing may be required by the CESM in consultation with the SSO if an over-exposure or accident occurs, if an employee exhibits symptoms of exposure, or if other site conditions warrant further medical surveillance.

8.0 MONITORING

Monitoring shall be performed to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of worker protection needed on site.

The Consultant conducts perimeter air monitoring, and work zone monitoring for Consultant employees. The Consultant will monitor and document daily site conditions and operations on NGRID's's behalf.

The Contractor is responsible for the health and safety of Contractor and Subcontractor employees, and conducts work zone monitoring for Contractor and Subcontractor workers.

The Contractor is required to provide the following equipment for health and safety monitoring of its personnel:

- Photoionization Detector (PID), or Flame Ionization Detector (FID),
- Particulate Meter (PM-10 capable)
- Multiple gas Meter with Combustible Gas Indicator (CGI)/Oxygen (O_2) / H_2S / HCN sensors
- Dräger Chip Measurement System (CMS) (or equivalent instrument)
- Sound Level Meter if deemed necessary by the SSO and CESM (type to be appropriate to the activities performed)

The Consultant and Contractor will adopt the air monitoring action levels and contingency plan presented within the Table 8-1 below. In the event that a Contractor has a more stringent action level requirement than the HASP, the Contractor will notify NGRID and the Consultant SSO and the CESM to rectify the action level discrepancy.

The perimeter air monitoring will be conducted during subsurface soil boring installations to conform to the community air monitoring plan (CAMP) guidelines presented by the New York State Department of Health in Appendix 1A of the Draft New York State Department of Conservation DER-10 Technical Guidance for Site Investigation and Remediation. The CAMP is located in Appendix K.

Total volatile organic compounds (VOCs), respirable particulate matter, and odor will be monitored during all intrusive subsurface soil activities in accordance with the CAMP.

Table 8-1 provides a summary of real time air monitoring action levels and contingency plans for work zone activities.

TABLE 8-1: Work Zone Air Monitoring Action Levels

Air Monitoring Instrument	Monitoring Location	Action Level	Site Action
PID/FID	Breathing Zone	2.0 ppm	Use Dräger Chip Measurement System (CMS) tube for benzene or Z-nose® to verify if concentration is benzene.
PID/FID	Breathing Zone	0 - 10 ppm	No respiratory protection is required.
		10 - 250 ppm	Stop work, withdrawal from work area, institute engineering controls, if levels persist Upgrade to Level C.
		> 250 ppm	Stop work, withdraw from work area; notify SSO & CESM.
Oxygen meter (O_2)	Breathing Zone	< 19.5%	Stop work; withdraw from work area; ventilate area, notify SSO & CESM.
		> 22%	Stop work; withdraw from work area; notify SSO & CESM.
Hydrogen Sulfide (H_2S) meter	Breathing Zone	<5 ppm	No respiratory protection is required.
		>5 ppm	Stop work, cover excavation, withdraw from work area, institute engineering controls, and notify SSO & CESM.
Hydrogen Cyanide (HCN) meter	Breathing Zone	<1.0 ppm	Run CMS Dräger tube, continue monitoring with real time meter, and continue work if CMS Dräger Tube Reading is less than 2ppm.
		1.0< HCN <2.0 ppm	Run CMS Dräger tube and confirm concentration is less than 2.0 ppm, notify SSO and CESM. Run CMS Dräger tube for sulfur dioxide, hydrogen sulfide, and phosphine chip potential interferences. Continue to monitor with real time meter.
		>2.0 ppm	Stop work, and move (with continuous HCN monitoring meter) at least 25 feet upwind of the excavation until continuous meter reads less than 1 ppm, Notify SSO & CESM. Run CMS Dräger hydrogen cyanide chip and re-evaluate activity, continue monitoring with a real time meter, resume work if concentrations read less than 1.0 ppm.
Combustible Gas Indicator (CGI)	Excavation/ Work Zone	< 10 % Lower Explosive Limit (LEL)	Investigate possible causes, allow excavation to ventilate; use caution during procedures.
		> 10% LEL	Stop work; allow excavation, borehole to ventilate to < 10% LEL; if ventilation does not result in a decrease to < 10% LEL, withdraw from work area; notify SSO & CESM.
Particulate Meter	Excavation/ Work Zone	0.150 ug/m^3	Implement work practices to reduce/minimize airborne dust generation, e.g., spray/misting of soil with water.

Carry cellular telephones for communication in a designated area away from subsurface investigation and sampling activities. Cellular phone use will not be permitted in the Exclusion Zone while work is being conducted in Level C PPE.

9.0 SITE CONTROL MEASURES

9.1 Site Zones

Site zones are intended to control the potential spread of contamination and to assure that only authorized individuals are permitted into potentially hazardous areas. A three-zone approach will be utilized. It shall include an Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and a Support Zone (SZ). Specific zones shall be established on the work site when operations begin for each task requiring such delineation (i.e. drilling, construction, excavation, trenching in impacted areas of the Site). Maps depicting the zones will be available at the Site.

This project is being conducted under the requirements of 29 CFR 1910.120, and any personnel working in an area where the potential for exposure to site contaminants exists, will only be allowed access after proper training and medical documentation as required by NGRID. These records are maintained by the CESM, and copies are provided to the SSO prior to mobilization for project activities.

The following shall be used for guidance in revising these preliminary zone designations, if necessary.

Support Zone - The SZ is an uncontaminated area that will be the field support area for most operations. The SZ provides for field team communications and staging for medical emergency. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel/materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

Contamination Reduction Zone - The CRZ is established between the EZ and the SZ. The CRZ contains the contamination reduction corridor and provides an area for decontamination of personnel and portable hand-held equipment, tools and heavy equipment. A personnel decontamination area will be prepared at each exclusion zone. The CRZ will be used for Exclusion Zone entry and egress in addition to access for heavy equipment and emergency support services.

Exclusion Zone - All activities which may involve exposure to site contaminants, hazardous materials and/or conditions should be considered an exclusion zone. This zone will be clearly delineated by cones, tapes or other means. The SSO may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the site SSO allowing adequate space for the activity to be completed, field members and emergency equipment.

9.2 Communications

The following communications equipment shall be specified as appropriate:

- Telephones - A cellular telephone will be located in the SZ for communication with emergency support services/facilities and the home office. Personnel in the EZ can carry cellular telephones for communication in a designated area way from subsurface investigation and sampling activities. Cellular phone use will not be permitted in the EZ while work is being conducted in Level C PPE.

- Hand Signals - Hand signals shall be used by field teams along with the buddy system. They shall be known by the entire field team before operations commence and their use covered during site-specific training. Typical hand signals are the following:

Signal	Meaning
Hand gripping throat	Out of air, can't breathe
Grip on a partner's wrist or placement of both hands around a partner's waist	Leave area immediately, no debate
Hands on top of head	Need assistance
Thumbs up	Okay, I'm all right, I understand.
Thumbs down	No, negative.

10.0 DECONTAMINATION

PPE helps prevent the wearer from becoming contaminated or inhaling contaminants, and good work practices help reduce contamination on protective clothing, instruments, and equipment. Even with these safeguards, contamination may occur. Harmful materials can be transferred to clean areas, exposing unprotected personnel. To prevent such occurrences, the following contamination reduction and decontamination procedures have been developed.

10.1 Minimization of Contact with Contaminants

During completion of all site activities, personnel should attempt to minimize the degree of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination. This may ultimately minimize the degree of decontamination required and the generation of waste materials from site operations.

10.2 Personnel Decontamination

Personnel hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure. Consideration will be given to prevailing wind directions so that the decontamination line, the support zone, and contamination reduction zone exit is upwind from the exclusion zone and the first station of the decontamination line. Decontamination will be performed by removing all PPE used in EZ and placing in drums/trash cans at CRZ. Disinfecting hand wipes shall be available for wiping hands and face. For Level D Decontamination, personnel should wash and rinse gloves, and use anti bacterial wipes/gel and wash and rinse hands and face with potable water.

For Level C Decontamination, personnel should wash and rinse gloves and over boots, remove boot covers, remove outer gloves, remove Tyvek® splash-resistant suit or chemical resistant clothing, wash inner gloves, remove respirator, rinse inner gloves, remove inner gloves and wash and rinse hands and face.

If exposed to subsurface soils, wash with soap and water.

10.3 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination, wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment. If the injured person can be moved, he/she will be moved to the exclusion zone boundary and decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury) provisions shall be made to ensure that emergency response personnel will be able to

respond to victim without being exposed to potentially hazardous atmospheric conditions. The only time an injured person should be removed is if the worker's life is threatened to a greater degree than if he/she is left in the spot where the accident occurred. If emergency response personnel have to enter hazardous conditions to respond to victim this should communicated when the emergency call is made and responders can come prepared in appropriate PPE. If the potential for inhalation hazards exist, such as with an open excavation, this area will be covered with plastic sheeting, or similar controls, to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent chemical data.

10.4 Hand Held Equipment Decontamination

Hand held equipment includes all monitoring instruments, samples, hand tools, and notebooks. The hand held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the exclusion zone.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using antibacterial wipes and paper towels if contamination is visually evident.

Decontamination procedures for sampling equipment, hand tools, etc., shall include the use of steam cleaning or a detergent wash, as appropriate for the site conditions. The standard decontamination procedures will be used as presented in the Williamsburg Works Former MGP Remedial Investigation Work Plan. All liquids generated in the decontamination will be stored at the Site in drums and then disposed of at an approved facility in accordance with federal, state and local regulations. Personnel performing this task will wear the proper PPE as prescribed in Table 6-1.

10.5 Heavy Equipment Decontamination

Decontamination of chemically contaminated heavy equipment will be accomplished using high -pressure steam or dry decontaminated with brushes and shovels. Decontamination shall take place on a decontamination pad and all liquids used in the decontamination procedure will be collected. Vehicles or equipment brought into an exclusion zone will be treated as contaminated, and will be decontaminated prior to removal. All liquids used in the decontamination procedure will be stored at the Site drums and then disposed of at an approved facility in accordance with federal, state and local regulations. Personnel performing this task will wear the proper PPE as prescribed in Table 6-1.

11.0 EMERGENCY RESPONSE PLAN

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff are essential. Specific elements of emergency support procedures which are addressed in the following subsections include communications, local emergency support units, preparation for medical emergencies, first aid for injuries incurred on-site, record keeping, and emergency site evacuation procedures.

11.1 Pre-emergency Planning

Before the field activities begin, the local emergency response personnel may be notified by NGRID of the schedule for field activities and about the materials that are thought to exist on the Site so that they will be able to respond quickly and effectively in the event of a fire, explosion, or other emergency.

In order to be able to deal with any emergency that might occur during remedial activities at the Site, emergency telephone numbers will be readily available in the SSO vehicle or construction office. These telephone numbers are presented in Appendix A. A hospital route map will also be readily available at the Site, and is in Appendix B as Figure 2.

11.2 Roles and Responsibilities

11.2.1 Corporate Environmental and Safety Manager (CESM)

The CESM oversees and approves the Emergency Response Plan and performs audits to determine that the plan is in effect and that all pre-emergency requirements are met. The CESM acts as a liaison to applicable regulatory agencies and notifies OSHA of reportable accidents.

11.2.2 Site Safety Officer (SSO)

The SSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The SSO is required to immediately notify the Consultant and NGRID Project Managers, and CESM of any fatalities or injuries requiring more than basic first aid treatment. The CESM will notify OSHA within the required time frame if a reportable incident has occurred. The CESM will be notified of all OSHA recordable injuries, fires, spills, releases or equipment damage in excess of $500 within 24 hours.

The SSO also serves as the Emergency Coordinator. In the event of an emergency, the Emergency Coordinator, with NGRID representatives, shall make contact with Local Emergency Response personnel. In these contacts, the Emergency Coordinator will inform response personnel about the nature of work on the Site, the type of contaminants

and associated health or safety effects, and the nature of the emergency, particularly if it is related to exposure to contaminants.

The Emergency Coordinator shall review this plan and verify emergency phone numbers, identify hospital routes, and shall ensure the appropriate emergency equipment is available and in working order prior to beginning work on site.

The Emergency Coordinator shall implement the Emergency Response Plan whenever conditions at the Site warrant such action.

11.2.3 Site Personnel

Site personnel are responsible for knowing the Emergency Response Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency.

11.3 Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs at the work area, including but not limited to fire, explosion, or significant release of toxic gas into the atmosphere, immediate evacuation of all personnel is necessary due to an immediate or impending danger. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at a pre-determined location.

11.4 Contingency Plans

11.4.1 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the work area. The Emergency Coordinator will immediately notify the local fire and police departments. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials
- Storage of flammable liquids and gases away from oxidizers
- No smoking in the exclusion zone or any work area
- No hot work without a properly executed hot work permit
- Shutting off engines to refuel
- Grounding and bonding metal containers during transfer of flammable liquids
- Use of UL approved flammable storage cans
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities

- Monthly inspections of all fire extinguishers.

The SSO is responsible for the maintenance of fire prevention and/or control equipment. The SSO is responsible for the control of fuel source hazards.

11.4.2 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet will be followed as necessary. If first aid or emergency medical treatment is necessary the Emergency Coordinator will contact the appropriate emergency facilities.

SKIN AND EYE CONTACT:	Use copious amounts of soap and water. Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Eyes should be rinsed for 15 minutes upon chemical contamination. Skin should also be rinsed for 15 minutes if contact with caustics, acids or hydrogen peroxide occurs. Transport to hospital or local medical provider.
INHALATION:	Move to fresh air. Decontaminate. Transport to hospital or local medical provider.
INGESTION:	Decontaminate and transport to emergency medical facility.
PUNCTURE WOUND OR LACERATION:	Decontaminate and transport to emergency medical facility.

11.4.3 Decontamination during Medical Emergencies

If emergency life-saving first aid and/or medical treatment are required, normal decontamination procedures may need to be abbreviated or postponed. The SSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination, when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening, unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed.

11.4.4 Adverse Weather Conditions

In the event of adverse weather conditions, the SSO will determine if work can continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries
- Potential for cold stress and cold-related injuries
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds)
- Limited visibility (fog)
- Potential for electrical storms
- Earthquakes
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The SSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

When severe weather has passed, the SSO will direct all contractors to inspect project equipment to ensure its readiness for operation prior to commencing field activities.

11.4.5 Spill Control and Response

All small hazardous spills/environmental releases shall be contained as close to the source as possible. Whenever possible, the MSDS will be consulted to assist in determining the best means of containment and cleanup. For small spills, absorbent materials such as sand, sawdust, or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid or caustic spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. Drains or drainage areas should be blocked. All spill containment materials will be properly disposed. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size and type of the spill.

Refueling of sampling equipment will be done with NFPA-approved safety cans and by approved USCG refueling methods. Fuel will be stored in containers meeting applicable fuel storage safety regulations.

The Emergency Coordinator should take the following steps:

1. Determine the nature, identity and amounts of major spill components
2. Make sure all unnecessary persons are removed from the spill area
3. Notify appropriate response teams and authorities
4. Use proper PPE in consultation with the SSO and information provided on the MSDS for the spilled material
5. If a flammable liquid, gas or vapor is involved, remove all ignition sources and use non-sparking and/or explosive proof equipment to contain or clean up the spill (diesel only vehicles, air operated pumps, etc.)

6. If possible, try to stop the leak with appropriate material
7. Remove all surrounding materials that can react or compound with the spill
8. Notify the NGRID Project Manager.

11.5 Emergency Contact Information

Emergency Phone List
Williamsburg Works Former MGP Site

Medical Emergencies	
Emergency Medical Services (NYC Fire Department)	
Emergency	911
All other communications	(718) 999-2000
Nearest Emergency Room (Woodhull Medical and Mental Health Center)	(718) 963-8000
Fire and Rescue Emergencies	911
Emergency	(718) 999-2000
All other communications	
Police Emergencies	
NYC Police Department	911
Emergency	311
All other communications	(718) 851-5511
Switchboard	
Utility Emergencies	(800) 752-6633
Electric (Con Edison)	(718) 699-9811
Water/Sewer (NYC Dept of Environmental Protection)	(718) 643-4050
Natural Gas (NGRID)	
National Grid USA Site Contacts	(718) 403-3053
Tracey Bell-Project Manager	(718) 403-1048 (office)
Andrew Prophete- Senior Engineer	(516) 790-1654 (mobile)
	(800) 272-4480
Underground Utilities (New York City One Call Center)	
Spill Incident	(800)-457-7362
New York State Department of Environmental Conservation	(800) 424-8802
National Response Center	
National Information Centers	(800) 424-9300
Chemtrec	(800) 222-1222
Poison Control Center	

11.6 Emergency Equipment

The following minimum emergency equipment shall be kept and maintained at the Site.

- Industrial first aid kit
- Portable eye washes
- ABC-rated fire extinguishers (one per vehicle and heavy equipment [drill rig and sample vessel])
- Absorbent material [Sorbent pads and booms]
- Bloodborne pathogen kit.

In case of minor injuries, on-site care shall be administered with the Site first aid kit. The first aid kit will include at a minimum the items specified in Appendix J of this HASP. A first aid kit will be kept in a waterproof container at the Site. In addition, eye wash, antibacterial wipes/gel, soap, and potable water will be kept at the Site.

For serious injuries that can not be treated with the first aid kit, call 911 and request emergency medical assistance. Seriously injured persons should not be moved, unless they are in immediate danger.

11.7 Postings

The following information shall be posted or be readily visible and available at the Site:

- Emergency telephone numbers
- Hospital Route Map

The expected travel time from the Site to the nearest hospital is approximately 10 minutes, depending on local traffic conditions.

11.8 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers
- Refilling medical supplies
- Recharging eyewashes and/or showers
- Replenishing spill control supplies
- Replacing used air horns

12.0 LOGS, REPORTS, AND RECORD KEEPING

The following is a summary of required health and safety logs, reports, and record keeping. The SSO will maintain an on-site file for all the following logs, reports, and records. The CESM or designee will maintain a parallel file off-site.

12.1 Medical and Training Records

Copies or verification of training (40 hour, 8 hour, supervisor, and site-specific training) and medical clearance for hazardous waste site work and respirator use will be maintained by the CESM and copies provided to the SSO prior to the initiation of work on site.

12.2 On-Site Log

A log of personnel on site each day will be kept by the SSO in a field logbook.

12.3 Exposure Records

All personal monitoring results, laboratory reports, calculations, and air sampling data sheets will be maintained by the SSO during site work. At the end of the project they may be maintained in employee files if deemed necessary by the CESM.

12.4 Accident/Incident Reports

The incident reporting and investigation during site work will follow the Incident Reporting Program in Appendix J.

12.5 OSHA Form 300

An OSHA Form 300 will be maintained at the Contractor or Consultant home office. The SSO may retain a copy of the OSHA Form 300 on site. All recordable injuries or illnesses will be recorded on this form. The incident report form referenced in Appendix J meets the requirements of the OSHA Form 101(supplemental record) and must be maintained with the OSHA Form 300 for all recordable injuries or illnesses.

12.6 Hazard Communication Program/MSDS

Material Safety Data Sheets (MSDSs) will be obtained for applicable substances and included in the site hazard communication file. The hazard communication program will be maintained on site in accordance with 29 CFR 1910.1200 and the Hazard Communication Program in Appendix D.

12.7 Work Permits

All work permits, including confined space entry, hot work, lockout/tagout, and line-breaking permits will be maintained in the project files. Copies of the work permits shall also be provided to the SSO, and the NGRID Project Manager.

13.0 FIELD PERSONNEL REVIEW

This form serves as documentation that field personnel have read, or have been informed of, and understand the provisions of this HASP for the Williamsburg Works Former MGP site. It is maintained on site by the SSO as a project record. Each field team member shall sign this section after training on the contents of this HASP has been completed. Site workers must sign this form after site-specific training is completed and before being permitted to work on site.

I have read, or have been informed of, the Health and Safety Plan and understand the information presented. I have also completed site-specific training for the work detailed in the project Work Plan. I will comply with the provisions contained therein.

PRINT NAME	SIGNATURE	DATE

PRINT NAME	SIGNATURE	DATE

PRINT NAME	SIGNATURE	DATE

APPENDIX A

ORGANIZATIONAL STRUCTURE/ CONTACT INFORMATION

National Grid USA
Contact Information

Name	Title	Contact Information
Tracey Bell	Manager Environmental Asset Management	Office: (718) 403-3053 Mobile: (917) 866-9207 E-mail: Tracey.Bell@us.ngrid.com
Andrew Prophete	Senior Environmental Field Coordinator	Office: (718) 403-1048 Mobile: (516) 790-1654 E-mail: Andrew.Prophete@us.ngrid.com
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:

Selected Consultant
Project Team Contact Information

Name	Title	Contact Information
	Project Manager	Office: Mobile: E-mail:
	Field Team Leader/Site Safety Officer (SSO)	Office: Mobile: E-mail:
	Corporate Environmental Safety Manager (CESM)	Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:

Selected Boring Subcontractor
Contact Information

Name	Title	Contact Information
	Project Manager	Office: Mobile: E-mail:
	Field Team Leader/Site Safety Officer (SSO)	Office: Mobile: E-mail:
	Corporate Environmental Safety Manager (CESM)	Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:

Selected Test Pit Subcontractor
Contact Information

Name	Title	Contact Information
	Project Manager	Office: Mobile: E-mail:
	Field Team Leader/Site Safety Officer (SSO)	Office: Mobile: E-mail:
	Corporate Environmental Safety Manager (CESM)	Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:

Selected Sediment Coring Subcontractor Contact Information

Name	Title	Contact Information
	Project Manager	Office: Mobile: E-mail:
	Field Team Leader/Site Safety Officer (SSO)	Office: Mobile: E-mail:
	Corporate Environmental Safety Manager (CESM)	Office: Mobile: E-mail:
		Office: Mobile: E-mail:
		Office: Mobile: E-mail:

APPENDIX B

SITE-SPECIFIC INFORMATION

APPENDIX C

PROJECT SPECIFIC
ACTIVITY HAZARD ANALYSIS

WORK TASK	POTENTIAL HAZARDS	CONTROLS
ACTIVITY: Mobilization and Utility Clearance		
Site Mobilization/Activity	Biological Hazards.	Proper clothes, body inspections, insect repellant.
	Slip, Trip, Fall Hazards	Identify and repair potential tripping hazards. Maintain safe and orderly work areas.
	Traffic Hazards	Use traffic cones, signage, and traffic safety vests in accordance with New York City Traffic Regulations. Use a traffic spotter
	Adverse Weather	Monitor weather daily. Discontinue work as necessary based on lightning, limited visibility, impaired mobility, etc.
	Noise	Distancing form noise, hearing protection
	Heat/Cold Stress	Acclimatization, work/rest regimes, drinking warm/cold fluids.
Protective Equipment: Safety glasses and steel-toe boots. Hard hat and leather work gloves as needed.		

WORK TASK	POTENTIAL HAZARDS	CONTROLS
Activity: Subsurface Boring and Monitoring Well Installation and Sample Collection		
Subsurface Boring and Monitoring Well Installation and Sample Collection	Heavy Equipment / Proximity to Heavy Equipment	Distancing, safe work practices, inspections, wear hearing protection.
	Adverse Weather	Monitor weather daily. Discontinue work as necessary based on lightning, limited visibility, impaired mobility, etc.
	Heat/Cold Stress	Acclimatization, work/rest regimes, drinking warm/cold fluids.
	Slip/Trip/Fall	Maintain safe and orderly work areas. Unloading areas should be on even terrain. Identify and repair potential tripping hazards.
	Noise	Distancing form noise, hearing protection
	Tool Use	Use proper guarding, inspections, wear safety glasses with side shields, hearing protection.
	Contaminant Contact	Wear protective coveralls (e.g., Tyvek®) (if needed) with shoe covers, nitrile gloves, and safety glasses when handling samples. Dispose of gloves after sampling. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.
	Exposure to vapors from contaminated soils	Use work zone air monitoring equipment including photo-ionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit, and hydrogen cyanide), and dust monitor to monitor the works zone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist, then upgrade to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of the HASP.
Protective Equipment: Hardhat, safety glasses, steel toe boots, nitrile gloves, protective coveralls. Ability to upgrade to half or full face respirator with HEPA/organic vapor cartridge if work zone action level is exceeded.		

Activity: Sediment Sample Collection

Moving barge to exploration locations; set up barge to sample by lowering anchors.	Interaction with other boat traffic. Drowning.	Wear PFD. Follow USGC Safe Boating Practices.
Advancing borings and sampling.	Subsurface hazards (utilities especially).	Review available utility plans and evaluate geophysical survey data obtained during bathymetry survey. Visually confirm clearance from known utilities.
	Contact with equipment, especially moving parts. Overhead hazard (rods).	Stay alert and maintain suitable clearance from moving and overhead equipment. Do not wear loose clothing, jewelry, or equipment, which could get caught by moving equipment. Inspect equipment daily. Train all personnel on use of emergency shutoff switches.
	Weather related equipment hazards (slippage in rain, lightning).	Cease operations prior to and during electrical storms. Cease operations if equipment cannot be operated safely under wet conditions.
	Slip/trip/fall.	Keep trafficked areas on boat or barge free of slip/trip/fall hazards.
	Drowning.	Wear PFD.
	Loud noise (outboard motor, generator, VC sampler).	Use hearing protection during the operation of equipment that produces loud noise.
	Contact with contaminated surface water or sediments.	Wear protective coveralls (e.g., Tyvek® or equivalent) with shoe covers, nitrile gloves, safety glasses, face shield when handling samples. Dispose of gloves after sampling. If exposed to the sediments or surface waters of the East River, wash the exposed skin immediately with anti-bacterial wipes/gel and wash with soap and water. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.
	Exposure to vapors from contaminated sediments.	Use work zone air monitoring equipment including photoionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit, hydrogen sulfide, and hydrogen cyanide) to monitor the works zone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist then change to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of this HASP.
Lift and secure anchors. Relocate to next exploration location.	Heavy lifting. Slip/Trip/Fall. Drowning.	Use proper lifting technique. Stay alert to moving or overhead equipment. Keep trafficked areas on boat or barge free of slip/trip/fall hazards. Wear PFD. Anchoring equipment and boat deck will be rinsed to remove accumulated sediments prior to demobilization at the end of the day.

WORK TASK	POTENTIAL HAZARDS	CONTROLS
Activity: Sediment Core Handling		
Opening Cores/Collecting Samples	Cuts or abrasions (cutting aluminum, lexan, or acetate core barrel).	Wear Kevlar or leather gloves over nitrile gloves.
	Loud noise (generator).	Use hearing protection if working near the generator. Stage generator away from work area.
	Electrical Hand Tools (cutting aluminum, lexan, or acetate core barrel).	Ensure electrical equipment is connected to a Ground Fault Circuit Interrupter (GFCI).
	Weather related equipment hazards (slippage in rain, lightning).	Cease operations prior to and during electrical storms. Cease operations if equipment cannot be operated safely under wet conditions.
	Slip/trip/fall.	Keep trafficked areas on boat or barge free of slip/trip/fall hazards.
	Loud noise (outboard motor, generator, VC sampler).	Use hearing protection during the operation of equipment that produces loud noise.
	Contaminant contact.	Wear protective coveralls or aprons (e.g., Tyvek®) with shoe covers, nitrile gloves, safety glasses, and face shield when handling samples. Dispose of gloves after sampling. If exposed to the sediments or surface waters of the East River, wash the exposed skin immediately with anti-bacterial wipes/ gel and wash with soap and water. Personal protective equipment will be decontaminated and disposed of in general accordance with Section 10 of this HASP.
	Exposure to vapors from contaminated sediments	Use work zone air monitoring equipment including photoionization detector and multiple gas meter (that monitors % oxygen, lower explosive limit and hydrogen cyanide) to monitor the works zone as specified in Section 8.0 of the HASP. If air monitoring action levels are exceeded, then engineering controls will be implemented. If excursions of the action levels persist then change to half or full face respirator with HEPA/organic vapor cartridge as indicated in Section 6.0 of this HASP.
	Heavy lifting. Slip/Trip/Fall. Drowning.	Use proper lifting technique. Stay alert to moving or overhead equipment. Keep trafficked areas free of slip/trip/fall hazards.
Protective Equipment: Hardhat, safety glasses, steel toe boots, nitrile gloves, protective coveralls. Ability to upgrade to half or full face respirator with HEPA/organic vapor cartridge if work zone action level is exceeded.		

APPENDIX D

HAZARD COMMUNICATION PROGRAM

1.0 POLICY AND PURPOSE

It is the policy of the Consultant to furnish employees with a working environment safe from recognized hazards. This program is designed to provide the Consultant compliance with OSHA's Federal Hazard Communication Standard (29 CFR 1910.1200 and 1926.59).

The Consultant Hazard Communication (HAZCOM) Program has been compiled to provide guidelines for assisting this corporation in meeting the requirements of OSHA's Hazard Communication Standard. This program addresses the evaluation of potential Consultant workplace hazards and communication of pertinent hazard information to Consultant employees.

The **CONTRACTOR** must develop a HAZCOM for **CONTRACTOR** employees and **SUBCONTRACTORs**.

Although most **CONTRACTOR** field projects do not involve the use of hazardous substances, it is imperative that all hazardous materials be managed in accordance with this program. This applies to any usage of hazardous materials regardless of volume. The Contractor shall generate a list of chemicals that are anticipated to be used during work activities.

2.0 SCOPE

In accordance with 29 CFR 1910.1200 and 1926.59, this program applies to any potentially hazardous chemical which is known to be present in the workplace in such a manner that employees may potentially be exposed under normal conditions of use. This program also addresses chemicals that may be constituents of waste that may be encountered on a typical Consultant job site.

3.0 LOCATION OF WRITTEN PROGRAM

A complete original of this written program is located with the Consultant Corporate Health and Safety Specialist (CHSS) and with each Consultant Office/Branch Manager.

4.0 RESPONSIBILITIES

Overall coordination and implementation of Consultant HAZCOM Program is the responsibility of the CHSS. Any questions, comments, or suggestions relating to Consultant HAZCOM Program should be directed to the CHSS.

The following subsections delineate the responsibilities of personnel as required for successful implementation of this program.

Corporate Health and Safety Specialist (CHSS)

The CHSS shall:

- Develop and oversee implementation of the written HAZCOM Program
- At a minimum, determine that field personnel engaged in hazardous waste operations receive OSHA 40-hour Health and Safety Training, 24-hour supervised on-the-job training, 8-hour Supervisory Training, and annual 8-hour Retraining as required by OSHA (29 CFR 1910.120 and 29 CFR 1926.65).

Office/Branch Managers

The Office/Branch Managers shall:

- Determine that all new employees at their office/branch receive training in accordance with the HAZCOM Program within 30 days of hire or prior to performing field work (whichever is sooner)
- Maintain at the office/branch an inventory of Material Safety Data Sheets (MSDSs) as available for all hazardous materials with which employees have the potential of coming into contact while on the job
- Determine that MSDSs are made readily available for employee review upon request by the employee
- Determine that label and warning protocol for hazardous materials is complied with.

Supervisors (Project Mangers and/or Field Team Leaders)

Supervisors shall:

- Develop and oversee completeness of site-specific HASPs for their projects
- Implement the hazard communication programs and HASPs for their projects
- Determine that field personnel are familiar with the HAZCOM Program regarding chemical use and potential chemical exposures in the field
- Determine that employees working on their project sites are familiar with site-specific HASPs and perform in compliance with the requirements of those HASPs.

Employee

It is the employee's responsibility to:

- Read the HAZCOM procedure within 30 days of employment by the Consultant or prior to performing field work for CONSULTANT (whichever is sooner)
- Gain familiarization with MSDSs of those hazardous materials which they use or may be exposed to
- Utilize information and measures as learned from the HAZCOM Program, including associated training and professional experiences, to protect themselves from adverse exposure to hazardous materials.

5.0 PROGRAM REQUIREMENTS

Material Safety Data Sheets (MSDSs) and Chemical List

Complete sets of MSDSs for chemicals specific to each office/branch are maintained by the Consultant Office/Branch Manager and made readily available for review upon request by any employee.

A list of chemicals potentially used/encountered by Consultant personnel at offices/branches involved in hazardous waste operations is provided in Table 11-1. Note that Table 11-1 is not necessarily complete.

MSDSs are available for the listed chemicals described below.

- MSDSs for chemicals that are typically used for decontamination and/or sample preservation are compiled. Supplies of these chemicals are generally kept in Consultant field equipment storerooms.
- MSDSs for chemicals and materials that may be encountered on typical Consultant job sites are compiled. These MSDSs are typically included in site-specific Health and Safety Plans. MSDSs should be reviewed prior to performing fieldwork on those sites.
- MSDSs for chemicals used for Photoionization detector (PID) soil gas instrument and standards are compiled. These chemicals are generally kept in small quantities to be used only by soil gas instrument technical personnel.

In addition, the consultant maintains an a comprehensive collection of MSDSs as printed by Genium Publishing Corporation and as obtained from manufacturers of products received at Consultants office are available for use by employees by request to the CHSS. This MSDS collection is updated periodically.

TABLE 11-1
CHEMICAL LIST

DECONTAMINATION AND/OR PRESERVATION CHEMICALS (Field/Storeroom Personnel)		
Chemical	*Amount Stored	Location
Acetone	2 liters	Field Equipment Room Flammable Storage Cabinet
Acetonitrile	2 liters	Field Equipment Room Flammable Storage Cabinet
1-Butanol (n-Butyl Alcohol)	0.5 liter	Field Equipment Room Flammable Storage Cabinet
Hexane	0.5 liter	Field Equipment Room Flammable Storage Cabinet
Hydrochloric Acid	0.5 liter	Field Equipment Room Corrosive Storage Cabinet

DECONTAMINATION AND/OR PRESERVATION CHEMICALS (Field/Storeroom Personnel)		
Chemical	*Amount Stored	Location
Methanol	40 liters	Field Equipment Room Flammable Storage Cabinet
Nitric Acid	15 liters	Field Equipment Room Corrosive Storage Cabinet
Sodium Hydroxide	1 kg	Field Equipment Room Corrosive Storage Cabinet (separated from acids)
Sulfuric Acid	0.5 liter	Field Equipment Room Corrosive Storage Cabinet
CHEMICALS POTENTIALLY ENCOUNTERED ON TYPICAL JOB SITES		
Benzene Coal Tar Creosote Coal Tar Pitch Cresol Cyanide 1,1-Dichloroethylene 1,2-Dichloroethylene (both isomers) Ethyl benzene Gasoline Naphtha (Coal Tar) Naphthalene and related PAHs Pentachlorophenol Perchloroethylene Polychlorinated Biphenyls Styrene 1,1,2,2-Tetrachloroethane Tetraethyl Lead Toluene 1,1,1-Trichloroethane (methyl chloroform) Trichloroethylene Xylene		
**SOIL GAS STANDARD CHEMICALS (used by soil gas personnel only)		
Chemical	*Amount Stored	Location
Stored for Occasional or Potential Future Use		
Benzene	10 grams	Field Equipment Room Refrigerator
1,1-Dichloroethylene	10 grams	Field Equipment Room Refrigerator
1,2-Dichloroethylene (both isomers)	14 grams	Field Equipment Room Refrigerator
Ethyl benzene	10 grams	Field Equipment Room Refrigerator
Perchloroethylene	10 grams	Field Equipment Room

**SOIL GAS STANDARD CHEMICALS (used by soil gas personnel only)		
Chemical	*Amount Stored	Location
Stored for Occasional or Potential Future Use		
		Refrigerator
Toluene	10 grams	Field Equipment Room Refrigerator
Trichloroethylene	10 grams	Field Equipment Room Refrigerator
Xylenes (o, m, & p)	6 grams	Field Equipment Room Refrigerator
Bromodichloromethane	1 gram	Field Equipment Room Refrigerator
Bromoform	5 grams	Field Equipment Room Refrigerator
2-Chloroethyl vinyl ether	5 grams	Field Equipment Room Refrigerator
Dibromochloromethane	1 gram	Field Equipment Room Refrigerator
1,4-Dichlorobenzene	5 grams	Field Equipment Room Refrigerator
1,2-Dichloropropane	5 grams	Field Equipment Room Refrigerator
1,3-Dichloropropene	2 grams	Field Equipment Room Refrigerator
Styrene	2 grams	Field Equipment Room Refrigerator
1,1,2,2-Tetrachloroethane	2 grams	Field Equipment Room Refrigerator
1,1,1-Trichloroethane	2 grams	Field Equipment Room Refrigerator
1,1,2-Trichloroethane	5 grams	Field Equipment Room Refrigerator
Trichlorofluoromethane	5 grams	Field Equipment Room Refrigerator
1,2,4-Trimethylbenzene	2 grams	Field Equipment Room Refrigerator
* Amounts stored are based on typical field equipment room inventory (Glastonbury Office). Actual amounts may vary depending on facility location and project requirements. ** Soil gas standard chemicals are used for field testing/calibration of soil gas, field, analytical equipment.		

LABELS AND WARNINGS

The Consultant labeling system for containers of hazardous materials is as follows:

- Containers are labeled, tagged, or marked in a legible fashion, with the identity of the hazardous materials contained therein.
- Containers are labeled, tagged, or marked in a legible fashion with the appropriate hazard warnings. This warning may be of any type of message, words, pictures or symbols that convey the hazards of the chemical.
- All required container labels, tags and/or markings are legible.
- Labels are affixed to the container itself (vs. lid). Note that lids may also be labeled, but not in lieu of container labeling.

The Consultant field equipment room maintenance technician is responsible that the Consultant labeling system is complied with at his/her office location. Project Managers and Field Team Leaders are responsible for determining that the Consultant labeling system is complied with for the field portion of their projects.

TRAINING

The Consultant Office/Branch Manager is responsible for determining that the HAZCOM Training Program is complied by personnel employed at their office/branch.

The Consultant's HAZCOM Program training requirements are listed below:

- Newly hired employees who may use or be exposed to hazardous materials will be required to familiarize themselves with the HAZCOM Program, and with the MSDSs associated with their job function.
- Selected employees will be required to attend a HAZCOM Program classroom training session. Training shall provide information on:

    - The physical and health hazards of the chemicals in the work area.
    - Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
    - Measures employees can take to protect themselves from these hazards.
    - The details of the HAZCOM Program, including an explanation of MSDSs and CONSULTANTs container labeling system.

- As required to achieve compliance with OSHA 1910.120 and 1926.65, technical staff engaged in hazardous waste operations will be provided with OSHA 40-hour HAZWOPER safety training, 24 hours of on-the-job training, and annual 8-hour HAZWOPER refresher courses.

6.0 MULTI-EMPLOYER WORK PLACES

The Consultant is obligated to provide the identity of any hazardous materials/conditions to other employers sharing the same workplace whose employees may be exposed. Likewise, all employers sharing the same workplace with the Consultant shall be obligated to identify all

hazardous materials/conditions to which employees may be exposed. The employer sharing space with the Consultant will be required by the Consultant Project Manager to:

- Determine that a mutual exchange of this information occurs, and that health and safety hazards are minimized.
- Provide to project employees, as part of the subcontractor HASP, MSDSs of identified hazardous materials to which they may be exposed.
- Conform in full to the requirements of 29 CFR 1910.1200 and 29 CFR 1926.59, applicable HASPs, and established work procedures.

These obligations may be accomplished via the exchange of written HAZCOM Programs, project HASPs, or MSDSs as appropriate.

7.0 BIENNIAL REVIEW

This program will be formally reviewed by the Consultant CHSS and company management on a biennial basis or more frequently if the CHSS deems it necessary to promote personnel safety. The program will be revised as necessary for continuing compliance with the OSHA Federal Hazard Communication Standard.

APPENDIX E

COLD STRESS PROGRAM

1.0 PURPOSE & INTRODUCTION

The purpose of this document is to educate the employee about exposure to cold environments and the effects of hypothermia and other cold-related injuries. Through proper use of Personal Protective Equipment (PPE), engineering and administrative controls; and education, cold injury, both to the extremities and the body's core temperature, can be prevented.

2.0 SCOPE

This program is intended for use by employees engaged in work with the potential for exposure to cold environments. This program will be reviewed annually by the Health and Safety Division. Training will be provided annually to all those potentially affected, and will include this written program.

3.0 WORKING IN COLD ENVIRONMENTS

1. Metabolic Responses

The human body is designed to function best at a rectal temperature of 99-100F. The body maintains this temperature in two ways: by gaining heat from food and muscular work; or, by losing it through radiation and sweating. By constricting blood vessels of the skin and/or shivering, the body uses its first line of cold defense.

Temperature control of the body is better understood by dividing the body into two main parts: the shell; and, the core. The shell is comprised of the skin, capillaries, nerves, muscles and fat. Other internal organs such as the heart, lungs, brain and kidneys make up the core.

During exposure to cold, the skin is first affected. Blood in the peripheral capillaries is cooled, sending a signal to a portion of the brain called the hypothalamus. Regulating body temperature is one of the many basic body functions of the hypothalamus. Acting like a thermostat, adjustments are performed in order to maintain normal body temperatures. When a chill signal is received, two processes are begun by the hypothalamus: conserve heat already in the body; and, generate new heat.

Heat conservation is performed through constriction of the blood vessels in the skin (shell), thus reducing heat loss from the shell and acting as an insulator for the core. Sweat glands are also inhibited, thus preventing heat loss by evaporation.

Additional fuel for the body is provided in the form of glucose. Glucose causes the heart to beat faster, sending oxygen and glucose-rich blood to the tissue where needed. In an attempt to produce heat, the muscles rapidly contract. This process is better known as “shivering,” and generates heat similarly to that created by strenuous activity, raising the body’s metabolic rate.

During physical activity and fatigue, the body is more prone to heat loss. As exhaustion approaches, blood vessels can suddenly enlarge, resulting in rapid loss of heat. Exposure to extreme cold causes nerve pulses to be slowed, resulting in fumbling, sluggish and clumsy reactions.

4.0 COLD INJURIES

Cold injuries are classified into two categories: local; or, general. Local injuries include frostbite, frostnip, chilblain and trenchfoot. General injuries include hypothermia and blood vessel abnormalities (genetically or chemically induced). Major factors contributing to cold injury are exposure to humidity and high winds; contact with wetness or metal; inadequate clothing; age; and, general health. Allergies, vascular disease, excessive smoking and/or drinking, and certain drugs and medicines are physical conditions that can compound the effects of exposure to a cold environment.

1. Hypothermia

Hypothermia is a condition of reduced body temperature. Most cases develop in air temperatures between 30-50°F, not taking wind-chill factor in consideration.

Symptoms of hypothermia are uncontrolled shivering and the sensation of cold. The heartbeat slows and sometimes becomes irregular, weakening the pulse and changing blood pressure. Changes in the body chemistry cause severe shaking or rigid muscles; vague or slow slurred speech; memory lapses; incoherence; and, drowsiness. Cool skin, slow irregular breathing, low blood pressure, apparent exhaustion, and fatigue after rest can be seen before complete collapse.

As the core temperature drops, the victim can become listless, confused, and make little or no effort to keep warm. Pain in the extremities can be the first warning of dangerous exposure to cold. Severe shivering must be taken as a sign of danger. At a core body temperature of about 85°F, serious problems develop due to significant drops in blood pressure, pulse rate and respiration. In some cases, the victim may die.

Sedative drugs and alcohol increase the risk of hypothermia. Sedative drugs interfere with the transmission of impulses to the brain. Alcohol dilates blood vessels near the skin's surface, increasing heat loss and lowering body temperature.

Table I provides information on the onset of hypothermia and metabolic responses at different body temperatures.

2. Raynaud’s Phenomenon

Raynaud's Phenomenon is the abnormal constriction of the blood vessels of the fingers on exposure to cold temperatures, resulting in blanching of the ends of the fingers. Numbness, itching, tingling or a burning sensation may occur during related attacks. The disease is also associated with the use of vibrating hand tools in a condition sometimes called White Finger Disease. Persistent cold sensitivity, ulceration and amputations can occur in severe cases.

3. Acrocyanosis

Acrocyanosis is caused by exposure to the cold and reduces the level of hemoglobin in the blood, resulting in a slightly blue, purple or gray coloring of the hands and/or feet.

4. Frostbite

Frostbite is the freezing of the body tissues due to exposure to extremely low temperatures, resulting in damage to and loss of tissue. Frostbite occurs because of inadequate circulation and/or insulation, resulting in freezing of fluids around the cells of the body tissues. Most vulnerable parts of the body are the nose, cheeks, ears, fingers and toes.

Frostbite can affect outer layers of skin or can include the tissues beneath. Damage can be serious, with permanent loss of movement in the affected parts, scarring, necrotic tissue, and amputation are all possibilities. Skin and nails that slough off can grow back.

The freezing point of the skin is about 30F. As wind velocity increases, heat loss is greater and frostbite will set in more rapidly.

There are three (3) degrees of frostbite: first degree, freezing without blistering and peeling; second degree, freezing with blistering and peeling; and, third degree, freezing with death of skin tissues and possibly the deeper tissues.

The following are symptoms of frostbite:

a. Skin changes color to white or grayish-yellow, progresses to reddish-violet, and finally turns black as the tissue dies;

b. Pain may be felt at first, but subsides;

c. Blisters may appear;

d. Affected part is cold and numb.

The first symptom of frostbite is usually an uncomfortable sensation of coldness followed by numbness. Tingling, stinging, cramping and aching feelings will be experienced by the victim. Frostbite of the outer layer of the skin has a waxy or whitish look and is firm to the touch. Cases of deep frostbite cause severe injury. The tissues are cold, pale and solid. The victim is often unaware of the frostbite until someone else observes these symptoms. It is therefore important to use the "buddy system" when working in cold environments, so that any symptoms of overexposure can be noted.

Table II describes the cooling power of wind on exposed flesh. This information can be used as a guide for determining equivalent chill temperatures when the wind is present in cold environments.

5. Trench Foot and Chilblains

Trench foot is swelling of the foot caused by long, continuous exposure to cold without freezing, combined with persistent dampness or immersion in water. Edema (swelling), tingling, itching and severe pain occurs, followed by blistering, necrotic tissue and ulcerations. Chilblains have similar symptoms as trench foot, except that other areas of the body are affected.

6. Frostnip

Frostnip occurs when the face or extremities are exposed to a cold wind, causing the skin to turn white.

5.0 PREVENTION OF COLD STRESS

Cold Stress can be prevented through a combination of various factors: acclimation; water and salt displacement; medical screening, proper clothing selection; and, training and education. Through the use of engineering controls, work practices, work/rest schedules, environmental monitoring and consideration of the wind-chill temperature, the employee can be protected.

1. Acclimatization

Acclimation can be achieved to some degree. Sufficient exposure to cold causes the body to undergo changes to increase comfort and reduce the risk of injury. But, these changes are minor and require repeated exposure to cold and uncomfortable temperatures to induce them.

2. Dehydration

The dryness of cold air causes the body to lose a significant amount of water through the skin and lungs. It is essential that caffeine-free, non-alcoholic beverages be available at the worksite for fluid replacement. Dehydration also increases the risk of injury due to cold and affects blood flow to the extremities.

3. Diet

A well-balanced diet is important for employees working in cold environments. Diets restricted only to certain foods may not provide the necessary elements for the body to withstand cold stress, leaving the worker vulnerable.

4. Control Measures

When the wind chill factor results in an equivalent temperature of -26F, continuous exposure of the skin will not be permitted. Any worker exposed to temperatures of 36F or less that becomes immersed in water will be given dry clothing immediately and treated for hypothermia at the local hospital if any symptoms of hyperthermia are present. Notification of this incident will be provided to the Health and Safety Division immediately after sending the worker to the hospital.

5. Engineering Controls

The following are some ways that environmental controls can be used to reduce the effects of a cold environment:

a. General or spot heating should be used to increase temperature in certain areas in the workplace;

b. Warm air jets, radiant heaters or contact warm plates can be used to warm the worker's hands if fine work is to be performed with bare hands for 10 to 20 minutes or more;

c. Shield the work area if air velocity at the work site is increased by wind, draft or ventilating equipment;

d. Metal handles of tools and control bars should be covered with thermal insulating material at temperatures below 30F;

e. Unprotected metal chair seats will not be used in cold environments;

f. When appropriate and feasible, equipment and processes will be substituted, isolated, relocated, or redesigned;

g. Power tools, hoists, cranes or lifting aids will be used to reduce the metabolic workload;

h. Heated warming shelters will be made available for continuous work being performed in an equivalent temperature of 20F or below. Workers will be encouraged to use the shelters regularly.

6. Administrative Work Practice Controls

Work practices and guidelines can be designed and developed to reduce exposure to cold stress. Some of these may include:

a. Work-rest schedules to reduce the peak of cold stress;

b. Enforce scheduled breaks;

c. Enforce intake of warm caffeine-free, non-alcoholic beverages;

d. Schedule work that has potential exposure to cold stress for the warmest part of the day;

e. Move work to warmer areas, whenever possible;

f. Assign extra workers for high-demand tasks;

g. Provide relief workers for other workers needing breaks;

h. Teach basic principles of recognizing and preventing cold stress;

i. Use the buddy system for work at 10F or below, and keep within eyeshot;

j. Allow new employees to adjust to the conditions before they work full-time in cold environments;

k. Minimize sitting and standing in one place for long periods of time;

l. Include weight and bulkiness of clothing when estimating work performance requirements and weights to be lifted;

Table III provides a work/warm-up schedule for cold environments, with wind chill taken into account.

7. Special Considerations

Older workers and workers with circulatory problems should be extra careful in cold environments. Sufficient sleep and good nutrition are important preventive measures for maintenance tolerance to the cold. Double shifts and overtime work should be avoided when working in cold environments.

If any of the following symptoms are observed on site, the affected worker will immediately go to warm shelter:

- Onset of heavy shivering;
- Frostnip;
- Feeling of excessive fatigue;
- Drowsiness;
- Euphoria.

After entering the warm shelter, the outer layer of clothing should be removed. If the clothing is wet from sweat and perspiration, dry clothing should be provided. If this is not feasible, then the clothing should be loosened to allow sweat to evaporate.

Anyone working in cold environments and on prescribed medication should consult their physician concerning any possible side effects due to cold stress. Those individuals suffering from diseases and/or taking medication that interferes with normal body temperature regulation or reduces the tolerance to cold will not be allowed to work in temperatures of 30F or below.

6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

In choosing PPE for cold environments, it is important to maintain airspace between the body and outer layer of clothing to retain body heat. The more air pockets, the better the insulation. The clothing should also allow for the evaporation of sweat if the skin is wet.

The most important parts of the body to protect are the feet, hands, head and face. Hands and feet become cooled most easily, because of their distance from the heart. Keeping the head covered is equally important. As much as 40% of body heat loss is through the head when it is exposed.

Ideal clothing for exposure to cold environments is made of cotton. Cotton picks up sweat off the body and brings it to the surface. Loosely fitted clothing also aids in sweat evaporation. Recommended clothing may include the following:

a. Polypropylene under shirt and shorts under thermal underwear (preferably two-piece);

b. Wool socks;

c. Wool or thermal pants, lapped over boot tops to keep out snow and water;

d. Suspenders (belts can constrict and reduce circulation);

e. Insulated work boots, preferably waterproof. Safety toe, if necessary;

f. Wool or cotton shirt;

g. Parka;

h. Knit cap/hard hat liner;

i. Wool mittens or gloves (depending on the dexterity required);

j. Face mask or scarf.

Dirty or greasy clothing loses much of its insulation value. Dirty clothing crushes air pockets, allowing air to escape more easily. Also, denim is not a good protective fabric. It is loosely woven and allows water to penetrate and wind to blow away body heat.

TABLE I
Progressive Clinical Presentation of Hypothermia*

Core Temperature Deg. C	Deg. F	Clinical Signs
37.6	99.6	"Normal" rectal temperature.
37	98.6	"Normal" oral temperature.
36	96.8	Metabolic rate increases in an attempt to compensate for heat loss.
35	95.0	Maximum shivering.
34	93.2	Victim conscious and responsive, with normal blood pressure.
33	91.4	Severe hypothermia below this temperature.
32	89.6	Consciousness clouded; blood pressure becomes difficult to obtain;
31	87.8	pupils dilated but react to light; shivering ceases.
30	86.0	Progressive loss of consciousness; muscular rigidity increases;
29	84.2	pulse and blood pressure difficult to obtain; respiratory rate decreases.
28	82.4	Ventricular fibrillation possible with myocardial irritability.
27	80.6	Voluntary motion ceases; pupils non-reactive to light; deep tendon and superficial reflexes absent.
26	78.8	Victim seldom conscious.
25	77.0	Ventricular fibrillation may occur spontaneously.
24	75.2	Pulmonary edema.
22	71.6	Maximum risk of ventricular fibrillation.
20	68.0	Cardiac standstill.
18	64.4	Lowest accidental hypothermia victim to recover.
17	62.6	Isoelectric electroencephalogram.
9	48.2	Lowest artificially cooled hypothermia patient to recover.

* Presentations approximately related to core temperature. Reprinted from the January 1982 issue of American Family Physician, published by the American Academy of Family Physicians.

TABLE II
Cooling Power of Wind on Exposed Flesh as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (mph)	**Actual Temperature Reading (Degrees Fahrenheit)**											
	50	**40**	**30**	**20**	**10**	**0**	**-10**	**-20**	**-30**	**-40**	**-50**	**-60**
	Equivalent Chill Temperature (F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect).	LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within one minute.			GREAT DANGER Flesh may freeze within 30 seconds.				
	Trenchfoot and immersion foot may occur at any point on this chart.											

* Developed by the U.S. Army Research Institute of Environmental Medicine, Natick, MA

Note #1: Wind speeds greater than 40 mph have little additional effect.

Note #2: Trenchfoot and immersion foot may occur at any point on this chart

TABLE III

Threshold Limit Values Work/Warm-up Schedule for 4 Hour Shift (*)

Air Temp.-Sunny Sky		**No Noticeable Wind**		**5 mph Wind**		**10 mph Wind**		**15 mph Wind**		**20 mph Wind**	
˚C (approx)	**˚F (approx)**	**Max. Work Period**	**No. of Breaks**	**Max. Work Period**	**No. of Breaks**	**Max. Work Period**	**No. of Breaks**	**Max. Work Period**	**No. of Breaks**	**Max. Work Period**	**No. of Breaks**
-26˚ to -28˚	-15˚ to -19˚	(Norm. Breaks)	1	(Norm.Breaks)	1	75 min.	2	55 min.	3	40 min.	4
-29˚ to -31˚	-20˚ to -24˚	(Norm. Breaks)	1	75 min	2	55 min.	3	40 min.	4	30 min.	5
-32˚ to -34˚	-25˚ to -29˚	75 min	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-35˚ to -37˚	-30˚ to -34˚	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-38˚ to -39˚	-35˚ to -39˚	40 min.	4	30 min.	5	Non-emergency work should cease					
-40˚ to -42˚	-40˚ to -44˚	30 min.	5	Non-emergency work should cease							
-43˚ & below	-45˚ & below	Non-emergency work should cease									

Notes for TABLE III:

1. Schedule applies to moderate to heavy work activity with warm-up breaks of 10 minutes in a warm location. For light to moderate work (limited physical motion), apply the schedule one step lower. For example, at -30F with no noticeable wind (step 4, a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4 hour period.

2. The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 mph, light flag moves; 10 mph, light flag fully extended; 15 mph, raises newspaper sheet; 20 mph, blowing drifting snow.

3. If only the wind-chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be: 1) special warm-up breaks should be initiated at a wind-chill cooling rate of about 17 W/m2; 2) all non-emergency work should have ceased at or before a wind-chill of 2250 W/m2. In general the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart over-compensates for the actual temperatures in the colder ranges, since windy conditions prevail at extremely low temperatures.

4. TLVs apply only for workers in dry clothing.

* Adapted from Occupational Health and Safety Division, Saskatchewan Department of Labour.

APPENDIX F

HEAT STRESS PROGRAM

1.0 INTRODUCTION

Heat stress is one of the most common (and potentially serious) illnesses at job sites. Although it is caused by a number of interacting factors, the wearing of personal protective equipment (PPE) puts the worker at a much higher risk during warmer environmental conditions. The results of heat stress range from fatigue to serious illness or death. Through regular fluid replacement and other preventive measures, heat stress can be controlled, leading to increased efficiency and a higher level of safety on the job.

2.0 PURPOSE

To create an awareness among employees concerning the body's physiologic responses to heat; different types of heat stress that can affect the body; recognition of signs and symptoms; first aid treatment; and, preventive measures.

3.0 SOURCES OF HEAT

There are two sources of heat that are important to anyone working in a hot environment:

- Internally generated metabolic heat;
- Externally imposed environmental heat.

4.0 PHYSIOLOGIC RESPONSES TO HEAT

The human body maintains a fairly constant internal temperature, even though it is exposed to varying environmental temperatures. To keep internal body temperatures within safe limits, the body must get rid of its excess heat, primarily through varying the rate and amount of blood circulation through the skin and the release of fluid onto the skin by the sweat glands. These automatic responses usually occur when the temperature of the blood exceeds 98.6°F and are kept in balance and controlled by the brain. In this process of lowering internal body temperature, the heart begins to pump more blood, blood vessels expand to accommodate the increased flow, and the microscopic blood vessels (capillaries) which thread through the upper layers of the skin begin to fill with blood. The blood circulates closer to the surface of the skin, and the excess heat is lost to the cooler environment.

If the heat loss from increased blood circulation through the skin is not adequate, the brain continues to sense overheating and signals the sweat glands in the skin to release large quantities of sweat onto the skin surface. Evaporation of sweat cools the skin, eliminating large quantities of heat from the body.

As environmental temperatures approach normal skin temperature, cooling of the body becomes more difficult. If air temperature is as warm as or warmer than the skin, blood brought to the body surface cannot lose its heat. Under these conditions, the heart continues to pump blood to the body surface, the sweat gland pour liquids containing electrolytes onto the surface of the skin, and the evaporation of the sweat becomes the principal effective means of maintaining a constant body temperature. Sweating does not cool the body unless the moisture is removed from the skin by evaporation. In high humidity, the evaporation of sweat from the skin is decreased and the body's efforts to maintain an acceptable body temperature may be significantly impaired. These conditions adversely affect an individual's ability to work in the hot environment. With so much blood going

to the external surface of the body, relatively less goes to the active muscles, the brain, and other internal organs; strength declines; and fatigue occurs sooner than it would otherwise. Alertness and mental capacity also may be affected. Workers who must perform delicate or detailed work may find their accuracy suffering, and others may find their comprehension and retention of information lowered.

When temperature differences exist between two or more bodies, heat can be transferred. Net heat transfer is always from the body (or object) of higher temperature to that of lower temperature and occurs by one or more of the following mechanisms:

Conduction. The transfer of heat from one point to another within the body, or from one body to another when both bodies are in physical contact. Conduction can be a localized source of discomfort from direct physical contact with a hot or cold surface, it is normally not a significant factor to total heat stress.

Convection. The transfer of heat from one place to another by moving gas or liquid. Natural convection results from differences in density caused by temperature differences. Thus warm air is less dense than cool air.

Radiation. The process by which energy, electromagnetic (visible and infrared), is transmitted through space without the presence or movement of matter in or through this space.

5.0 PREDISPOSING FACTORS TO HEAT STRESS

Factors that may predispose an individual to heat stress vary according to the individual. These factors include:

- Lack of physical fitness;
- Lack of acclimatization;
- Age;
- Dehydration;
- Obesity;
- Drug/alcohol abuse;
- Infection;
- Sunburn;
- Diarrhea;
- Chronic disease.

Predisposing factors and an increased risk of excessive heat stress are both directly influenced by the type and amount of PPE worn. PPE adds weight and bulk, reduces the body's access to normal heat exchange mechanisms (evaporation, convection and radiation) and increases energy expenditure.

6.0 FORMS OF HEAT STRESS AND FIRST AID

(The following excerpts were taken from NIOSH Publication No. 86-112, Working in Hot Environments):

"Excessive exposure to a hot work environment can bring about a variety of heat-induced disorders. Among the most common are heat stroke, heat exhaustion, heat cramps, fainting and heat rash.

Heat Stroke

Heat Stroke is the most serious of health problems associated with working in hot environments. It occurs when the body's temperature regulatory system fails and sweating becomes inadequate. The body's only effective means of removing excess heat is compromised with little warning to the victim that a crisis stage has been reached.

A heat stroke victim' skin is hot, usually dry, red or spotted. Body temperature is usually 105°F or higher, and the victim is mentally confused, delirious perhaps in convulsions, or unconscious. Unless the victim receives quick and appropriate treatment, death can occur.

Individuals with signs or symptoms of heat stroke require immediate hospitalization. First aid should be immediately administered. This includes removing the victim to a cool area, thoroughly soaking the clothing with water, and vigorously fanning the body to increase cooling. Further treatment, at a medical facility, should be directed to the continuation of the cooling process and the monitoring of complications which often accompany heat stroke. Early recognition and treatment are the only means of preventing permanent brain damage or death.

Heat Exhaustion

Heat Exhaustion includes several clinical disorders having symptoms which may resemble the early symptoms of heat stroke. Heat exhaustion is caused by the loss of large amounts of fluid by sweating, sometimes with excessive loss of salt. A worker suffering from heat exhaustion still sweats but experiences weakness or fatigue, giddiness, nausea or headache. In more serious cases, the victim may vomit or lose consciousness. The skin is clammy and moist, the complexion is pale or flushed, and the body temperature is normal or only slightly elevated.

In most cases, treatment involves having the victim rest in a cool place and drink plenty of liquids. Victims with mild cases of heat exhaustion usually recover spontaneously with this treatment. Those with severe cases may require extended care for several days. There are no known permanent effects.

Heat Cramps

Heat cramps are painful spasms of the muscles that occur among those who sweat profusely in heat, drink large quantities of water, but do not adequately replace the body's salt loss. The drinking of large amounts of water tends to dilute the body's fluids, while the body continues to lose salt. Shortly after, the low salt level in the muscles causes painful cramps. The affected muscles may be part of the arms, legs, or abdomen; but tired muscles

(those used in performing the work) are usually the ones most susceptible to cramps. Cramps may occur during or after work hours and may be relieved by taking salted liquids by mouth.

Fainting

Fainting occurs in workers not accustomed to hot environments and who stand erect and immobile in the heat.

With enlarged blood vessels in the skin and in the lower part of the body due to the body's attempts to control internal temperature, blood may pool there rather than return to the heart to be pumped to the brain. Upon lying down, the worker should soon recover. By moving around, and thereby preventing blood from pooling, the patient can prevent further fainting.

Heat Rash (Prickly Heat)

Heat rash, also known as prickly heat, is likely to occur in hot, humid environments where sweat is not as easily removed from the surface of the skin by evaporation and the skin remains wet most of the time. The sweat ducts become plugged, and a skin rash soon appears. When the rash is extensive or when it is complicated by infection, prickly heat can be very uncomfortable and may reduce a worker's performance. The worker can prevent this condition by resting in a cool place part of each day and by regularly bathing and drying the skin."

7.0 SELECTION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

During work periods where the increased risk of heat stress exists, each item's benefit will be carefully evaluated. Once the PPE is chosen, safe work durations/rest periods will be determined based on the following conditions:

- Anticipated work rate;
- Ambient temperature and humidity;
- Level of protection.

8.0 PREVENTION OF HEAT STRESS

Prevention of heat stress will be addressed in the following manner:

1. Adjustment of work schedules.

    a. Modify work/rest schedules.
    b. Enforce work slowdowns, as needed.
    c. Rotate personnel to minimize overstress or overexertion.
    d. When possible, work will be scheduled and performed during cooler hours.

1. Provide shelter or shaded areas to protect personnel during rest periods.

2. Maintain worker's body fluids at normal levels.

a. Drink approximately 12 to 16 ounces of non-caffeinated liquid (preferably water, Gatorade or equivalent) prior to the start of work. Caffeinated fluids act to dehydrate the worker.

b. Workers will be urged to drink a cup or two every 15 to 20 minutes, or at each break. A total of 1 to 1.5 gallons of water per individual per day are recommended for fluid replacement under heat stress conditions, but more may be required.

3. Encourage physical fitness among the workers.

   Gradually acclimatize workers on site to help build up an "immunity" to the conditions.

   - Heat acclimatization can usually be induced in 5 to 7 days of exposure at a hot job. For workers with previous experience with the job, acclimatization will include exposures of 50% for day 1, 60% for day 2, 80% for day 3, and 100% for the remaining additional days.

4. Provide cooling devices during prolonged work or severe heat exposure.

   a. Supply field showers or hose down areas.

   b. Supply personnel with cooling jackets, vests, and suits.

5. Train workers in recognition and treatment of heat stress.

6. Use of the buddy system that depends on the recognition of signs and symptoms of heat stress.

7. Identification of heat-intolerant individuals through medical screening.

APPENDIX G

PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM:

1.0 PURPOSE

This program has been developed to aide in the proper selection and use of personal protective equipment (PPE) to protect workers from identified potential hazards. Careful selection and use of adequate PPE should protect the respiratory system, skin, eyes, face, hands, feet, head, body and hearing. **CONTRACTOR** employees may work at a variety of job sites and locations, which may require different types of protective equipment. Client specific requirements will always be adhered to. **CONTRACTOR** will supply all PPE or reimburse the employee for the costs of PPE if the PPE is required as part of the project.

2.0 SCOPE

This program establishes criteria for the selection, use, donning and doffing, inspection, maintenance, storage, decontamination of PPE, and evaluation. This information is general, and specific PPE use should be included in the site-specific health and safety plan prepared for each project.

3.0 OSHA REQUIREMENTS (29 CFR 1910.120)

A written personal protective equipment program, which is part of the employer's safety and health program and also part of the site-specific health and safety plan shall be established. The PPE program shall address the elements listed below.

- PPE selection based upon site hazards
- PPE use and limitations of the equipment
- Work mission duration
- PPE maintenance and storage
- PPE decontamination and disposal
- PPE training and proper fitting
- PPE donning and doffing procedures
- PPE inspection procedures prior to, during and after use
- Evaluation of the effectiveness of the PPE program
- Limitations during temperature extremes, heat stress, and other appropriate medical considerations

OSHA Standard 29 CFR 1910.132 requires employers to assess the employer's workplace and determine if hazards are present that necessitate the use of PPE. This assessment must be certified in writing and documented.

Due to the variety of job sites and situations that **CONTRACTOR** personnel may be involved in, it is important that **CONTRACTOR** maintain a consistent approach in complying with health and safety procedures. The project manager and/or site supervisor are responsible for ensuring that all personnel wear the appropriate PPE. Failure to comply with these requirements may result in disciplinary action. Employee safety is a paramount concern for all **CONTRACTOR** managers and employees. These procedures will now require the following:

1. Protective footwear must be worn by all field personnel working in the field. Footwear must at a minimum include steel toe and shank protection. Additionally, chemical

protective footwear may also be required if the potential for contaminated materials exists. This type of protection will be required on a site-specific basis.

2. Eye protection must be worn by all field personnel during all sampling activities, drilling and earth removal activities, stack sampling, and inside manufacturing facilities. Eye protection must include side shields. Prescription lenses worn as eye protection and other protective eyewear must meet ANSI Z87.1-1989.

3. Hardhats are to be worn by all field personnel when in the field. New hardhats must meet ANSI Z89-1986.

4. Hand protection is to be worn on a task-specific basis. The hand protection must be selected based on the chemical hazards expected to be encountered. **CONTRACTOR** maintains a stock of a variety of gloves including:

Best:	Nitrile N-Dey
	PVC
	Latex
	Vinyl
	Solvex, Nitrile
	Leather Work Gloves

Additionally, nitrile coated Kevlar gloves or other types of puncture resistant gloves are to be worn by all personnel working with or cleaning glass impingers. Manufacturers that supply these gloves include Ansell Edmont, Jomac and Wells Lamont. Insulated electrical gloves with outer leather gloves is required when working around high-voltage systems. **CONTRACTOR** is responsible for supplying all personal protective equipment required for **CONTRACTOR**'s projects.

4.0 WORK MISSION DURATION

Before donning any PPE ensembles, workers will estimate their anticipated work duration. There are several limiting factors that affect the length of work time. These factors must be addressed:

- Air supply consumption
- Breakthrough time on respirator cartridges.
- Available cartridge for the chemical for air purifying respirators
- Permeation and penetration of the Chemical Protective Clothing/ensemble;
- Ambient temperature; and
- Coolant supply (ice or chilled area to keep the worker's body temperature at a normal temperature).

No single combination of PPE is capable of protection against all hazards. Thus PPE must be used in conjunction with other protective methods and its effectiveness evaluated periodically.

The use of PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress and impaired vision, mobility and communication. For any given situation,

equipment and clothing should be selected that provide an adequate level of protection. However, over-protection as well as under-protection can be hazardous and should be avoided when possible.

5.0 LEVEL OF PROTECTION

The following section describes the different levels of protection (A through D). Each level is described in the following manner: the protection provided; when this particular level of protection should be used; recommended and optional equipment; and, any limiting criteria. Combinations of PPE other than those described for Levels A, B, C and D protection may be more appropriate and may be used to provide the proper level of protection.

1. Level A

   a. Protection provided:

      - Level A provides the highest available level of respiratory, skin and eye protection.

   b. Should be used when:

      - The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on any of the following circumstances;
      - Measured (or potential for) high concentration of atmospheric vapors, gases or particulates;
      - Site operations and work functions involving a high potential for splash, immersion, or exposure to unexpected vapors, gases or particulates of materials that are harmful to skin or capable of being absorbed through intact skin;
      - Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible;
      - The Operations must be conducted in confined, poorly ventilated areas until absence of conditions requiring Level A protection is determined.

   c. Recommended equipment:

      - Pressure-demand, full face piece SCBA or pressure-demand supplied-air respirator with escape SCBA;
      - Fully-encapsulating, chemical-resistant suit (pressure-tested immediately before use);
      - Inner chemical-resistant suit;

- Inner chemical-resistant gloves;
- Chemical-resistant safety boots/shoes; and
- Two-way radio communications.

d. Optional equipment:

- Cooling unit;
- Coveralls;
- Long cotton underwear;
- Hard hat; and
- Disposable gloves and boot covers.

e. Limiting criteria:

- Fully encapsulating suit material must be compatible with the substances involved.

2. Level B

a. Protection provided:

- The same level of respiratory protection, but less skin protection than Level A.

b. Should be used when:

- The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves atmospheres with IDLH concentrations of specific substances that do not represent a severe skin hazard, or that do not meet the criteria for use of air purifying respirators;
- Atmospheres contain less than 19.5% oxygen; and
- Presence of incompletely identified vapors or gases indicated by direct-reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

c. Recommended equipment:

- Pressure-demand, full face piece SCBA or pressure-demand supplied-air respirator with escape SCBA;
- Chemical-resistant clothing (overalls and long-sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical-resistant one-piece suit);
- Inner and outer chemical-resistant gloves;

- Chemical-resistant safety boots/shoes;
- Hard hat; and
- Two-way radio communications.

d. Optional equipment:

- Coveralls;
- Disposable boot covers;
- Face shield; and
- Long cotton underwear.

e. Limiting criteria:

- Use only when the vapors or gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through the intact skin.
- Use only when it is highly unlikely that the work being done will generate either high concentrations of vapors, gases or splashes of material that will affect the exposed skin.

3. Level C

a. Protection provided:

- Level C provides the same level of skin protection as Level B, but a lower level of respiratory protection.

b. Should be used when:

- The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin;
- The types of air contaminants have been identified, concentrations measured, and a canister/cartridge is available that can remove the contaminant; and
- All criteria for the use of air-purifying respirators are met.

c. Recommended equipment:

- Full face piece or half face piece air-purifying negative pressure respirator;
- Chemical-resistant clothing;
- Inner and outer chemical-resistant gloves;
- Chemical-resistant safety boots and shoes;
- Disposable boot covers;
- Hard hat; and

- Two-way radio communications.

d. Optional equipment:

- Coveralls;
- Face shield;
- Escape bottle; and
- Long cotton underwear.

e. Limiting criteria:

- Atmospheric concentration of chemicals must not exceed IDLH levels; and
- The atmosphere must contain at least 19.5% oxygen.

4. Level D

a. Protection provided:

- No respirator protection and minimal skin protection.

b. Should be used when:

- The atmosphere contains no known hazard; and

- Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

c. Recommended equipment:

- Coveralls;
- Safety boots/shoes;
- Safety glasses or chemical splash goggles; and
- Hardhat.

d. Optional equipment:

- Gloves;
- Face shield.

e. Limiting criteria:

- This level should not be worn in the exclusion zone; and
- The atmosphere must contain at least 19.5% oxygen.

6.0 LEVEL OF PROTECTION UTILIZED BY CONTRACTOR PERSONNEL

Due to the nature of our work, personnel will not perform any work that will require the use of Level A protection. Contractor will not directly undertake assignments and Contractor does not train or equip its personnel to handle circumstances involving Level A protection. If Contractor

is working on a site and Level A is deemed necessary, the work will be subcontracted to a qualified firm. Contractor personnel should not directly undertake these tasks.

Sites where Contractor is working often require the use of Level C or D, with Level B equipment available on-site for emergency rescue if necessary. Any questions concerning the level of protection necessary to complete a certain task will be directed to the Corporate Environmental Safety Manager before setting up the job.

7.0 TYPES OF CONTRACTOR PPE

The following list contains all types of PPE that the **CONTRACTOR** has ready access to if required by site conditions or NGRID bid requirements for site activities.

1. Respiratory Equipment:

    a. SCBAs:

        - Used for emergency rescue and exposures greater than maximum use concentration limits set for canister/cartridge type negative pressure respirators.

    b. Supplied-air respirators:

        - MSA Premaire system.

    c. Negative pressure respirators:

        - Half face and full face, used for exposure to certain types of acid gases, organic vapors and particulates not greater than the canister/cartridge maximum use concentration limit.

2. Chemical protective apparel suits:

    a. Polycoated Tyvek®, Saranex, Chemrel and Tyvek® (porous). Provide protection against certain liquid chemicals.

        - Tyvek® provides protection against particulates only.

    b. Fire/flame retardant coveralls:

        - Provide protection against flash fires.

3. Insulated clothing (Provides protection against exposure to the cold:

    a. Chemical resistant gloves:

        - Provide protection for the hands against skin contact and skin absorption.

    b. Disposable boot covers:

- Protect safety boots from contamination and feet from contact with chemicals.

4. Eye protection:

   a. Safety glasses and chemical splash goggles.

      - Safety glasses protect the eyes against large particles and projectiles.
      - Chemical splash goggles protect the eyes against vaporized chemicals, splashes, large particles, and projectiles.

   b. Vented goggles do not provide protection against vapors and are not adequate for splashes, as material may seep inside the goggles.

5. Hard hat:

   - Provides protection against blows to the head. When worn with a liner, provides protection against the cold.

6. Construction safety boots:

   - Steel-toe and shank construction boots with chemically resistant soles protect the feet from heavy and sharp objects, and contact with chemicals.

7. Safety harnesses and lifelines:

   - Enable the individual to work in elevated areas or enter confined spaces to prevent falls and aid in rescue.

8. Hearing protection:

   - Provides protection against physiological damage.

9. Canvas work gloves:

   - Provide protection for the hands against abrasions and slivers.

8.0 SELECTION OF CHEMICALLY PROTECTIVE CLOTHING

1. Chemically-protective clothing (CPC) will be chosen in the following manner:

   a. Determine what chemicals are present on the site.

   b. CPC chosen must be resistant to permeation, degradation and penetration of the chemical(s).

      - Permeation - Process by which a chemical dissolves in and/or moves through a protective clothing material on a molecular level.

- Degradation - The loss of or change in the fabric's chemical resistance or physical properties due to exposure to chemicals, use or ambient conditions (e.g., sunlight).

- Penetration - The movement of chemicals through zippers, stitched seams or imperfections (e.g., pinholes) in CPC.

c. Review manufacturer's permeation data to determine the performance characteristics of the material to the specific chemical. .

d. Select CPC that protects against the greatest range of chemicals on the site and has the longest breakthrough time.

e. Discuss choice of CPC with the project CESM, PM, and SSO prior commencing work.

9.0 DONNING AND DOFFING PROCEDURES

The following procedures will be used by **CONTRACTOR** employees for donning and doffing PPE at protection Levels B and C. Donning and doffing will be performed with the assistance of an individual(s) located in the Support Zone and Contamination Reduction Zone, respectively. This individual will help the worker tape up and adjust PPE for proper fit, as well as remove PPE after decontamination.

1. Donning PPE

- Inspect the clothing and respirator before donning.

- Unzip the suit.

- Step into the legs of the suit, slipping the feet through the legs. Push arms through the sleeves.

- Pull leg cuffs over the feet.

- Put on chemical-resistant safety boots over the feet. Tape the leg cuff over the tops of the boots.

- Pull over chemical-resistant boot covers and tape over the leg cuff.

- If suit contains protective feet, wear chemical-resistant safety boots inside the suit with chemical-resistant boot covers over the suit and taped securely to the leg.

- If wearing a SCBA, don the face piece and adjust it to be secure, but comfortable. Do not connect the breathing hose. Open valve on the air tank.

- If wearing a negative pressure respirator, pull hood over the head and perform positive and negative pressure face piece seal test.

- Pull on chemical protective inner gloves.

- Pull on chemical protective outer gloves and tape securely to the sleeve of the suit.

- Securely tape the suit to protect all exposed skin around the neck area, and if wearing a full-face piece, tape around the edge of the hood-to-face piece junction.

- Put on hardhat, if needed, and tape securely on top of head so that the hard hat does not slide off.

2. Doffing PPE

- Doffing of PPE will not take place until the individual has been properly decontaminated by a suitably attired assistant. Both the worker and assistant will make every effort to avoid any direct contact with the outside of the suit.

- If the individual is wearing a SCBA, the hose connection to the diaphragm will be disconnected, leaving the face piece on the wearer. The remainder of the unit will be removed and decontaminated before proceeding further.

- If the individual is wearing a half-face or full-face negative pressure respirator, she/he will be instructed to leave it on until the doffing procedure is complete.

NOTE: Decontamination is to be performed in accordance with the Site-Specific Health and Safety Plan for the site.

10.0 DECONTAMINATION OF PPE

Whenever possible, disposable PPE will be used on-site. Disposable PPE includes the following:

- Chemical protective suits;
- Gloves; and
- Chemical protective boot covers.

After decontaminating the worker, PPE is disposed of on-site in labeled disposal containers.

11.0 INSPECTION OF PPE

PPE will be inspected prior to, during and after each use according to the procedure outlined below.

1. Prior to use (Reusable and Disposable PPE):

    a. Through reviewing available literature, determine that the clothing material is correct for the task.

    b. Visually inspect for:

        - Imperfect seams;
        - Non-uniform coatings;
        - Tears or holes; and
        - Malfunctioning closures.

    c. Hold up to the light and check for pinholes (inflate gloves and check for leaks).

    d. Flex and check for:

        - Cracks; and
        - Shelf deterioration.

    e. If previously used, check for:

        - Discoloration;
        - Swelling;
        - Stiffness and cracking; and
        - Holes and tears.

2. During use (Reusable and Disposable PPE), check for:

    a. Evidence of chemical attack.
    b. Discoloration, swelling, stiffening, softening and/or cracking.
    c. Tears.
    d. Punctures.
    e. Seam discontinuities.

    Note: Report any sense of breakthrough to the Health and Safety Assessment Division. Medical monitoring may be necessary to determine the extent of exposure.

3. After use (Reusable PPE), check for:

    a. Malfunctioning parts.
    b. Evidence of chemical attack.
    c. Punctures.
    d. Tears.
    e. Cracks.

12.0 MAINTENANCE AND STORAGE OF PPE

PPE, other than respiratory equipment, will be maintained and stored in accordance with the manufacturer's recommendations at a minimum to prevent damage due to exposure to dust, moisture, sunlight, chemicals, temperature extremes and sudden impact.

Employees are given Field Operations Equipment bags prior to working on any **CONTRACTOR** sites. PPE that is given to the individual solely for his/her use will be stored in this bag. Before and after each use, the PPE will be inspected to determine whether or not it is still "field worthy." Any PPE found to be defective will be reported to the Health and Safety Assessment Division and either discarded or repaired, as appropriate. Under no circumstances will defective PPE be used in the field.

8. The SSO will periodically inspect PPE issued for individual use.

    a. Unless the equipment can be repaired, any PPE found to be defective will be removed from service and discarded immediately.

    b. Repairable PPE will be tagged, returned to the SSO and sent out for repair.

13.0 EVALUATION OF PPE PROGRAM

CONTRACTOR's Personal Protection Equipment Program will be reviewed annually by the CESM. Any program deficiencies that are identified by a **CONTRACTOR** employee will be reported to the CESM, so that changes will be made immediately. All employees affected by the change(s) will be notified in writing.

Review of the PPE Program will include, but not be limited to, the following:

- Accident and illness experience on various job sites.
- Type and degree of exposure.
- Adequacy of equipment selection process.
- Degree of fulfillment of program objectives.
- Employee acceptance.
- Coordination with overall health and safety program elements.
- Recommendations for program improvements and modifications.
- Adequacy of program records.

APPENDIX H

CONTROL OF HAZARDOUS ENERGY PROGRAM “LOCK OUT/TAG OUT”

1.0 INTRODUCTION

The Lock Out/Tag Out Standard, 29 CFR 1910.147, is prevents approximately 120 deaths and 60,000 injuries per year. Under this standard, **CONTRACTOR** is required to establish a program that utilizes procedures for locking out and/or tagging to isolate and disable the equipment to prevent accidental start-up or release of stored energy. **CONTRACTOR** employees will identify, locate and control these energy sources, as necessary.

DEFINITIONS

Affected Employee: An employee whose job requires operation/use of equipment or machines on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. All **CONTRACTOR** personnel or subcontractors working in these circumstances are "affected employees."

Authorized Employee: A person who locks out or implements a tagout system procedure on machines or equipment in connection with the servicing or maintenance on that machine or equipment. An authorized person and an affected employee may be the same person when the affected employee's duties also include performing a lock out or tag out on a machine or equipment.

Capable of being Locked Out: An energy isolating device will be considered to be capable of being locked out either if it designed with a hasp or other attachment or integral part to which, or through which, a lock can be affixed, or if it has a locking mechanism built into it. Other energy isolating devices will also be considered to be capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized: Connected to an energy source or containing residual or stored energy.

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a slide gate; a slip blind; a line valve; a block; and, any similar device used to block or isolate energy. The term does not include a push button, selector switch, and other control circuit type devices.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Lockout: The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

Tagout: The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

2.0 PURPOSE

To establish procedures for locking out and/or tagging to isolate and disable equipment to prevent accidental startup or release of stored energy, and possible injury to employees.

3.0 SCOPE

This procedure applies to all field/facility operations that require all operative energy sources, including line breaking, in the work area to be shut down, locked out and tagged, so that **CONTRACTOR** employees may safely perform their job. Contractors and subcontractors performing work on **CONTRACTOR** projects will be required to comply with these requirements if their employer does not have a comparable lock out/tag out program already in place.

4.0 PROCEDURE

1. The authorized employee will evaluate the scope of work and all equipment, machines or industrial processes in the area that require the use of stored energy. Energized equipment that may cause a safety hazard will be shut down to eliminate the potential for injury.

2. Prior to beginning the work, the authorized employee will be sure that appropriate lock out/tag out equipment is available to isolate the energy source.

3. The authorized employee will ensure that all affected employees have been trained on the following topics:

    a. Scope of Work.

    b. Energy sources.

    c. Energy isolation devices.

    d. Lock out devices.

    e. Tags.

    f. Test procedures.

    g. Authorized personnel. Those individuals charged with the responsibility for deenergizing and reenergizing energy sources).

4. A safety meeting will take place immediately prior to work, and will be documented and placed in the job folder for future reference. All employees will sign the Lockout Worksheet prior to starting the work. See Attachment A for a copy of the Lockout Worksheet.

5. All energized equipment will be shut down before **CONTRACTOR** personnel or its contractors/subcontractors begin work on site. Shut down will take place in the following manner:

    a. The authorized employee will inform the client's representative of the need to shut down the equipment.

    b. The authorized employee, with assistance from the client's representative, will locate all power sources on the process or equipment.

    c. All power sources will be shut down and verified as such by the authorized employee.

    d. A NGRID standardized lockout device must be applied by all parties entering the energized area. Each authorized employee shall affix a personal lockout or tagout device to the group lockout device. Locks and tags shall identify the identity of the employee applying the device.

    e. Any necessary testing of equipment will be conducted to ensure that the process or equipment is free of energy.

    f. The authorized employee will attempt to operate the machine to be sure that it remains inoperative. All activation controls will be returned to the "off" position after testing.

    g. The authorized employee will apply a tag that bears the following warning, “DANGER - EQUIPMENT LOCKOUT” along with the authorized employee’s name, the date, and the time of the lockout.

    h. The authorized employee will complete the Lockout Worksheet.

    i. Equipment may now be released for work by the authorized employee. No release will be given until all required inspections and testing are performed.

6. Residual energy, i.e., pneumatic/hydraulic power, spring compression, and residual electrical energy in transformers are examples of residual energy that, when unsuspected, may present a greater hazard to the employee. These sources of energy will be identified, located and controlled in the following manner:

    a. Residual electrical energy can be controlled through grounding.

    b. Pneumatic/hydraulic line pressure can be released, allowing the weight to come to a rest.

    c. Spring tensions can be relieved.

d. Product lines will be double blocked (panned) and bled to prevent product from being released.

e. A lockout device and tag will be applied and secured by the authorized employee for the duration of the job to prevent residual energy from reaccumulating and creating a hazard to employees.

f. The lockout/tagout will be documented by the authorized employee on the Lockout Worksheet.

7. After all work is completed, the authorized employee will perform the following:

a. The authorized employee will inform everyone that the job is complete.

b. The Lockout Worksheet will be reviewed by the authorized employee with all employees to make sure that all employees are accounted for before re-energizing the equipment.

c. The authorized employee will be sure that all tools, debris or other material that could be placed into motion are removed before the equipment or process is re-energized. All employees will be instructed to stay clear of movable parts of the equipment or process.

d. All residual energy controls will be removed by the authorized employee, as well as all energy isolation lockouts and tags.

e. In the presence of the client's representative, energy will be restored to the equipment or process.

f. All lockout equipment removal will be documented on the Lockout Worksheet by the authorized employee. The Lockout Sheet will be placed in the job file at the end of the shift.

8. All employees must be accounted for before re-energizing equipment. When employees that have worked on the job are absent from the final inspection before re-energizing the equipment, the authorized employee will initiate the following:

a. The lockout sheet will be checked to account for all employees.

b. The authorized employee will obtain a Lockout/Tagout Absent Employee form (See Attachment B).

c. The authorized employee will appoint employees to look for the individual, paying special attention to high hazard areas where physical harm could result from the start-up of the equipment or process.

d. After a complete search of the equipment or process, and it has been determined by the authorized employee that the employee is not present, all outlying areas surrounding the site will be searched.

e. The area surrounding the site will be guarded to prevent the absent employee from inadvertently entering a hazardous situation.

f. The employer must make all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed.

g. The equipment or process will be cleared for re-energizing only by the authorized employee once all of the above conditions are met.

h. A copy of the completed Absent Employee form will be posted conspicuously in the work area, and not removed until the employee has been located. The client's representative will be notified of the situation so that the absent employee does not endanger himself/herself by entering an energized process or equipment.

9. When appropriate, contractors and subcontractors working under **CONTRACTOR**'s direction will be informed of their responsibilities, under the Lockout/Tagout Standard, to provide protection against hazardous energy.

a. When necessary within the scope of work, contractors and subcontractors without such a program, at the discretion of **CONTRACTOR**, will be disqualified from bidding on these projects.

b. Contractors and subcontractors with such a program will submit their program to the CESM for review. The contractor or subcontractor program must be comparable or more strict than **CONTRACTOR**'s program.

- Programs found to be insufficient in some areas will be returned, with the requested changes to be made before the program is acceptable for implementation.

- The copy of the program will be returned to the contractor or subcontractor, and will not be duplicated by CONTRACTOR or any of its employees.

10. All affected employees will be given training in these procedures prior to performing any lockout/tagout work. This training will be documented and maintained in the employees' training file with the CESM.

11. This procedure will be reviewed annually by the CESM to ensure that it is relevant to **CONTRACTOR** operations.

ATTACHMENT A

LOCKOUT WORKSHEET

LOCKOUT WORKSHEET

Job Location: _____ Project Manager: _____

Date: _____ Time: _____ a.m./p.m.

Equipment Description to be locked out: _____

Equipment No:_____

Energy Source(s): _____

Pre-Work Safety Meeting Minutes: _____

Lockout Hardware Used: _____
No of locks required: _____

HAZARDOUS ENERGY		ISOLATING DEVICES			CONTROL DEVICES			
Type	Magnitude	Type	Location	I.D. No.	Lock	Tag	Both	Add'l Measures

Methods use to verify isolation:
___Design of machine reviewed
___Circuitry tested
___Are valves or hydraulic system attached to electrical sources?
___Does the electrical cabinet have any live wire circuits?
___Based on the energy sources listed above, indicate all energy isolating verification procedures required to ensure lockout

_____
_____

Energy Restoration (Check each as you Progress): Time Completed

__ All personnel accounted for and in the clear. _____

__ Point(s) of operation free of tools and debris. _____

__ Points of operation restraints removed. _____

__ Lockout hardware removed. _____

__ Personnel clear of points of operation. _____

Energy Restoration (Check each as you Progress): Time Completed

___ Energy restored. _____

___ Equipment operation verified, client's rep on site. _____

___ Lockout terminated. _____

Employees' Signatures: _____

Date: _

ATTACHMENT B

LOCKOUT/TAGOUT ABSENT EMPLOYEE FORM

LOCKOUT/TAGOUT ABSENT EMPLOYEE FORM

NOTICE

Upon completion of work performed under lockout/tagout conditions, the following employee(s) listed below could not be located or accounted for:

_____

_____

_____

All attempts have been made to locate this employee at the jobsite. It has been verified that this employee is not in the vicinity of the hazardous energy source and will not be affected by the startup of equipment which was under lockout conditions.

_____ _____

Signature of Authorized Employee Date

Signature of Employer _____ Date_____

APPENDIX I

CONFINED SPACE/HOT WORK PERMITTING PROCEDURE

1.0 INTRODUCTION

Any material that is combustible or flammable is susceptible to ignition by heat-producing activity. Common materials such as floors, partitions, roofs, wooden members, paper, textiles, plastics, chemicals, flammable liquids and gases, and grass or brush are very likely to become involved in fire during hot work operations if adequate precautions are not taken.

Hot work is any work that requires the use of tools/equipment that have the potential to produce temperatures which could reasonably be expected to ignite flammable/combustible material or atmospheres in the vicinity of the work area. These tools/equipment have the capability of producing sparks, open flames, heat, or an electrical arc during use. Hot work is not limited to just welding, cutting and brazing, but also grinding, sawing (metal to metal) and chipping operations.

Confined spaces are defined as spaces that which is not designated or intended for normal human occupancy, has limited means of egress and poor natural ventilation. Confined space hazards exist if the potential for hazardous or explosive atmospheres and/or oxygen deficient hazards exist or if there is an engulfment hazard. Other hazards that could exist include mechanical sources and falls. Two types of confined spaces exist: permit required and non-permit required.

DEFINITIONS

Fire Blanket: Blanket made of fire-resistant material, such as NOMEX or KEVLAR (**not asbestos**), or treated wool, which can be used to cover combustible materials to prevent their ignition from sparks, flames or heat during hot work.

Attendant: Person who observes the confined space activities/hot work to ensure that ignition of the surrounding material does not occur. The Attendant will be equipped with a fully charged, suitable fire extinguisher and/or charged fire hose at the work area at the time of the hot work. The Attendant will not be assigned to any other duties.

Confined Space: Confined spaces are spaces that can be bodily entered but are not meant for human occupancy.

Entrant: Person who is trained and authorized to enter a confined space. Entrants are required to review air-monitoring data prior to entry into a permit required confined space PRCS and understand the hazards.

2.0 PURPOSE

To provide **CONTRACTOR** employees, who oversee hot work performed and confined space entry on projects, with a standard permitting and safety procedure to prevent injury or loss of life and property.

3.0 SCOPE

This procedure will apply to all **CONTRACTOR** employees who oversee hot work on projects utilizing welding, cutting, brazing, grinding, chipping, portable heaters, and other potential heat-producing equipment for field/facility activities. This procedure is also to be followed for all

confined space entry situations. This procedure will apply to all contractors or subcontractors working under **CONTRACTOR** that do not have an adequate Permitting Procedure in place with the company in which they are currently employed. All **CONTRACTOR** employees involved with confined space entry will be properly trained for the role and duties performed. Training will consist of hands-on training with **CONTRACTOR**'s confined space entry equipment including harnesses, retrieval equipment, air-line respirators and monitoring equipment. Certification that the training was satisfactorily complete will be provided and documentation maintained.

4.0 PROCEDURE

1. Hazard Identification

    a. The Project Manager will identify all work that requires tools, equipment, or operations that may produce sparks or temperatures that are sufficient to ignite flammable/combustible materials or atmospheres.

    b. The Project Manager, SSO and CESM will determine if a confined space entry is required and determine if the entry requires a permit. Any situation that has the potential to produce hazardous atmospheres or deplete oxygen will require a permit.

    c. This information will be included in the Site Specific Health and Safety Plan to be reviewed with the CESM prior to starting the project.

    d. The Project Manager will determine if the work can be performed without the use of hot work, i.e. alternative method to reduce the hazard.

    e. The CESM should consult the Project Manager if the there are questions on hazard determination. The SSO will act as the Entry Supervisor.

    f. The CESM will review entry with the Project Manager and review this program at least annually to make sure the Program is effective and enforced. Copies of completed permits will be retained for at least one year.

    g. The permit program will be reviewed to determine if it is adequate for the projects conducted. Incident reports will be reviewed, employee issues raised and entries reviewed. The permit program will be evaluated to determine if all hazards were adequately identified and evaluated. Additional protective equipment will be purchased, if necessary, for future entries if the review process shows that all hazards were not properly controlled. This review will be part of annual confined space training.

2. Area Preparation

    a. The following preparation for the work area will be made once it is determined that hot work is necessary:

        - All flammable/combustible materials will be relocated at least 35 feet away from the work area.

- All combustible materials that cannot be reasonably removed from the area will be covered with a fire blanket.

- An appropriate fully charged fire extinguisher and/or charged fire hose will be available at the work area before, during and 1/2 hour after hot work procedures have ended.

- All safety equipment will be on-site and functional.

The confined space entry area will be identified with a posted sign that reads:

Caution - Confined Space, and barricaded to prevent impact from external hazards and vehicles. Ground level entries will be ringed with a toe board to prevent objects from inadvertently being dropped into the space.

3. Pre-Work Safety Meeting

a. The Project Manager will assure that a pre-work safety meeting has been provided to the crew prior to any hot work/confined space entry being performed. Individuals involved with confined space entry will be identified as the authorized entrant(s), attendant and the entry supervisor. Additional individuals may be designated to conduct monitoring for multiple entries. This meeting will include, but not be limited to:

- Permitting conditions (environmental conditions, type of work to be performed). This would include reviewing the results of the initial monitoring of the test results, ventilation requirements, potential hazards and continuous testing procedures.

- Personnel authorized to sign-off on the permit. All personnel involved with the confined space entry must sign the permit and acknowledge the hazards expected to be encountered.

- Location of the permit. (Must be conspicuously posted.)

- Type of monitoring required.

- Designation of attendant and discussion of duties.

- Returning completed permit to Project Manager or client when work is complete and project has concluded.

b. During the pre-work safety meeting the authorized entrants will be identified and the entry procedure reviewed. The attendant will be specified and the monitoring and communication procedures reviewed. The entry will be reviewed with the designated entry supervisor before entry. The attendant will be responsible for conducting the air monitoring during the entry and providing results to the entrants and entry supervisor. The designated positions will be posted on the entry permit.

c. The entry supervisor will be responsible for meeting with the client prior to entry to identify if other contractors or client personnel will be working in close proximity to the confined space entry. The entry supervisor will coordinate entry activities in order to make sure the other work does not impact the entry or endanger entry personnel. The entry supervisor will attend scheduled project meetings with the client and other contractor representatives in order to properly coordinate the entry with other projects.

d. Initial air-monitoring results will be conducted immediately prior to entry and will be reviewed with the entry supervisor and the authorized entrants prior to entry. Air-monitoring procedures and alarm levels will also be reviewed. Ventilation of the space will be initiated before entry and periodic monitoring conducted prior to entry to verify the ventilation is adequate. Monitoring will be performed throughout entry by the attendant and entrants will wear meters with alarms to conduct monitoring during the entry.

e. The Project Manager will meet with the client to arrange for adequate rescue services from the client, if available, or from outside rescue operations. The Project Manager will discuss rescue procedures with representatives of the rescue operation and allow the rescue team to examine the area, practice the rescue and decline to act as the rescue team if they feel they are not adequately staffed or equipped. The entry cannot be conducted until adequate rescue services are provided.

f. The Project Manager will meet with the client to discuss other projects or contractors that could interfere with **CONTRACTOR**'s confined space work. **CONTRACTOR** will coordinate the entry to have minimal impact on other contractors in the area and to make sure **CONTRACTOR** personnel are not endangered by other contractors work.

4. Permit Completion

The Confined Space Work Permit (see Attachment A) will be completed by the Project Manager prior to beginning work each day. The permit will not be considered valid until all personnel involved with the entry have reviewed and signed the entry permit. The entry supervisor will review each permit at the completion of the entry to determine if monitoring and safety procedures are adequate for this project. The permit will be modified if appropriate. The permit will be conspicuously posted at the site of the work.

5. Attendant

A designated Attendant will be present to observe the hot work/confined space operation. The Attendant will maintain contact with personnel and conduct air monitoring. The Attendant will oversee safety retrieval systems and initiate the alarm if rescue is necessary. The Attendant will not perform entry rescue or enter the confined space unless relieved of duty by another authorized Attendant and is equipped with maximum respirator protection. The Attendant will monitor only one confined space entry at one time.

6. Entrant

Entrants will be identified on the permit and instructed on the purpose for the entry of the confined space. Entrants are responsible for adhering to the permit requirements and communicating with the Attendant. Once work tasks are completed the Entrant is responsible for removing equipment, sampling devices and exiting the confined space safely.

7. Entry Procedures:

- A minimum of three workers must be assigned and dedicated to each confined space entry activity: the confined space entrant, the confined space attendant and the entry supervisor.
- Where air-moving equipment is used to ventilate space, chemicals shall be removed from the vicinity to prevent introduction into the confined space.
- If flammable liquids, gases or vapors may be contained within the confined space, explosion-proof equipment will be used. All equipment shall be positively grounded.
- Blank, double block and bleed or otherwise isolate, lockout and tagout all chemical, physical and/or electrical hazards wherever possible. Reduce all forms of energy to zero state energy.
- One person (standby) must remain at the entryway at all times and must keep continuous contact wit the person entering the confined space. Contact must be maintained by line-of-sight, the safety line and/or radio. The standby attendant must not enter the confined space unless another trained person is available to act as standby, and he/she is equipped wit adequate respiratory protection and dermal protection.
- A ladder is required in all confined spaces deeper than the employee's shoulders. The ladder should be secured and not removed until all employees have exited the space. Do not rely on permanent ladders because they are often in poor condition. If the must be used, be sure of footing. Inspect permanent ladders for deterioration before entering and while descending. Try each step with one foot, while standing on the step above. When in doubt, use a portable ladder of adequate height to reach 3 feet above opening or a rope ladder or lower the entry person using a tripod. If a portable ladder is used, it should be tied off, if possible; otherwise, it should be held in place by the standby person.
- Vehicles should not be left running near confined space work or near air-moving equipment being used for confined space ventilation.
- Do not work without lighting. Use only "Explosion proof "lights or hand lamps. Lights and other illumination utilized in confined spaces shall be equipped with guards t prevent contact with light bulb.
- Any deviation from these confined space entry procedures requires the prior approval of the Safety Manager.

8. Atmospheric Monitoring

a. When cutting, grinding, heating or welding surfaces coated with epoxy finishes or paint, or when cutting certain metals with a welding torch, toxic fumes or vapors can

be emitted in the process. In these instances, monitoring may be required under the OSHA Standard. Therefore, it is the responsibility of the Project Manager to notify the Health and Safety Coordinator of these coatings and have them sampled (if unknown) to determine what type of monitoring will be required.

b. Occasionally, a "liner" will be adhered to the inside of a metal duct or tank. When hot work will be performed on such material, the liner will be removed at least 4 inches to each side of the cut to prevent toxic vapors from being emitted, or fire from occurring.

c. After moving all flammable materials out of the work area, the area will be monitored with a Combustible Gas Meter immediately before hot work takes place. LEL readings at or above 5% will necessitate that the area be ventilated before hot work operations begin. **Hot work should not proceed if readings of five percent or below cannot be achieved.**

d. All area monitoring must be performed continuously in hot work areas.

e. Hot work performed in confined spaces requires that contaminant specific air monitoring be performed. Air monitoring should be conducted in confined spaces whether there is hot work or not. Even non-permit spaces must be monitored initially to confirm the lack of hazardous atmospheres in the confined space. Contact the CESM to determine the type of air monitoring required for the contaminant.

f. Hot work performed on containers that previously contained flammable liquids (i.e. underground storage tanks) will not be performed until the Health and Safety Division has been contacted and has approved the work to be performed. **CONTRACTOR**'s Site Specific Health and Safety Plan for Flammable and Combustible Underground Storage Tank Removals contains detailed procedures for cleaning, inerting and cutting these types of containers.

g. Entrants and the attendant will continuously evaluate the permit-required space to determine if additional monitoring or more frequent monitoring is necessary. The permit may be revoked or modified accordingly. All entrants will leave the space if unsafe conditions are observed or measured. The permit will be invalidated and reviewed with the supervisor before re-entry is allowed. Additional monitoring will be performed at the request of employees or attendants. Atmospheric monitoring for confined space entry shall include the following procedures:

- Prior to employee entry and before validation/revalidation of a CSEP, remote atmospheric testing of the confined space shall be conducted at the top, middle, bottom and corners of the space.
- Monitoring shall be conducted with a remote monitor on a wand attached to a toxic gas meter. The monitor shall be able to reach the lowest point of the confined space.
- Air monitoring shall be performed in the following sequence: Oxygen content, flammability, toxicity (organic vapors, hydrogen sulfide, carbon monoxide, etc.)

- If toxic , explosive or oxygen-deficient atmospheres are detected, the area will be purged or ventilated prior to entry. Area must be retested prior to entry. A person can enter the space only if all three test results are within the limits set in the permit.
- If remote testing is not possible, Level B is required for entry.
- Monitors for oxygen content, combustible gases and toxic vapors will be carried into the confined space with the entry team.

9. Prohibitive Circumstances

a. Hot work will be prohibited if any of the following conditions exist:

- Oxygen levels greater than 21%.

- LEL greater than 5%.

- Organic vapor concentration greater than half of the Permissible Exposure Limits depending on contaminant (ventilation may reduce this hazard).

- Confined space entry will not be permitted if oxygen levels are below 19.5% or if the LEL is >10%. Individual hazardous constituents will be monitored and appropriate levels of respiratory protection will be issued.

10. Conditions of Permit Validity

a. A permit is not valid unless all necessary inspections and air monitoring (if required) have been performed and all required signatures appear on the permit.

b. Work permits will be judged as valid for the following time durations:

- Work Shift or when until a significant change in personnel occur.

- Duration of the hot work.

- When atmospheric changes dictate ceasing the operation, abate the hazard and re-inspect the work area before completing another permit.

c. Permits are valid up to one day and new permits must be completed each day or whenever the permit conditions change.

d. The local Fire Department or client emergency services will be contacted prior to entry into confined spaces. They will be notified of the reason for entry and be requested to be available for rescue and administrating first aid. If emergency rescue cannot be provided within three minutes **CONTRACTOR** will not conduct the entry. The permit program will be reviewed to determine if it is adequate for the projects conducted. Incident reports will be reviewed, employee issues raised and entries reviewed. The permit program will be evaluated to determine if all hazards were adequately identified and evaluated. Additional protective equipment

will be purchased, if necessary, for future entries if the review process shows that all hazards were not properly controlled. This review will be part of annual confined space training.

e. **CONTRACTOR** will coordinate the entry with client and/or other contractors present at the job site. Work will be evaluated to determine the impact by non-**CONTRACTOR** staff on the work being conducted.

f. If conditions change and **CONTRACTOR** employees are at risk the permit will be considered invalid.

g. The permit will be canceled once the project is complete or conditions change that warrant leaving the site. A new permit will be issued for future entries once a permit has been canceled.

11. Training and Program Review

All workers involved with confined space entry will receive training relative to their role on the project. Since **CONTRACTOR** conducts confined space entry infrequently training will be conducted prior to each project in order to refresh **CONTRACTOR** employees on the use of the equipment, monitoring procedures and the confined space entry program. The program will be reviewed annually or when new equipment is acquired. All completed permits will be reviewed and critiqued at the completion of each entry. The entrants and attendants will be interviewed after entry to determine if there were significant problems or concerns.

ATTACHMENT A

CONFINED SPACE PERMIT

CONTRACTOR

Confined Space Entry Permit

- Location of Confined Space _____ Date/time _____
  Purpose of entry _____ Duration _____
  Authorized by _____ ***Expires on*** _____

Attendant _____
Authorized Entrants _____

Measures for Isolating Equipment	**YES**	**NO**	Measures for Isolating Equipment	**YES**	**NO**
LOTO			Protective clothing		
Lines capped			Communications equipment		
Purging			Hot work permit needed		
Ventilation			Other PPE		
Secure area			**Special conditions**		
Harness and retrieval system			Pump out standing water		
Fire extinguishers			Excessive Heat		
Air line system/5-minute escape bottle			Low overhead		
SCBAs			Slippery surfaces		
Other Respirators			Unsecured ladder		

Atmospheric Monitoring

Tests to be Taken	yes	no	Acceptable Entry Conditions	Test # Date: Time:	1	2	3	4	5	6	7	8	9	10
Oxygen			19.5-23.5%											
LEL			<10%											
CO			<25 ppm											
H_2S			<5 ppm											
Other														

Individual conducting test:_____
Supervisor authorizing entry_____

Instruments used:

Instrument(s) name	Type	Serial #

Authorized Entrants within Space

Entrant's Name	Time In	Time Out	Authorized site Attendants

Emergency and rescue contact:_____

Entry supervisor approval to conduct entry_____ Date/time_____

APPENDIX J

INCIDENT REPORTING

1.0 ACCIDENT AND INCIDENT REPORTING

It is important that all accidents and incidents that result in injury, illness, or medical treatment be reported within 24 hours. If an accident occurs, the Contractor will call their Human Resources Director and Corporate Environmental Safety Manager (CESM) to provide information on the injury. The CESM will complete the first report of injury and file it accordingly. Copies will be sent to the Project Manager (PM) and Site Safety Officer (SSO). Supervisors are required to complete the Supervisor's Report of Accident included in this section. It is **CONTRACTOR'S** responsibility to investigate each incident, file appropriate paperwork, and conduct a follow-up analysis of each incident to develop information about the cause of the accident.

2.0 REPORTING PHONE NUMBERS

Accident/Incident Contact Information
Corporate Environmental Safety Manager:
Human Resources Director:

3.0 FIRST AID AND MEDICAL TREATMENT

The **CONTRACTOR** provides a First Aid Kit on each site and in each Company vehicle. It is there for use in the treatment of minor scratches, burns, headaches, nausea, etc. Each employee should verify the location of the nearest first aid kit and should make use of it whenever needed. Each kit is fully stocked and restocked monthly by an outside vendor. The kit includes bandages, over the counter medications, disinfecting supplies and topical ointments. The user of each kit is responsible for contacting the vendor to replace items used or submitting the kit to **CONTRACTOR** for replacement. Kits are to be inventoried by the Project Manager before being sent in the field. Only completely stocked kits are to be brought into the field. The kits are maintained in a weatherproof container and in accordance with ANSI Standard Z308.1-1998. The first aid supplies in each kit are included in Attachment A.

Any work related injury or illnesses that requires professional medical assistance should be reported immediately. Failure to promptly notify of a work related injury could make the claim questionable and subject to stricter review. The nearest medical center or hospital will be identified for each project. The phone number and location for this center will be determined before commencing field activities and be included in the Health and Safety Plan. The phone numbers will be posted by Site Safety Officer (SSO) or the Project Manager (PM) and available to all employees in order to provide prompt response to all injuries. The SSO or the PM will contact the nearest medical facility to determine the facility's capabilities and verify that the facility is willing to provide emergency medical services. The following actions for medical treatment scenarios is presented below:

1. Minor First Aid Treatment

   First aid kits are stored in each company vehicle. If an injury is sustained or results in minor first aid treatment:

   a. Inform your supervisor.
   b. Administer first aid treatment to the injury or wound.
   c. If a first aid kit is used, indicate usage on the accident investigation report.

d. Access to a first aid kit is not intended to be a substitute for medical attention.
e. Provide details for the completion of the accident investigation report.

2. Non-Emergency Medical Treatment

For non-emergency work-related injuries requiring professional medical assistance, management must first authorize treatment. If you sustain an injury requiring treatment other than first aid:

a. Inform your supervisor.

b. Proceed to the posted medical facility. Your supervisor will assist with transportation, if necessary.

c. Provide details for the completion of the accident investigation report.

3. Emergency Medical Treatment

If you sustain a severe injury requiring emergency treatment:

a. Call for help and seek assistance from a co-worker.

b. Use the emergency telephone numbers and instructions posted next to the telephone in your work area to request assistance and transportation to the local hospital emergency room.

c. Provide details for the completion of the accident investigation report.

d. The Project Manager will identify an ER provider for each long-term project for emergency medical services. The phone number will be posted at each job site.

4. First Aid Training

Each employee will receive training and instructions from his or her supervisor on our first aid procedures.

5. Wounds

a. Minor - Cuts, lacerations, abrasions, or punctures

- Wash the wound using soap and water; rinse it well.
- Cover the wound using clean dressing.

b. Major - Large, deep and bleeding

- Stop the bleeding by pressing directly on the wound, using a bandage or cloth.
- Keep pressure on the wound until medical help arrives.

6. Broken Bones

   a. Do not move the victim unless it is absolutely necessary.

   b. If the victim must be moved, “splint” the injured area. Use a board, cardboard, or rolled newspaper as a splint.

7. Burns

   a. Thermal (Heat)

      - Rinse the burned area, without scrubbing it, and immerse it in cold water; do not use ice water.

      - Blot dry the area and cover it using sterile gauze or a clean cloth.

   c. Chemical

      - Flush the exposed area with cool water immediately for 15 to 20 minutes.

8. Eye Injury

   a. Small particles

      - Do not rub your eyes.

      - Use the corner of a soft clean cloth to draw particles out, or hold the eyelids open and flush the eyes continuously with water.

   b. Large or stuck particles

      - If a particle is stuck in the eye, do not attempt to remove it.
      - Cover both eyes with bandage.

   c. Chemical

      - Immediately irrigate the eyes and under the eyelids, with water, for 30 minutes.

9. Neck And Spine Injury

   If the victim appears to have injured his or her neck or spine, or is unable to move his or her arm or leg, do not attempt to move the victim unless it is absolutely necessary.

10. Heat Exhaustion

    a. Loosen the victim’s tight clothing.
    b. Give the victim “sips” of cool water.

Make the victim lie down in a cooler place with the feet raised.

4.0 FIRST AID/CPR Certification

Each **CONTRACTOR** project will identify individuals that are certified CPR/first aid. First aid training sponsored by the American Red Cross is acceptable and must be renewed every three years. CPR training must be renewed annually. Other first aid training will be reviewed to see if it is comparable to the Red Cross training.

5.0 SAFETY RESPONSIBILITIES

The Contractor and Subcontractor employees also have some important responsibilities concerning safety. They are:

a. The responsibility of reporting all injuries and illnesses to your supervisor, no matter how small.

b. The responsibility of always following the safety rules for every task performed.

c. The responsibility of reporting any hazards seen.

d. The responsibility of helping co-workers recognize unsafe actions or conditions.

e. The responsibility of asking about the safety rules.

It is impossible to list or include all safety rules for all the possible tasks. But the following rules have been prepared to help the employee avoid hazards, which may cause injury while doing some of the more common tasks. Failure to follow safety rules and/or safe practices will result in disciplinary action, up to and including termination.

Supervisor's Report of Accident

Supervisor's Name: _____

Basic Rules for Accident Investigation

- Find the cause to prevent future accidents - Use an unbiased approach during investigation.
- Interview witnesses & injured employees at the scene - conduct a walkthrough of the accident.
- Conduct interviews in private - Interview one witness at a time.
- Get signed statements from all involved.
- Take photos or make a sketch of the accident scene.
- What hazards are present - what unsafe acts contributed to accident
- Ensure hazardous conditions are corrected immediately.

Date & Time		**Location**	
Tasks performed		**Witnesses**	
Resulted in	**__ Injury __ Fatality** **__Property Damage**	**Property Damage**	
Injured		**Injured**	
Describe Accident Facts & Events			

Supervisor's Root Cause Analysis	*Check ALL that apply to this accident*		
Unsafe Acts		**Unsafe Conditions**	
Improper work technique		Poor Workstation design	
Safety rule violation		Unsafe Operation Method	
Improper PPE or PPE not used		Improper Maintenance	
Operating without authority		Lack of direct supervision	
Failure to warn or secure		Insufficient Training	
Operating at improper speeds		Lack of experience	
By-passing safety devices		Insufficient knowledge of job	
Protective equipment not in use		Slippery conditions	
Improper loading or placement		Excessive noise	
Improper lifting		Inadequate guarding of hazards	
Servicing machinery in motion		Defective tools/equipment	
Horseplay		Poor housekeeping	
Drug or alcohol use		Insufficient lighting	
Unsafe Acts require a written warning and re-training <u>before</u> the Employee resumes work			

Date		Date	
Re-Training Assigned		Unsafe Condition Guarded	
Re-Training Completed		Unsafe Condition Corrected	
Supervisor Signature		**Supervisor Signature**	

Accident Report Review

Supervisor _____ Date _____

Department Superintendent _____ Date _____

Safety Manager _____ Date _____

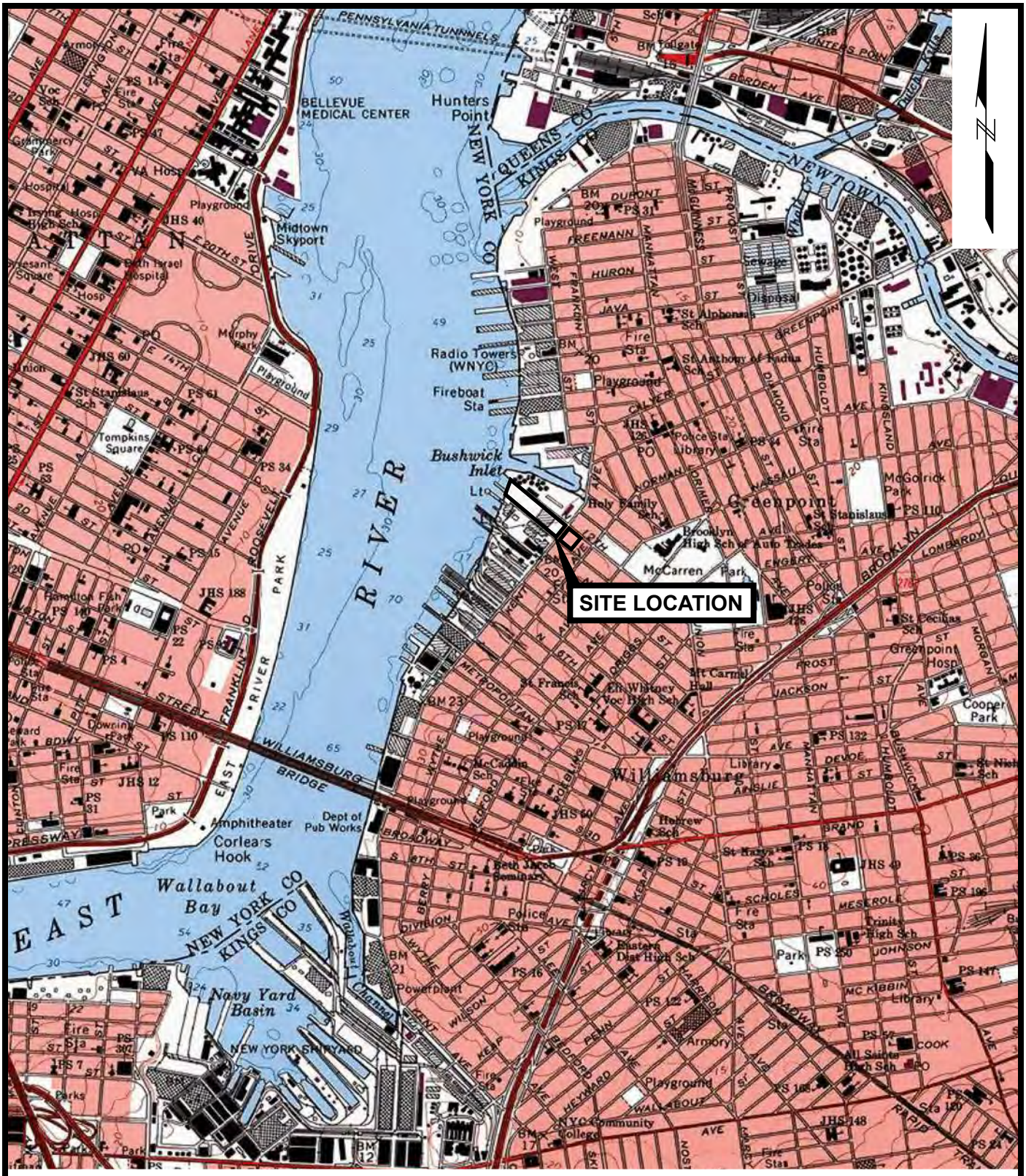
Plant Manager _____ Date _____

ATTACHMENT A

First Aid Kits

Each first aid kit is in a weather proof container and contains the following:

Item	Amount
Ear Plugs	2 pair
Band-aids	2 boxes
Sterile pads	5 2”x2”
Oval eye pads	2
Tylenol	10
Burn cream	1 tube
Tweezers	1 each
Scissors	1 each
Triangular bandage	1
Antiseptic wipes	1 box
Ammonia inhalants	1 box
Flexible gauze	1 roll
First aid guide	
Latex gloves	2 pair



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SCALE, FEET

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REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

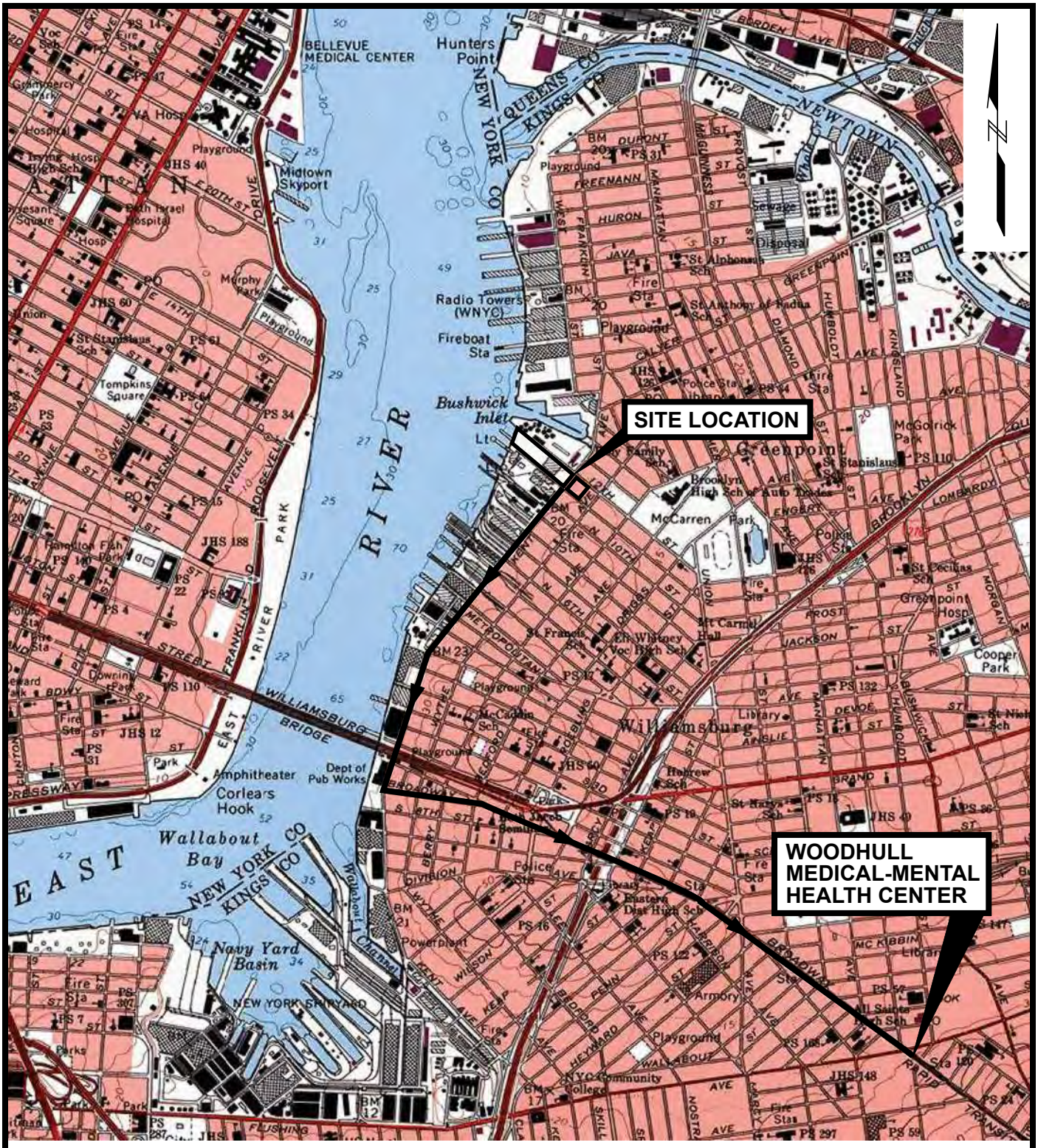
KEYSPAN CORPORATION
BROOKLYN, NEW YORK

GEI Consultants

SITE LOCATION MAP

Project 080090-1002 | April 2008 | Figure 1

KEYSPAN\WILLIAMSBURG\WORK PLAN\WILLIAMSBURG LOCATION MAP.CDR



Directions to the Hospital:
Head southwest on Kent Avenue toward N 11th Street.
Turn left at Broadway.
1.6 miles to Woodhull Medical-Mental Health Center at 760 Broadway, Brooklyn, NY.

0 2000 4000
SCALE, FEET

SOURCE: MAP CREATED WITH TOPO!™ ©2000 WILDFLOWER PRODUCTIONS (www.topo.com)

REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

KEYSPAN CORPORATION
BROOKLYN, NEW YORK

GEI Consultants

ROUTE TO THE HOSPITAL MAP

Project 080090-1002 | April 2008 | Figure 2

KEYSPAN\WILLIAMSBURG\WORK PLAN\WILLIAMSBURG LOCATION MAP.CDR

APPENDIX K

ADDENDUM

MATERIAL SAFETY DATA SHEETS

Genium Publishing Corporation
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Schenectady, NY 12303-1836 USA
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Material Safety Data Sheets Collection:

Sheet No. 316
Benzene

Issued: 11/78 Revision: E, 8/90

Section 1. Material Identification

Benzene (C_6H_6) Description: Derived by fractional distillation of coal tar, hydrodealkylation of toluene or pyrolysis of gasoline, catalytic reforming of petroleum, and transalkylation of toluene by disproportionation reaction. Used as a fuel; a chemical reagent; a solvent for a large number of materials such as paints, plastics, rubber, inks, oils, and fats; in manufacturing phenol, ethylbenzene (for styrene monomer), nitrobenzene (for aniline), dodecylbenzene (for detergents), cyclohexane (for nylon), chlorobenzene, diphenyl, benzene hexachloride, maleic anhydride, benzene-sulfonic acid, artificial leather, linoleum, oil cloth, varnishes, and lacquers; for printing and lithography; in dry cleaning; in adhesives and coatings; for extraction and rectification; as a degreasing agent; in the tire industry; and in shoe factories. Benzene has been banned as an ingredient in products intended for household use and is no longer used in pesticides.
Other Designations: CAS No. 0071-43-2, benzol, carbon oil, coal naphtha, cyclohexatriene, mineral naphtha, nitration benzene, phene, phenyl hydride, pyrobenzol.
Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide*[73] for a suppliers list.

R 1
I 4
S 2*
K 4
*Skin absorption

NFPA
3
2 0
-

HMIS
H 3
F 3
R 0
PPG†
† Sec. 8

Cautions: Benzene is a confirmed *human carcinogen* by the IARC. *Chronic low-level exposure may cause cancer (leukemia) and bone marrow damage, with injury to blood-forming tissue.* It is also a dangerous fire hazard when exposed to heat or flame.

Section 2. Ingredients and Occupational Exposure Limits

Benzene, ca 100%*

1989 OSHA PELs
(29 CFR 1910.1000, Table Z-1-A)
8-hr TWA: 1 ppm, 3 mg/m³
15-min STEL: 5 ppm, 15 mg/m³

(29 CFR 1910.1000, Table Z-2)
8-hr TWA: 10 ppm
Acceptable Ceiling Concentration: 25 ppm
Acceptable Maximum Peak: 50 ppm (10 min)†

1989-90 ACGIH
TLV-TWA: 10 ppm, 32 mg/m³

1988 NIOSH RELs
TWA: 0.1 ppm, 0.3 mg/m³
Ceiling: 1 ppm, 3 mg/m³

1985-86 Toxicity Data‡
Man, oral, LD_{Lo}: 50 mg/kg; no toxic effect noted
Man, inhalation, TC_{Lo}: 150 ppm inhaled intermittently over 1 yr in a number of discrete, separate doses affects the blood (other changes) and nutritional and gross metabolism (body temperature increase)
Rabbit, eye: 2 mg administered over 24 hr produces severe irritation

* OSHA 29 CFR 1910.1000, Subpart Z, states that the final benzene standard in 29 CFR 1910.1028 applies to all occupational exposures to benzene except in some subsegments of industry where exposures are consistently under the action level (i.e., distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures); for the excepted subsegments, the benzene limits in Table Z-2 apply.
† Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift.
‡ See NIOSH, *RTECS* (CY1400000), for additional irritative, mutative, reproductive, tumorigenic, and toxicity data.

Section 3. Physical Data

Boiling Point: 176 °F (80 °C)
Melting Point: 42 °F (5.5 °C)
Vapor Pressure: 100 mm Hg at 79 °F (26.1 °C)
Vapor Density (Air = 1): 2.7
Evaporation Rate (Ether = 1): 2.8

Molecular Weight: 78.11
Specific Gravity (15 °C/4 °C): 0.8787
Water Solubility: Slightly (0.180 g/100 g of H_2O at 25 °C)
%Volatile by Volume: 100
Viscosity: 0.6468 mPa at 20 °C

Appearance and Odor: A colorless liquid with a characteristic sweet, aromatic odor. The odor recognition threshold (100% of panel) is approximately 5 ppm (unfatigued) in air. Odor *is not* an adequate warning of hazard.

Section 4. Fire and Explosion Data

Flash Point: 12 °F (-11.1 °C), CC	Autoignition Temperature: 928 °F (498 °C)	LEL: 1.3% v/v	UEL: 7.1% v/v

Extinguishing Media: Use dry chemical, foam, or carbon dioxide to extinguish benzene fires. Water may be ineffective as an extinguishing agent since it can scatter and spread the fire. Use water spray to cool fire-exposed containers, flush spills away from exposures, disperse benzene vapor, and protect personnel attempting to stop an unignited benzene leak.
Unusual Fire or Explosion Hazards: Benzene is a Class 1B flammable liquid. A concentration exceeding 3250 ppm is considered a potential fire explosion hazard. Benzene vapor is heavier than air and can collect in low lying areas or travel to an ignition source and flash back. Explosive and flammable benzene vapor-air mixtures can easily form at room temperature. Eliminate all ignition sources where benzene is used, handled, or stored.
Special Fire-fighting Procedures: Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode and full protective equipment. Structural firefighter's protective clothing provides limited protection. Stay out of low areas. Be aware of runoff from fire control methods. Do not release to sewers or waterways. Runoff to sewer can create pollution, fire, and explosion hazard.

Section 5. Reactivity Data

Stability/Polymerization: Benzene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Benzene explodes on contact with diborane, permanganic acid, bromine pentafluoride, peroxodisulfuric acid, and peroxomonosulfuric acid. It ignites on contact with dioxygen difluoride, dioxygenyl tetrafluoroborate, iodine heptafluoride, and sodium peroxide + water. Benzene forms sensitive, explosive mixture with iodine pentafluoride, ozone, liquid oxygen, silver perchlorate, nitryl perchlorate, nitric acid, and arsenic pentafluoride + potassium methoxide (explodes above 30 °C). A vigorous or incandescent reaction occurs with bromine trifluoride, uranium hexafluoride, and hydrogen + Raney nickel [above 410 °F (210 °C)]. Benzene is incompatible with oxidizing materials.
Conditions to Avoid: Avoid heat and ignition sources.
Hazardous Products of Decomposition: Thermal oxidative decomposition of benzene can produce toxic gases and vapors such as carbon monoxide.

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Section 6. Health Hazard Data

Carcinogenicity: The ACGIH, OSHA, and IARC list benzene as, respectively, a supected human carcinogen, a cancer hazard, and, based on sufficient human and animal evidence, a human carcinogen (Group 1).
Summary of Risks: Prolonged skin contact or excessive inhalation of benzene vapor may cause headache, weakness, appetite loss, and fatigue. The most important health hazards are cancer (leukemia) and bone marrow damage with injury to blood-forming tissue from chronic low-level exposure. Higher level exposures may irritate the respiratory tract and cause central nervous system (CNS) depression.
Medical Conditions Aggravated by Long-Term Exposure: Exposure may worsen ailments of the heart, lungs, liver, kidneys, blood, and CNS.
Target Organs: Blood, central nervous system, bone marrow, eyes, upper respiratory tract, and skin.
Primary Entry Routes: Inhalation, skin contact.
Acute Effects: Symptoms of acute overexposure include irritation of the eyes, nose, and respiratory tract, breathlessness, euphoria, nausea, drowsiness, headache, dizziness, and intoxication. Severe exposure may lead to convulsions and unconsciousness. Skin contact may cause a drying rash (dermatitis).
Chronic Effects: Long-term chronic exposure may result in many blood disorders ranging from aplastic anemia (an inability to form blood cells) to leukemia.
FIRST AID
Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.
Skin: *Quickly* remove contaminated clothing. Immediately rinse with flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.
Inhalation: Remove exposed person to fresh air. Emergency personnel should protect against inhalation exposure. Provide CPR to support breathing or circulation as necessary. Keep awake and transport to a medical facility.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, *do not induce vomiting* since aspiration may be fatal. Call a physician immediately.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Physician's Note: Evaluate chronic exposure with a CBC, peripheral smear, and reticulocyte count for signs of myelotoxicity. Follow up any early indicators of leukemia with a bone marrow biopsy. Urinary phenol conjugates may be used for biological monitoring of recent exposure. Acute management is primarily supportive for CNS depression.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: *Design and practice a benzene spill control and countermeasure plan (SCCP).* Notify safety personnel, evacuate all unnecessary personnel, eliminate all heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against vapor inhalation, eye contact, and skin absorption. Absorb as much benzene as possible with an inert, noncombustible material. For large spills, dike far ahead of spill and contain liquid. Use nonsparking tools to place waste liquid or absorbent into closable containers for disposal. Keep waste out of confined spaces such as sewers, watersheds, and waterways because of explosion danger. Follow applicable OSHA regulations (29 CFR 1910.120).
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
EPA Designations
Listed as a RCRA Hazardous Waste (40 CFR 261.33), Hazardous Waste No. U019
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity (RQ): 1000 lb (454 kg) [* per Clean Water Act, Sec. 307 (a), 311 (b)(4), 112; and per RCRA, Sec. 3001]
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as SARA Toxic Chemical (40 CFR 372.65)
OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000, Tables Z-1-A and Z-2)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).
Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*
Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent skin contact.
Ventilation: Provide general and local explosion-proof ventilation systems to maintain airborne concentrations at least below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[103]
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Never wear contact lenses in the work area: soft lenses may absorb, and all lenses concentrate, irritants. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in tightly closed containers in a cool, dry, well-ventilated area away from all heat and ignition sources and incompatible materials. *Caution! Benzene vapor may form explosive mixtures in air.* To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations in production and storage areas. When opening or closing benzene containers, use nonsparking tools. Keep fire extinguishers readily available.
Engineering Controls: Because OSHA specifically regulates benzene (29 CFR 1910.1028), educate workers about its potential hazards and dangers. Minimize all possible exposures to carcinogens. If possible, substitute less toxic solvents for benzene; use this material with extreme caution and only if absolutely essential. Avoid vapor inhalation and skin and eye contact. Use only with adequate ventilation and appropriate personal protective gear. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Designate regulated areas of benzene use (see legend in the box below) and label benzene containers with "DANGER, CONTAINS BENZENE, CANCER HAZARD."
Other Precautions: Provide preplacement and periodic medical examinations with emphasis on a history of blood disease or previous exposure.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Benzene (*benzol*)
DOT Hazard Class: Flammable liquid
ID No.: UN1114
DOT Label: Flammable liquid
DOT Packaging Exceptions: 173.118
DOT Packaging Requirements: 173.119

IMO Shipping Name: Benzene
IMO Hazard Class: 3.2
ID No.: UN1114
IMO Label: Flammable liquid
IMDG Packaging Group: II

DANGER
BENZENE
CANCER HAZARD
FLAMMABLE–NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

MSDS Collection **References:** 1, 2, 12, 26, 73, 84-94, 100, 101, 103, 109, 124, 126, 127, 132, 134, 136, 138, 139, 143
Prepared by: MJ Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Upfal, MD, MPH; **Edited by:** JR Stuart, MS

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Material Safety Data Sheets Collection:

Sheet No. 409
Cresol (Mixed Isomers)

Issued: 12/78 Revision: B, 3/92

Section 1. Material Identification

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Cresol, *mixed isomers* ($CH_3C_6H_4OH$) Description: Derived from coal tar or petroleum. Cresol is marketed by individual isomer and as pure or crude cresol. Pure cresol is a mixture of *ortho*, *meta*, and *para* isomers. Crude cresol (commercial cresol) is prepared by distilling "grey phenic acid" at 356 to 401 °F (180 to 205 °C) and is comprised of 20% *ortho*, 40% *meta*, and 30% *para* isomers, plus small amounts of phenol and xylenols. Each isomer can be prepared synthetically by diazotization of the specific corresponding toluidine. Used in manufacturing synthetic resins, explosives, photographic developers, petroleum, paint, disinfectants, and fumigants; as an ore flotation agent; and in the agriculture industry for herbicides and insecticides.
Other Designations: CAS No. 1319-77-3, Bacillol, creasylic acid, Tekresol, tricresol.
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

Cautions: Cresol is severely irritating to mucous membranes, eyes, and skin. Depending on the cresol concentration, extent of exposure, and amount of skin exposed, toxicity may be slight (irritation) or severe (permanent injury or death).

R 1
I 4
S 3*
K 2
* Skin absorption

NFPA

HMIS
H 3
F 2
R 0
PPG†
† Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Cresol (*mixed isomers*) National Formulary (NF) grade contains < 5% phenol

1990 OSHA PEL (Skin)
8-hr TWA: 5 ppm (22 mg/m³)

1990 NIOSH REL
TWA: 5 ppm (22 mg/m³)

1990 IDLH Level
250 ppm

1991-92 ACGIH TLV (Skin)
TWA: 5 ppm (22 mg/m³)

1990 DFG (Germany) MAK
TWA: 5 ppm (22 mg/m³) (H)*
Peak Exposure Limit: 10 ppm, 5 min, momentary value/8 per shift

1985-86 Toxicity Data†
Rat, oral, LD_{50}: 1454 mg/kg; toxic effects not yet reviewed
Mouse, inhalation, LC_{50}: 179 mg/m³/2 hr; no toxic effects noted (*o*-)
Rabbit, eye: 103 mg produced severe irritation (*p*-)
Rabbit, skin: 517 mg applied for 24 hr produced severe irritation (*m*-)
Rabbit, skin, LD_{50}: 2000 mg/kg; toxic effects not yet reviewed

* Danger of cutaneous absorption.
† See NIOSH, *RTECS* (GO5950000), for additional toxicity data. For data on specific isomers, see *RTECS* (GO6125000, *meta*; GO6300000, *ortho*; and GO6475000, *para*).

Section 3. Physical Data

Boiling Point Range: 375.8 to 397.4 °F (191 to 203 °C)
Melting Point Range: 51.8 to 95 °F (11 to 35 °C)
Vapor Pressure: 0.25 (*ortho*), 0.15 (*meta*), 0.11 (*para*) mm Hg at 68 °F (20 °C)
Vapor Density (air = 1): 3.72
pH: Saturated solutions are neutral or slightly acidic to litmus
Viscosity: 4.49 to 7.0 cP at 104 °F (40 °C)
Molecular Weight: 108.13
Specific Gravity: 1.030 to 1.038 at 77 °F (25 °C)
Water Solubility: Soluble, 1%
Other Solubilities: Soluble in alcohol, ether, dilute alkalies, glycol and vegetable oils
Refraction Index: 1. 5353 at 75.2 °F (24 °C)
Odor Threshold: Low, 0.012 mg/m³; high, 22 mg/m³

Appearance and Odor: Colorless, yellow, or pinkish liquid turning brown on exposure to air or light with a phenolic odor and pungent taste.

Section 4. Fire and Explosion Data

Flash Point: 178 °F (81.11 °C, *ortho*), 187 °F (86.11 °C, *meta* and *para*), CC	**Autoignition Temperature:** 1110 °F (559 °C, *ortho*), 1038 °F (558 °C, *meta* and *para*)	**LEL:** 1.4% (*ortho*), 1.1% (*meta* and *para*) at 302 °F (150 °C)	**UEL:** None reported

Extinguishing Media: While cresol does not ignite easily, it burns. For small fires, use dry chemical, carbon dioxide (CO_2), water spray, or regular foam. For large fires, use water spray, fog, or regular foam. Do not scatter material with more water than is necessary to put out fire.
Unusual Fire or Explosion Hazards: Container may explode in heat of fire.
Special Fire-fighting Procedures: Since fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighters' protective clothing is ineffective for fires involving cresol. Use clothing the manufacturer recommends specifically for use with cresol. If possible without risk, remove container from fire area. Fight fire from maximum distance. Stay away from ends of tanks. Be aware of runoff from fire control methods. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Cresol is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Cresol reacts with oxidizing materials and causes a temperature and pressure increase with chlorosulfonic acid, nitric acid, and oleum.
Conditions to Avoid: Ignition sources and contact with incompatibles.
Hazardous Products of Decomposition: Thermal oxidative decomposition of cresol can produce carbon dioxide (CO_2) and toxic cresol fumes.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,(164) NTP,(142) and OSHA(164) do not list cresol as a carcinogen. **Summary of Risks:** Cresol is corrosive to eyes, skin, and mucous membranes. Degree of toxicity depends on the cresol concentration involved, amount of surface area exposed, and duration of exposure. Ingestion is corrosive to the digestive tract's mucous membranes and can pose serious problems if not treated promptly. Because cresol has a low vapor pressure, it is not volatile enough under normal conditions to present an inhalation hazard. If heated, vapor inhalation is likely. Severe chemical burns and dermatitis are the main hazards in industry. Note that cresol's *ortho* and *para* isomers (if used individually) are in crystal form and thus are a dust inhalation hazard. By all routes of exposure, cresol produces toxic symptoms similar to phenol's. **Medical Conditions Aggravated by Long-Term Exposure:** Skin diseases. **Primary Entry Routes:** Skin and eye contact/absorption. **Acute Effects: Target Organs:** Eyes, skin, central nervous system (CNS), liver and kidney. Cresol is absorbed through skin, open wounds, and the mucous membranes of the respiratory and digestive tracts. The rate at which skin absorbs cresol depends more on the size of exposure area than on the concentration of material applied. Cresol is corrosive to the skin causing smarting; tingling; redness; swelling; burns that may be very painful and become white and wrinkled with softening that may become gangrenous; blisters; possible shock as a result

Continue on next page

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Section 6. Health Hazard Data, *continued*

of pain; and, in severe cases of absorption, coma and death. Contact with eyes may cause stinging, and burning, watering of eyes, redness and swelling of lids, corneal opaqueness causing blurred vision and possible loss of sight. In rare cases, a pigment disorder called ochronosis occurs characterized by darkening of skin, conjunctiva, and cartilage of the nose and ears. Ingestion leads to burning of lips, mouth, and throat, pain in swallowing, ulceration of the mucous membranes of the mouth, color change of the tongue (white), thirst, throat swelling, cramps, nausea and vomiting (sometimes of coffee grounds-like material due to digestive hemorrhage). In severe cases symptoms might progress to shock, convulsions, coma, and death. If vapor inhalation occurs, symptoms include irritation of mucous membranes of nose, eyes, and mouth, watering of eyes, sneezing, coughing, difficulty breathing, headache, nausea, muscle weakness, and possible pulmonary edema. In most cases of exposure, if death occurs, it is usually caused by respiratory failure. **Chronic Effects:** Repeated exposure to cresol may cause digestive disturbances, liver, kidney, spleen and pancreatic damage, and skin eruptions or dermatitis. Some people can become allergic or hypersensitive to cresol.

FIRST AID: *Emergency personnel should protect against contamination.*

Eyes: Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. *Do not* allow victim to rub or keep eyes tightly shut. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing to prevent burns. Rinse with flooding amounts of water for at least 15 min. If clothing is stuck to skin after flushing with water, *do not* remove! Thoroughly wash exposed area with soap and water. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have that *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting with 2 tablespoons of Ipecac (adult dose). After patient vomits, give activated charcoal in 8 oz. of water to drink. **After first aid, get appropriate in-plant, paramedic, or community medical support.**

Note to Physicians: Since effects may be delayed, keep victim under observation. Irrigate eyes and wash skin with a mixture of polyethylene glycol 300 and industrial methylated spirits (PEG 300/IMS, 2:1 by volume). Recommended treatment for ingestion is repeated gastric lavage with large quantities of olive oil.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Immediately notify safety personnel, isolate and ventilate area (with fixed or portable fan systems for cross-ventilation), deny entry, and stay upwind. Shut off all ignition sources. Spilled liquid can be neutralized with crushed limestone or soda ash. Take up small spills with earth, sand, vermiculite or other absorbent, noncombustible material and place into suitable containers. For large spills, dike far ahead of liquid for later disposal or reclamation. For water spills, you may need to trap cresol at the bottom with sandbag barriers, apply activated charcoal, and then remove trapped material with dredges or lifts. Follow applicable OSHA regulations (29 CFR 1910.120).

Environmental Degradation: When released into the atmosphere, cresol degrades by reacting with photochemically produced hydroxyl radicals during the day (half-life = 8 to 10 hr), and with nitrate radicals at night (half-life = 2 to 5 min). Cresol biodegrades in eutrophic (nutrient-rich) waters.

Ecotoxicity Values: Blue gill, TL_m, 24 mg/L/96 hr (fresh water); shrimp, TL_m, 10 to 100 ppm/48 hr (saltwater).

Soil Absorption/Mobility: Cresol is mobile in soil but biodegradation is probable. Cresols probably leach due to water solubility.

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.33): No. U052*
Listed as a CERCLA Hazardous Substance† (40 CFR 302.4): Reportable Quantity (RQ), 1000 lb (454 kg) [† per RCRA, Sec. 3001 and CWA, Sec. 311(b)(4)]
Listed (*o-cresol only*) as a SARA Extremely Hazardous Substance (40 CFR 355)
Listed as a SARA Toxic Chemical (40 CFR 372.65)

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

* When a spent solvent and classified as a hazardous waste from nonspecific sources, cresol has Hazardous Waste No. F004.

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles or faceshields to protect against droplets or spray, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy.

Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. At 50 to 500 ppm use a full face gas mask. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a respiratory protection program that includes: training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent all skin contact. Rubber is suggested as a material suitable for protection against cresol.

Ventilation: Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103]

Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Prevent physical damage to containers. Store in properly labelled (with trade name) iron or steel containers in cool, dry, well-ventilated location. Protect from light and keep away from incompatibles (Sec. 5). Outside or detached storage is preferred. To prevent static sparks, electrically ground and bond all equipment used in cresol manufacture, use, and storage.

Engineering Controls: To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level.

Administrative Controls: Consider preplacement and periodic examinations of exposed workers that emphasize skin, kidney, liver, and respiratory system.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Cresol
DOT Hazard Class: Corrosive material
ID No.: UN2076
DOT Label: Corrosive
DOT Packaging Exceptions: 173.244
DOT Packaging Requirements: 173.245

IMO Shipping Name: Cresols (*o-*, *m-*, *p-*)
IMO Hazard Class: 6.1
ID No.: UN2076
IMO Label: Poison
IMDG Packaging Group: II

***MSDS Collection* References:** 26, 38, 73, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 140, 153, 159, 162, 163, 164
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** PA Roy, MPH, CIH; **Medical Review:** AC Darlington, MPH, MD; **Edited by:** JR Stuart, MS

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Material Safety Data Sheets Collection:

Sheet No. 385
Ethylbenzene

Issued: 8/78 Revision: B, 9/92

Section 1. Material Identification

Ethylbenzene ($C_6H_5C_2H_5$) Description: Derived by heating benzene and ethylene in presence of aluminum chloride with subsequent distillation, by fractionation directly from the mixed xylene stream in petroleum refining, or dehydrogenation of naphthenes. Used as a solvent, an antiknock agent in gasoline; and as an intermediate in production of synthetic rubber, styrene, cellulose acetate, diethylbenzene, acetophenone, ethyl anthraquinone, propyl oxide, and α-methylbenzol alcohol.
Other Designations: CAS No. 100-41-4, ethylbenzol, EB, phenylethane, NCI-C56393.
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*[73] for a suppliers list.

R 1
I 3
S 2*
K 4
* Skin absorption

NFPA

HMIS
H 2†
F 3
R 0
PPE - Sec. 8
† Chronic effects

Cautions: Ethylbenzene is a skin and mucous membrane irritant considered the most irritating of the benzene series. Inhalation causes acute and chronic central nervous system (CNS) effects. It is highly flammable and forms explosive mixtures with air.

Section 2. Ingredients and Occupational Exposure Limits

Ethylbenzene, ca >99.0%. Impurities include ~ 0.1% *meta* & *para* xylene, ~ 0.1% cumene, and ~ 0.1% toluene.

1991 OSHA PELs
8-hr TWA: 100 ppm (435 mg/m³)
15-min STEL: 125 ppm (545 mg/m³)
Action Level: 50 ppm (217 mg/m³)

1990 IDLH Level
2000 ppm

1990 NIOSH REL
TWA: 100 ppm (435 mg/m³)
STEL: 125 ppm (545 mg/m³)

1992-93 ACGIH TLVs
TWA: 100 ppm (434 mg/m³)
STEL: 125 ppm (545 mg/m³)

1990 DFG (Germany) MAK
TWA: 100 ppm (440 mg/m³)
Category 1: local irritants
Peak Exposure Limit: 200 ppm, 5 min momentary value, max of 8/shift
Danger of cutaneous absorption

1985-86 Toxicity Data*
Human, inhalation, TC_{Lo}: 100 ppm/8 hr caused eye effects, sleep, and respiratory changes.
Human, lymphocyte: 1 mmol/L induced sister chromatid exchange.
Rat, oral, LD_{50}: 3500 mg/kg; toxic effects not yet reviewed
Rat (female), inhalation, TC_{Lo}: 1000 ppm/7 hr/day, 5 days/wk, for 3 wk prior to mating and daily for 19 days of gestation produced pups with high incidence of extra ribs.[179]

* See NIOSH, *RTECS* (DA0700000), for additional irritation, mutation, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 277 °F (136 °C)
Melting Point: -139 °F (-95 °C)
Surface Tension: 31.5 dyne/cm
Ionization Potential: 8.76 eV
Viscosity: 0.64 cP at 77 °F (25 °C)
Refraction Index: 1.4959 at 68 °F (20 °C)
Relative Evaporation Rate (ether = 1): 0.0106
Bulk Density: 7.21 lb/Gal at 77 °F (25 °C)
Critical Temperature: 651 °F (343.9 °C)
Critical Pressure: 35.6 atm

Molecular Weight: 106.16
Density: 0.863 at 77 °F (25 °C)
Water Solubility: Slighdy, 14 mg/100 mL at 59 °F (15 °C)
Other Solubilities: Miscible in alcohol, ether; soluble in carbon tetrachloride, benzene, sulfur dioxide, and many organic solvents; insoluble in ammonia
Odor Threshold: 2.3 ppm
Vapor Pressure: 7.1 mm Hg at 68 °F (20 °C); 10 mmHg at 78.62 °F (25.9 °C); 100 mm Hg 165.38 °F (74.1 °C)
Saturated Vapor Density (Air = 0.075 lb/ft³ or 1.2 kg/m³): 0.0768 lb/ft³ or 1.2298 kg/m³

Appearance and Odor: Colorless, flammable liquid with a pungent odor.

Section 4. Fire and Explosion Data

Flash Point: 64 °F (18 °C) CC	Autoignition Temperature: 810 °F (432 °C)	LEL: 1.0% v/v	UEL: 6.7% v/v

Extinguishing Media: Class 1B Flammable liquid. For small fires, use dry chemical, carbon dioxide, or 'alcohol-resistant' foam. For large fires, use fog or 'alcohol-resistant' foam. Use water only if other agents are unavailable; EB floats on water and may travel to an ignition source and spread fire. **Unusual Fire or Explosion Hazards:** Burning rate = 5.8 mm/min. Vapors may travel to an ignition source and flash back. Container may explode in heat of fire. EB poses a vapor explosion hazard indoors, outdoors, and in sewers. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Cool container sides with water until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from area and let fire burn. Withdraw immediately if you hear rising sound from venting safety device or notice any tank discoloration due to fire. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Ethylbenzene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Reacts vigorously with oxidizers.
Conditions to Avoid: Exposure to heat and oxidizers.
Hazardous Products of Decomposition: Thermal oxidative decomposition of EB can produce acrid smoke and irritating fumes.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,[164] NTP,[169] and OSHA[164] do not list EB as a carcinogen. **Summary of Risks:** Occupational exposure to EB alone is rare since it is usually present together with other solvents. EB is irritating to the eyes, skin, and respiratory tract. Vapor inhalation produces varying degrees of CNS effects depending on concentration. The liquid is absorbed through the skin but vapors are not. 56 to 64% of inhaled ethylbenzene is retained and metabolized. Urinary metabolites following exposure to 23 to 85 ppm for 8 hr are mandelic acid (64%), phenylglyoxylic acid (25%), and methylphenylcarbinol/1-phenyl ethanol (5%). Concurrent exposure to xylene and ethylbenzene causes slower excretion of EB metabolites. Based on the rat LD_{50}, one manufacturer gives 3 to 4 oz. as the lethal dose for a 100 lb person.

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Section 6. Health Hazard Data

Medical Conditions Aggravated by Long-Term Exposure: Skin and CNS diseases and impaired pulmonary function (especially obstructive airway disease). **Target Organs:** Eyes, respiratory system, skin, CNS, blood. **Primary Entry Routes:** Inhalation, skin and eye contact. **Acute Effects:** Vapor inhalation of 200 ppm caused transient eye irritation; 1000 ppm caused eye irritation with profuse watering (tolerance developed rapidly); 2000 ppm caused severe and immediate eye irritation and watering, nasal irritation, chest constriction, and vertigo; 5000 ppm was intolerable and caused eye and nose irritation. Inhalation of high concentrations may cause narcosis, cramps, and death due to respiratory paralysis. Skin exposed to pure ethylbenzene for 10 to 15 min absorbed 22 to 33 mg/cm^2/hr. Immersion of hand in solutions of 112 & 156 mg/L for 1 hr absorbed 118 & 215.7 µg/cm^2/hr, respectively. **Chronic Effects:** Repeated skin contact may cause dryness, scaling, and fissuring. Workers chronically exposed to > 100 ppm complained of fatigue, sleepiness, headache, and mild irritation of the eyes and respiratory tract. Repeated vapor inhalation may result in blood disorders, particularly leukopenia (abnormally low level of white blood cells) and lymphocytosis.

FIRST AID

Eyes: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center and unless otherwise advised, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute. *Do not* induce vomiting! Aspiration of even a small amount of EB in vomitus can cause severe damage since its low viscosity and surface tension will cause it to spread over a large area of the lung tissue.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: BEI = mandelic acid in urine (1.5 g/g of creatinine), sample at end of shift at workweeks end. Since this test is not specific, test for EB in expired air for confirmation.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel. Isolate and ventilate area, deny entry and stay upwind. Shut off all ignition sources. Cleanup personnel should protect against vapor inhalation and skin/eye contact. Take up small spills with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable container. Dike far ahead of large spill for later reclamation or disposal. Report any release >1000 lb. Follow applicable OSHA regulations (29 CFR 1910.120). **Environmental Transport:** If released to soil, EB partially evaporates into the atmosphere, with a half-life of hrs to wks, and some leaches into groundwater, especially in soil with low organic carbon content. Biodegradation occurs with a half-life of 2 days. Some EB may absorb to sediment or bioconcentrate in fish. Evidence points to slow biodegradation in groundwater. In air, it reacts with photochemically produced hydroxyl radicals with a half-life of hrs to 2 days. Additional amounts may be removed by rain. **Ecotoxicity Values:** Shrimp (*Mysidopsis bahia*), LC_{50} = 87.6 mg/L/96 hr; sheepshead minnow (*Cyprinodon variegatus*) LC_{50} = 275 mg/L/96 hr; fathead minnow (*Pimephales promelas*) LC_{50} = 42.3 mg/L/96 hr in hard water & 48.5 mg/L/96 hr in softwater. **Disposal:** A candidate for rotary kiln incineration at 1508 to 2912°F (820 to 1600°C), liquid injection incineration at 1202 to 2912°F (650 to 1600°C), and fluidized bed incineration at 842 to 1796°F (450 to 980°C). Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.21): No. D001
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA Extremely Hazardous Substance (40 CFR 355), TPQ: Not listed
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg) [* per CWA, Sec. 311 (b)(4) & CWA, Sec. 307 (a)]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For < 1000 ppm, use a powered air-purifying respirator with an appropriate organic vapor cartridge, a supplied-air respirator (SAR), SCBA, or chemical cartridge respirator with appropriate organic vapor cartridge. For < 2000 ppm, use a SAR or SCBA with a full facepiece. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets made of Viton or polyvinylchloride to prevent skin contact. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes and launder before reuse. Remove this material from your shoes and clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in a cool, dry, well-ventilated area away from ignition sources and oxidizers. Outside or detatched storage is preferred. If inside, store in a standard flammable liquids cabinet. Containers should have flame-arrester or pressure-vacuum venting. To prevent static sparks, electrically ground and bond all equipment used with ethylbenzene. Install Class 1, Group D electrical equipment. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain levels as low as possible. Purge and ventilate reaction vessels before workers are allowed to enter for maintenance or cleanup. **Administrative Controls:** Consider preplacement and periodic medical exams of exposed workers that emphasize the CNS, skin, blood, and respiratory system.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Ethylbenzene
DOT Hazard Class: 3
ID No.: UN1175
DOT Packing Group: II
DOT Label: Flammable liquid
Special Provisions (172.102): T1

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.202
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger Aircraft or Railcar: 5L
b) Cargo Aircraft Only: 60 L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: —

MSDS Collection **References:** 26, 73, 100, 101, 103, 124, 126, 127, 132, 133, 136, 139, 140, 148, 153, 159, 162, 163, 164, 167, 168, 171, 176, 179
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** D Wilson, CIH; **Medical Review:** W Silverman, MD

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Material Safety Data Sheet Collection

Methanol

MSDS No. 354

Date of Preparation: 11/77 Revision: E, 3/98

Section 1 - Chemical Product and Company Identification 51

Product/Chemical Name: Methanol **Chemical Formula:** CH_4O or CH_3OH **CAS Number:** 67-56-1

Synonyms: carbinol; Coat-B1400; Colonial Spirits; Columbian Spirit; EPA pesticide chemical code 053801; methyl alcohol; methyl hydrate; methyl hydroxide; monohydroxymethane; pyroligneous spirit; pyroxylic spirit; pyroxylic spirits; Surflo-B17; wood alcohol; wood naphtha; wood spirit

Derivation: Prepared by wood pyrolysis; non-catalytic oxidation of hydrocarbons; as a by-product in the fisher-tropsch synthesis; or by reduction of carbon monoxide.

General Use: Used as an industrial solvent; starting material for organic synthesis; antifreeze for windshield washer fluid; in fuel antifreezes; gasoline octane booster; fuel for stoves; extractant for oils; denaturing ethanol; softening agent; food additive; in paint, varnish removers, and embalming fluids; in the manufacture of photographic film, celluloid, textile soap, wood stains, coated fabrics, shatterproof glass, paper coating, waterproofing formulations, artificial leather, dyes.

Vendors: Consult the latest *Chemical Week Buyers' Guide*. (73)

Section 2 - Composition / Information on Ingredients

Methanol, ca 100% vol

Trace Impurities (Grade A): Acetone and aldehydes < 30 ppm, acetic acid < 30 ppm

OSHA PELs
8- hr TWA: 200 ppm (260 mg/m³)
Vacated 1989 Final Rule Limits:
TWA: 200 ppm (260 mg/m³)
STEL: 250 ppm (325 mg/m³)

ACGIH TLVs*
TWA: 200 ppm (262 mg/m³), *Skin*
STEL: 250 ppm (328 mg/m³)

NIOSH REL
10- hr TWA: 200 ppm (260 mg/m³), *Skin*
STEL: 250 ppm (325 mg/m³)

IDLH Level
6000 ppm

DFG (Germany) MAK
TWA: 200 ppm (260 mg/m³), *Skin*
Category II, 1: Substances with systemic effects; onset of effect ≤ 2 hr; half life < 2 hr
Embryo/Fetus Risk of Damage Classification C†

Peak Exposure Limit:
400 ppm (520 mg/m³), 30 min, average value. 4/shift

*There are also ACGIH Biological Exposure Indices (BEIs™).

†There is no reason to fear risk of damage to developing embryo or fetus when MAK or BAT values are observed.

Section 3 - Hazards Identification

ANSI Signal Word: Warning!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Methanol is a colorless liquid with a slight alcohol odor when pure, or disagreeably pungent odor when crude. It is irritating to the eyes, skin, and respiratory tract. Exposure may result in headache, visual disturbance, blindness, and respiratory failure. Reproductive effects have been reported in animal testing. This flammable liquid is a moderate explosion hazard. When heated to decomposition, methanol emits carbon oxides (CO_x), formaldehyde, acrid smoke, and irritating fumes.

Wilson Risk Scale	
R	1
I	3
S	2*
K	3

*Skin absorption

HMIS	
H	2*
F	3
R	0
PPE†	

*Chronic effects
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin and/or eye contact/absorption

Target Organs: Eyes, skin, central nervous system (CNS), gastrointestinal (GI) tract, respiratory system

Acute Effects

Inhalation: Irritation, breathing difficulty, headache, drowsiness, vertigo, light-headedness, nausea, vomiting, acidosis (decreased blood alkalinity), visual disturbance, and at high concentrations, CNS damage, convulsions, circulatory collapse, respiratory failure, coma and blindness can result from inhalation of methanol vapor. Concentration ≥ 200 ppm may cause headache; 50,000 ppm can cause death within 1-2 hrs. **Eye:** Contact with liquid may result in irritation, inflamed lids, light sensitization, and superficial lesions. **Skin:** Contact may cause irritation, dermatitis, swelling, scaling, and systemic effects listed under inhalation. **Ingestion:** GI irritation and systemic effects (see Inhalation). Symptoms may be delayed 18-48 hours. Fatal dose: 2-8 ounces.

Carcinogenicity: IARC, NTP, and OSHA do not list methanol as a carcinogen. **Medical Conditions Aggravated by Long-Term Exposure:** None reported. **Chronic Effects:** Exposure to methanol vapors has caused conjunctivitis, headache, giddiness, insomnia, GI disturbance, impaired vision. CNS damage is also likely. Methanol is slowly eliminated from the body; exposure is considered cumulative over the short term.

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Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed. **Eye Contact:** *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain or irritation develops. **Skin Contact:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting. ***After first aid, get appropriate in-plant, paramedic, or community medical support.*** **Note to Physicians:** Follow emesis with rehydration, correction of acidosis, and folate to enhance formate oxidation. Consider IV administration of ethanol (if blood methanol >20 mg/dL) to show metabolic oxidation of methanol. Assay formic acid in urine, blood pH and plasma bicarbonate.

Section 5 - Fire-Fighting Measures

Flash Point: 54 °F (12 °C) **Flash Point Method:** CC **Burning Rate:** 1.7 mm/min
Autoignition Temperature: 867 °F (464 °C) **LEL:** 6.0% v/v **UEL:** 36% v/v
Flammability Classification: OSHA Class IB Flammable Liquid.

NFPA

Extinguishing Media: Use dry chemical, carbon dioxide, water spray, fog or alcohol-resistant foam. A water spray may be used to cool fire-exposed containers, and flush spills away from ignition sources.
Unusual Fire or Explosion Hazards: Can form explosive mixtures in the air. The heavier-than-air vapors of methanol may travel along low-lying surfaces to distant sources of ignition and flash back to the material source. Containers may explode in heat of fire. **Hazardous Combustion Products:** Heating methanol to decomposition can produce carbon oxides (CO_x), formaldehyde, acrid smoke, and irritating fumes. **Fire-Fighting Instructions:** *Do not* scatter material with any more water than needed to extinguish fire. *Do not* release runoff from fire control methods to sewers or waterways. **Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Isolate spill area for at least 330-660 feet (100-200 m) in all directions. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Ground all equipment used when handling this product. *Do not* touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. **Small Spills:** Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Use clean non-sparking tools to collect absorbed material. **Large Spills, Containment:** Dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways. **Cleanup:** Ground all equipment. Use non-sparking tools. **Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid vapor inhalation, and skin and eye contact. Use only with ventilation sufficient to reduce airborne concentrations to non-hazardous levels (see Sec. 2). Wear protective gloves, goggles, and clothing (see Sec. 8). Keep away from heat and ignition sources. Ground and bond all containers during transfers to prevent static sparks. Use non-sparking tools to open and close containers. **Storage Requirements:** Store in tightly closed container in cool, well-ventilated area, away from heat, ignition sources and incompatibles (see Sec. 10). Equip drums with self-closing valves, pressure vacuum bungs, and flame arrestors. **Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.106) for Class 1B Flammable Liquids.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations. **Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source. **Administrative Controls:** Enclose operations and/or provide local explosion-proof exhaust ventilation at the site of chemical release. Where possible, transfer methanol from drums or other storage containers to process containers. Minimize sources of ignition in surrounding areas. **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For concentrations ≤ 2000 ppm, use a supplied air respirator; ≤ 5000 ppm, supplied air (SA) respirator in continuous flow mode; ≤ 6000 ppm, SA respirator with tight-fitting face mask operated in continuous flow mode, or SCBA with full facepiece, or SA respirator with full facepiece; > IDLH/unknown/emergency, SCBA with full facepiece operated in pressure-demand or other positive-pressure mode, or SA respirator with full facepiece operated in pressure-demand

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or other positive-pressure mode in combination with auxiliary SCBA operated in pressure-demand or other positive-pressure mode. For escape, use an appropriate escape-type SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets of butyl rubber, Teflon™, Viton™, Saranex™, 4H™, Responder™, Trellchem HPS™, or Tychem 10000™ (Breakthrough Time (BT) >8 hr) to prevent skin contact. Natural rubber, neoprene, nitrile rubber, polyethylene, polyvinyl alcohol and CPF 3™ may degrade after contact and are not recommended. Wear splash-proof chemical safety goggles, and face shield, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses. **Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, washing facilities available in work area. **Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Colorless; slight alcohol odor when pure, disagreeably pungent odor when crude
Odor Threshold Range: 13.1150 to 26840 mg/m^3
Vapor Pressure: 127 mm Hg at 77 °F (25 °C)
Vapor Density (Air=1): 1.11
Saturated Vapor Density (air=1.2 kg/m^3, 0.075 lb./ft^3): 1.221 kg/m^3
Formula Weight: 32.04
Density: 0.796 g/mL at 59 °F (15 °C)
Specific Gravity (H_2O=1, at 4 °C): 0.81 at 0 °C/4 °C
Bulk Density: 6.59 lbs/gal at 68 F (20 °C)
pH: Slightly acidic
Water Solubility: Miscible
Other Solubilities: Ethanol, acetone, benzene, chloroform, DMSO, ether, ketones, most organic solvents.
Boiling Point: 148 °F (64.7 °C) at 760 mm Hg
Freezing Point: -144.04 °F (-97.8 °C)
Viscosity: 0.614 mPa sec
Refractive Index: 1.3292 at 68 °F (20 °C)/D
Surface Tension: 22.61 dynes/cm
Ionization Potential (eV): 10.84
Henry's Law Constant (H): 4.55 x10^{-6} atm-m^3/mole at 77 °F (25 °C)
Octanol/Water Partition Coefficient: log K_{ow} = -0.77
Soil Sorption Coefficient (log K_{oc}): 0.44

Section 10 - Stability and Reactivity

Stability: Methanol is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization cannot occur. **Chemical Incompatibilities:** Include beryllium dihydride, metals (potassium, magnesium), oxidants (barium perchlorate, bromine, chlorine, hydrogen peroxide, sodium hypochlorite, phosphorus trioxide), potassium tertbutoxide, carbon tetrachloride and metals, chloroform and heat, diethyl zinc, alkyl aluminum salts, acetyl bromide, chloroform and sodium hydroxide, cyanuric chloride, nitric acid, chromic anhydride, lead perchlorate.
Conditions to Avoid: Vapor inhalation, oxidizers. **Hazardous Decomposition Products:** Thermal oxidative decomposition of methanol can produce carbon oxides (CO_x), formaldehyde, acrid smoke, and irritating fumes.

Section 11- Toxicological Information

Toxicity Data:*

Reproductive Effects:
Rat (female), oral: 7500 mg/kg, administered during gestational days 17-19 produced effects on newborn - behavioral.
Rat (female), oral: 35295 mg/kg administered during gestational days 1-15 produced effects on the fertility index; pre-implantation mortality; and post-implantation mortality.
Rat (female), inhalation: 20000 ppm/7 hr, administered during gestational days 1-22 produced specific developmental abnormalities - musculoskeletal system; cardiovascular (circulatory) system; urogenital system.
Rat (male), oral: 200 ppm/20 hr, 78 weeks prior to mating produced paternal effects - testes, epididymis, sperm duct.
Multiple Dose Toxicity Data:
Rat, oral: 12 g/kg/8 weeks intermittently produced toxic effects: behavioral - ataxia; behavioral - alteration of operant conditioning.
Rat, inhalation: 50 mg/m^3/12 hr/13 weeks intermittently produced degenerative changes to brain and coverings; muscle contraction or spasticity.
Rat, inhalation: 2610 ppm/6 hr/4 weeks intermittently produced toxic effects: endocrine - changes in spleen weight.
Eye Effects:
Rabbit, standard Draize test: 100 mg/24 hr resulted in moderate irritation.

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Section 11- Toxicological Information, continued

Toxicity Data:*

Skin Effects:
Rabbit, standard Draize test: 20 mg/24 hr resulted in moderate irritation.

Acute Oral Effects:
Human, oral, LD_{Lo}: 428 mg/kg produced toxic effects: behavioral - headache; lungs, thorax, or respiration - other changes.
Human, oral, LD_{Lo}: 143 mg/kg produced optic nerve neuropathy, dyspnea, nausea or vomiting.
Rat, oral, LD_{50}: 5628 mg/kg

Acute Dermal Effects:
Monkey, skin, LD_{Lo}: 393 mg/kg
Rabbit, skin, LD_{50}: 15800 mg/kg

Acute Inhalation Effects:
Human, inhalation, TC_{Lo}: 300 ppm produced visual field changes, headache; lungs, thorax, or respiration - other changes.
Rat, inhalation, LC_{50}: 64000 ppm/4 hr

Mutagenicity:
Human, lymphocyte: 300 mmol/L resulted in DNA inhibition.
Rat, oral: 10 µmol/kg resulted in DNA damage.

* See NIOSH, *RTECS* (PC1400000), for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: Trout, LC_{50}: 8,000 mg/L/48 hr; *Pimephales promelas* (fathead minnow) LC_{50}: 29.4 g/L/96 hr.

Environmental Fate: Bioconcentration (BCF, estimated at 0.2) is not expected to be significant. Physical removal from air can occur via rainfall. Relatively rapid evaporation from dry surfaces is likely to occur.

Environmental Degradation: If released to the atmosphere, it degrades via reaction with photochemically produced hydroxyl radicals with an approximate half-life of 17.8 days. If released to water or soil, biodegradation is expected to occur.

Soil Adsorption/Mobility: A low Koc indicates little sorption and high mobility in the soil column.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Methanol
Shipping Symbols: D
Hazard Class: 3
ID No.: UN1230
Packing Group: II
Label: FLAMMABLE LIQUID
Special Provisions (172.102): T*

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.202
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 1 L
b) Cargo Aircraft Only: 60 L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: 40

Section 15 - Regulatory Information

EPA Regulations:
Listed and Classified as a RCRA Hazardous Waste (40 CFR 261.33): Characteristic of Ignitability
RCRA Hazardous Waste Number: U154
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) specific per (3) CAA, Sec. 112; (4) RCRA, Sec. 3001
CERCLA Final Reportable Quantity (RQ), 5000 lb (2268 kg)
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A)

Section 16 - Other Information

References: 1, 73, 99, 103, 124, 136, 149, 176, 190, 209, 216, 217, 218, 222, 223, 224, 227, 228, 230
Prepared By..... HM Spliethoff, MS
Industrial Hygiene Review..... PA Roy, MPH, CIH
Medical Review..... T Thoburn, MD, MPH

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Material Safety Data Sheet Collection

Naphthalene

MSDS No. 624

Date of Preparation: 11/87 Revision: A, 9/97

Section 1 - Chemical Product and Company Identification 50

Product/Chemical Name: Naphthalene
Chemical Formula: $C_{10}H_8$
CAS Number: 91-20-3
Synonyms: Albocarbon; camphor tar; Dezodorator; Mighty 150; moth balls; moth flakes; naftalen (Polish); naphthalin; naphthaline; naphthalinum; naphthene; NTM; tar camphor; white tar
Derivation: From coal tar; from petroleum fractions after various catalytic processing operations.
General Use: Used as a moth repellent, an antiseptic, toilet bowl deodorant, heat transfer agent, fungicide, smokeless powder, cutting fluid, lubricant, wood preservative; an intermediate for naphthol, phthalic anhydride, chlorinated naphthalenes, Tertralin, Decalin, naphthyl and naphthol derivatives, and dyes; in synthetic resins, synthetic tanning, textile chemicals, scintillation counters, and emulsion breakers.
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Naphthalene, ca 100% wt. Grade: By melting point, 165 °F (74 °C) min (crude) to greater than 174 °F (79 °C) (refined); scintillation 176-177 °F (80-81 °C)

OSHA PELs	ACGIH TLVs	NIOSH RELs	IDLH Level
8-hr TWA: 10 ppm (50 mg/m^3);	TWA: 10 ppm (52 mg/m^3)	10-hr TWA: 10 ppm (50 mg/m^3);	500 ppm
Vacated 1989 Final Rule Limit: 15-min. STEL: 15 ppm (79 mg/m^3)	STEL: 15 ppm (79 mg/m^3)	15-min. STEL: 15 ppm (75 mg/m^3)	**DFG (Germany) MAK** 10 ppm (50 mg/m^3)

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Naphthalene is a white crystalline solid with a 'moth ball' or coal-tar odor. It is toxic by ingestion. Irritating to skin, eyes, and respiratory system. Naphthalene is a combustible solid. Dust may form explosive mixtures in air if subjected to an ignition source.

Wilson Risk Scale	
R	1
I	3
S	2*
K	2

*Skin absorption

HMIS	
H	2†
F	2
R	0
PPE‡	

†Chronic Effects
‡Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, skin absorption, skin and/or eye contact
Target Organs: Blood (red blood cell effects), eyes, skin, central nervous system (CNS), liver and kidneys
Acute Effects
Inhalation: Vapor inhalation causes headache, confusion, nausea, sometimes vomiting, loss of appetite, extensive sweating, dysuria (painful urination), hematuria (blood in the urine), and hemolysis (destruction of red blood cells).
Eye: Irritation, conjunctivitis, and corneal injury upon prolonged contact.
Skin: Irritation and hypersensitivity dermatitis.
Ingestion: Unlikely. However, ingestion causes irritation of the mouth and stomach, hemolytic anemia with hepatic and renal lesions and vesical congestion, kidney failure, hematuria, jaundice, depression of CNS, nausea, vomiting, abdominal pain, blue face, lips, or hands, rapid and difficult breathing, headache, confusion, excitement, malaise, fever, perspiration, urinary tract pain, dizziness, convulsions, coma, and death. Symptoms may appear 2 to 4 hours after exposure.
Carcinogenicity: IARC, NTP, and OSHA do not list naphthalene as a carcinogen. EPA-D, Not Classifiable as to Human Carcinogenicity; MAK-B, Justifiably suspected of having carcinogenic potential; TLV-A4, Not Classifiable as a Human Carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Diseases of the blood, liver and kidneys; individuals with a hereditary deficiency of the enzyme glucose-6-phosphate dehydrogenase in red blood cells are particularly susceptible to the hemolytic properties of naphthalene metabolites.
Chronic Effects: May cause optical neuritis, corneal injuries, cataracts, kidney damage.
Other: There are two reports of naphthalene crossing the placenta in humans.

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Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed. Contact a physician immediately if symptoms of systemic poisoning are present.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, or photophobia persist.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area thoroughly with soap and water. For reddened or blistered skin, consult a physician. Contact a physician immediately if symptoms of systemic poisoning are present.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting. Contact a physician immediately.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Obtain baseline CBC, electrolytes, liver and renal function rests, glucose-6-phosphatase dehydrogenase level, urinalysis, and benzidine dipstick to check for hemoglobinuria. Urinary metabolite, 1-naphthol or mercapturic acid, may help confirm the diagnosis.

Section 5 - Fire-Fighting Measures

Flash Point: 174 °F (79 °C); 190 °F (88 °C)

Flash Point Method: OC; CC

Burning Rate: Data not found.

Autoignition Temperature: 979 °F (526 °C)

LEL: 0.9% v/v

UEL: 5.9% v/v

Flammability Classification: Combustible solid

Extinguishing Media: Use dry chemical, foam, carbon dioxide (CO_2), or water spray. Water or foam may cause frothing. Use water spray to keep fire-exposed containers cool.

Unusual Fire or Explosion Hazards: Volatile solid that gives off flammable vapors when heated. Dust may explode in air if an ignition source is provided.

Hazardous Combustion Products: Toxic vapors including carbon monoxide.

Fire-Fighting Instructions: Move containers from the fire area if it can be done without risk. Otherwise cool fire-exposed containers until well after the fire is extinguished. *Do not* release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Wear full protective clothing (see Sec. 8). Structural clothing is permeable, remain clear of smoke, water fall out, and water run off.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Stop leak if you can do it without risk. Use spark-proof tools and explosion proof equipment. Cleanup personnel should wear personal protective equipment to protect against exposure (see Sec. 8).

Small Spills: *Do not* sweep! Carefully scoop up or vacuum (with a HEPA filter). Absorb liquid spill with an inert, noncombustible absorbent such as sand or vermiculite.

Large Spills

Containment: For large spills, dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precantions: To avoid vapor inhalation use only with ventilation sufficient to reduce airborne concentrations to nonhazardous levels. Avoid skin and eye contact. Wear personal protective clothing and equipment to prevent any contact with skin and eyes (see Sec. 8). Practice good personal hygiene procedures to prevent inadvertently ingesting this material.

Storage Requirements: Store in tightly closed, explosion-proof containers in a cool, well-ventilated area away from heat, ignition sources, and incompatibles (see Sec. 10). May be stored under nitrogen gas. Protect containers against physical damage. Use monitoring equipment to measure the extent of vapor present in any storage facility containing naphthalene because of potential fire and explosion hazards.

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Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations to avoid vapor and dust dispersion into the work area. Ventilate at the site of chemical release. During the fractional distillation of naphthalene and in any operation entailing the heating or volatilization of naphthalene, enclosed apparatus should be employed.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with naphthalene. Train in work practices which minimize exposure. Consider preplacement and periodic medical exams with emphasis on the eyes, skin, liver, kidneys, CBC (RBC count, WBC count, differential count of a stained smear, hemoglobin, and hematocrit), and urinalysis including at a minimum specific gravity, albumin, glucose, and a microscopic examination on centrifuged sediment.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Teflon® is recommended. *Do not* use butyl rubber, natural rubber, neoprene or polyvinyl chloride. Wear chemical dust-proof safety goggles and face shield, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove naphthalene from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Crystalline solid

Appearance and Odor: White, volatile flakes, cakes, cubes, spheres, or powder; strong coal-tar or moth ball odor

Odor Threshold: 0.084 ppm to 0.3 ppm

Vapor Pressure: 0.05 mm Hg at 68 °F (20 °C); 1.0 mm Hg at 127 °F (53 °C)

Formula Weight: 128.2

Density: 1.145 g/cm^3 at 68 °F (20 °C)

Saturated Vapor Concentration: 100 ppm at 77 °F (25 °C) (approx.)

Water Solubility: Insoluble [31.7 mg/L at 68 °F (20 °C)]

Other Solubilities: Benzene, absolute alcohol; very soluble in ether, chloroform, carbon disulfide, hydronaphthalenes, fixed and volatile oils

Boiling Point: 424 °F (218 °C)

Melting Point: 176 °F (80.2 °C)

Volatility: Volatilizes appreciably at room temperature; volatile with steam

Octanol/Water Partition Coefficient: log K_{ow} = 3.30

Section 10 - Stability and Reactivity

Stability: Naphthalene is stable at room temperature in closed containers under normal storage and handling conditions. It volatilizes at room temperature.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Include aluminum chloride, benzoyl chloride, chromic acid, chromium trioxide, oxidizers. Explosive reaction with dinitrogen pentaoxide. Melted naphthalene will attack some forms of plastics.

Conditions to Avoid: Exposure to heat and ignition sources, incompatibles.

Hazardous Decomposition Products: Thermal oxidative decomposition of naphthalene can produce toxic fumes including carbon monoxide.

Section 11- Toxicological Information

Toxicity Data:*

Acute Effects:

Human (child), oral, LD_{Lo}: 100 mg/kg

Man, unreported, LD_{Lo}: 74 mg/kg

Rat, oral, LD_{50}: 490 mg/kg

Reproductive Effects:

Rat, oral: 4500 mg/kg administered on gestational days 6-15 produced fetotoxicity and other developmental abnormalities.

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Section 11- Toxicological Information, *continued*

Toxicity Data:*

Acute Effects: *continued*
Mouse, oral, LD_{50}: 533 mg/kg
Rat, inhalation, LC_{50}: >340 mg/m3 produced lacrimation and somnolence.
Genetic Effects:
Hamster, ovary: 15 mg/L induced sister chromatid exchange.
Tumorigenicity:
Mouse, inhalation: 30 ppm/6 hr/2 yr administered intermittently produced toxic effects: tumorigenic - neoplastic by RTECS criteria; lungs, thorax, or respiration - tumors.
Skin Effects:
Rabbit, skin, open Draize test: 495 mg produced mild irritation.
Eye Effects:
Rabbit, eye, standard Draize test: 100 mg produced mild irritation.

*See *NIOSH RTECS* (QJ0525000) for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: *Oncorhynchus gorbuscha* (pink salmon): 1.37 ppm/96 hr at 39 °F (4 °C). *Pimephales promelas* (fathead minnow): 7.76 mg/L/24 hr.
Environmental Fate: If released to the atmosphere, naphthalene rapidly photodegrades with a half-life of 3-8 hr. Volatilization, photolysis, adsorption, and biodegradation are important loss mechanisms for naphthalene discharged into water. Depending on local conditions, the half-lives range from a couple of days to a few months. If released on land, it is adsorbed moderately to soil, undergoes biodegradation; but in some cases biodegradation may still occur if conditions are aerobic. Bioconcentration occurs to a moderate extent, but is a temporary problem since depuration and metabolism readily proceed in aquatic organisms.

Section 13 - Disposal Considerations

Disposal: Consider rotary kiln or fluidized bed incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
Container Cleaning and Disposal: Handle empty containers carefully as hazardous residues may still remain.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Naphthalene, crude or Naphthalene, refined
Shipping Symbols: Not listed
Hazard Class: 4.1
ID No.: UN1334
Packing Group: III
Label: FLAMMABLE SOLID
Special Provisions (172.102): A1

Packaging Authorizations
a) **Exceptions:** 173.151
b) **Non-bulk Packaging:** 173.213
c) **Bulk Packaging:** 173.240

Quantity Limitations
a) **Passenger, Aircraft, or Railcar:** 25 kg
b) **Cargo Aircraft Only:** 100 kg

Vessel Stowage Requirements
a) **Vessel Stowage:** A
b) **Other:** Not listed

Section 15 - Regulatory Information

EPA Regulations:
Listed as a RCRA Hazardous Waste (40 CFR 261.33). Hazardous Waste Number: U165
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a); CAA, Sec. 112
CERCLA Final Reportable Quantity (RQ), 100 lb (45.4 kg)
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

Section 16 - Other Information

References: 73, 99, 103, 124, 139, 140, 167, 168, 179, 190, 196, 197, 200, 220 PC-W6
Prepared By .....S Fleming, BS/MJ Wurth, BS
Industrial Hygiene Review.....DJ Wilson, CIH
Medical Review.....G Kelafant, MD

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Material Safety Data Sheets Collection:

Sheet No. 355
Phenol

Issued: 9/80 Revision: C, 11/90

Section 1. Material Identification

33

Phenol (C_6H_5OH) Description: One of many aromatic compounds in coal tar. Made by alkylating benzene with propylene then oxidizing the resulting cumene to produce phenol and acetone. Used as a feedstock in manufacturing various phenolic resins, caprolactum, bis-phenol-A, and other chemicals and drugs; a disinfectant; a fuel-oil sludge inhibitor; a reagent in chemical analysis; in producing or manufacturing a large variety of aromatic compounds including fertilizers, illuminating gas, coke, explosives, lampblack, paints, paint removers, asbestos goods, wood preservatives, textiles, perfumes, bakelite, rubber, and other plastics; in medical and industrial organic compounds and dyes; and in germicidal paints and slimicides. Phenol has been identified in cigarette smoke and automobile exhaust.
Other Designations: CAS No. 0108-95-2, carbolic acid, hydroxybenzene, monohydroxy benzene, oxybenzene, phenic acid, phenyl alcohol, phenyl hydroxide.
Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide*(73) for a suppliers list.

R 1
I 4
S 3*
K 2
* Skin absorption

NFPA
2
3 0
-

HMIS
H 3
F 2
R 0
PPG†
† Sec. 8

Cautions: Phenol has a marked corrosive effect on any tissue. Eye contact may cause severe damage and *blindness*. Its primary entry route is through *skin absorption*. Systemic absorption may cause *liver and kidney damage, convulsions (seizures), or death.*

Section 2. Ingredients and Occupational Exposure Limits

Phenol, ca 100%

1989 OSHA PEL (Skin)
8-hr TWA: 5 ppm, 19 mg/m³

1990-91 ACGIH TLV (Skin)
TWA: 5 ppm, 19 mg/m³

1988 NIOSH REL
TWA: 5 ppm, 19 mg/m³
Ceiling: 15.6 ppm, 60 mg/m³

1985-86 Toxicity Data*
Mammal, inhalation, LC_{50}: 74 mg/m³
Rat, oral, LD_{50}: 317 mg/kg; toxic effects include behavorial changes (convulsions or effect on seizure threshold)
Rabbit, eye, TC_{Lo}: 5 mg produces severe irritation

1987 IDLH Level
250 ppm

* See NIOSH, *RTECS* (SJ3325000), for additional irritative, mutative, reproductive, tumorigenic, and toxicity data.

Section 3. Physical Data

Boiling Point: 359.15 °F (181.75 °C) at 760 mm Hg
Melting Point: 109.4 °F (43 °C)
Vapor Pressure: 0.3513 mm Hg at 77 °F (25 °C)
Vapor Density (Air = 1): 3.24
pH: 6 (aqueous solution)
Molecular Weight: 94.11
Specific Gravity (20 °C/4 °C): 1.0576
Water Solubility: 1 g dissolves in about 15 ml H_2O
Viscosity: 12.7 centipoise at 64.9 °F (18.3 °C)

Appearance and Odor: White crystalline solid with a characteristic sharp medicinal sweet, tangy odor detectable above 0.05 ppm. Phenol turns pink or red if it contains impurities or is exposed to heat or light.

Section 4. Fire and Explosion Data

Flash Point: 175 °F (79 °C), CC	Autoignition Temperature: 1319 °F (715 °C)	LEL: 1.7% v/v	UEL: 8.6% v/v

Extinguishing Media: Use water spray, carbon dioxide, dry chemical, or alcohol-type foam to extinguish fires involving phenol. Do not use a solid stream of water since the stream scatters and spreads fire. Use water spray to cool fire-exposed tanks/containers.
Unusual Fire or Explosion Hazards: Phenol presents a moderate fire hazard when exposed to heat, flame, or oxidizers. When heated, it emits toxic fumes and vapors that form explosive mixtures with air. Air mixtures containing 3 to 10% phenol are explosive. Solid phenol burns with difficulty, giving off heavy smoke.
Special Fire-fighting Procedures: Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode and full protective clothing. Be aware of runoff from fire control methods. Water containing phenol can cause severe chemical burns. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Phenol is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.
Chemical Incompatibilities: In general, phenol is incompatible with strong oxidizing agents and halogens. It coagulates colodion and proteins. A potentially explosive reaction occurs with formaldehyde, peroxydisulfuric acid, peroxymonosulfuric acid, sodium nitrite + heat, and aluminum chloride + nitromethane (at 110 °C/100 bar). A violent reaction occurs with butadiene, sodium nitrite + trifluoroacetic acid, and aluminum chloride + nitrobenzene at 248 °F (120 °C). Combining phenol with mineral oxidizing acids results in fire; with acetaldehyde results in violent condensation; with isocyanates results in heat generation and violent polymerization, with calcium hypochlorite results in an exothermic reaction producing toxic fumes which may ignite; and with nitrides results in heat and flammable gas generation. Hot phenol is corrosive to many metals, including aluminum, lead, magnesium, and zinc. Reaction with these materials causes phenol to discolor.
Conditions to Avoid: Avoid heating phenol above 122 °F (90 °C).
Hazardous Products of Decomposition: Thermal oxidative decomposition of phenol can produce oxides of carbon and water.

Section 6. Health Hazard Data

Carcinogenicity: The NTP, IARC, and OSHA do not list phenol as a carcinogen. Although no specific evidence of human cancer exists, its carcinogenicity to mice emphasizes the need for precaution when handling this material. Phenol also causes human mutations (genetic changes).
Summary of Risks: Phenol is a general protoplasmic poison that is corrosive to any living tissue it contacts. Toxicity most likely results from dermal (skin) contact or ingestion. Skin absorption occurs readily with a rapid onset of symptoms or death (within 30 min to several hours). Contact with eyes may cause severe damage and blindness. Ingestion of 1 g may be fatal. Although phenol is irritating to the respiratory tract, due to its low volatility and good warning properties, inhalation is typically less of a concern. Chronic toxic effects are uncommon, but may include digestive disturbances, neurological disorders, skin rash (dermatitis), and liver and kidney damage.
Medical Conditions Aggravated by Long-Term Exposure: Individuals with chronic respiratory disorders, pre-existing skin disorders, convulsive disorders, or kidney or liver abnormalities may be at increased risk from phenol exposure.
Target Organs: Liver, kidneys, nervous system, and skin.
Primary Entry Routes: Skin absorption, eye contact, ingestion, and inhalation.
Acute Effects: Skin contact results in white, wrinkled discoloration, followed by a severe burn or systemic poisoning if removed improperly.

Continue on next page

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Section 6. Health Hazard Data, *continued*

Phenol ingestion can cause gangrene and corrosion of lips, mouth, throat, esophagus, and stomach if not properly decontaminated (see First Aid). Although not immediately painful, skin contact can cause serious burns and systemic toxicity. In addition to skin burns and respiratory tract irritation, systemic absorption may cause pallor, anorexia (appetite loss), nausea, vomiting, diarrhea, weakness, muscle aches, darkened urine, headache, tinnitus (ringing in ears), sweating, convulsions, cyanosis (bluish coloration of lips and/or fingertips), shock, unconsciousness, respiratory failure, and death. After ingestion, major percutaneous (skin), or inhalation exposures, collapse and death can be rapid. Ingestion can cause severe tissue corrosion or gangrene affecting lips, mouth, throat, esophagus, and stomach. Eye contact can cause severe corrosive damage to the eye (conjunctival edema, corneal opacification, and hypesthesia) and possible blindness.

Chronic Effects: Chronic phenol poisoning is rarely reported. Symptoms include vomiting, difficulty swallowing, diarrhea, appetite loss, headache, fainting, dizziness, darkened urine, and mental disturbances. Chronic exposure can cause death from liver and kidney damage. Repeated skin contact with phenol or phenol-bearing products can result in dermatitis with dark pigmentation (ochronosis) of skin and whites of eyes (sclerae).

FIRST AID

Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician immediately.

Skin: Speedy action is critical. Flood exposed area with water and quickly remove contaminated clothing. *As soon as possible*, repeatedly spray or swab with the decontaminating agent polyethyleneglycol-300 (PEG). Immerse extremities in PEG. Rescue personnel should protect themselves from skin contact with phenol. Do not use greases, powders, or ointments to treat phenol burns. *Never* delay phenol removal if PEG is not readily available. Use soap and water instead.

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Ingestion: *Speed is essential in the treatment of oral poisoning.* Immediately consult a physician and poison center. Never give anything by mouth to an unconscious or convulsing person. Administer to that *conscious* person 15 to 30 cc castor oil or another vegetable oil, and be prepared to induce vomiting upon a physician's advice. Vegetable oils slow phenol absorption and reduce local damage.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat ingestion with gastric lavage using 40% aqueous Bacto-Peptone, milk, or water until phenolic odor is eliminated. Then give 15 to 50 cc castor or vegetable oil. Debride necrotic skin. Monitor vital signs, fluid status, electrolytes, BUN, renal and hepatic function, and electrocardiogram. Manage sedation, seizures, renal failure, and fluid electrolyte imbalances symptomatically as indicated.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, evacuate all unnecessary personnel, remove all heat and ignition sources, and provide maximum explosion-proof ventilation. Cleanup personnel should protect against vapor inhalation and skin and eye contact with a self-contained breathing apparatus and full personal protective clothing and equipment. Absorb small spills with some noncombustible inert material and place in a closed metal container for disposal. Dike large spills and allow material to cool and solidify. Using nonsparking tools, shovel solid into steel containers for disposal. Thoroughly flush spill area with water, use caustic soda solution for neutralization, and collect flushings and wash water for disposal. Do not allow phenol to enter sewers, watersheds, or waterways. Follow applicable OSHA regulations (29 CFR 1910.120). Notify proper authorities including the National Response Center (800-424-8802).

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.33)

Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Reportable Quantity (RQ), 1000 lb (454 kg) [* per Clean Water Act, Sec. 311(b)(4), Sec. 307(a), and per RCRA, Sec. 3001]

Listed as a SARA Extremely Hazardous Substance (40 CFR 355): RQ, 1000 lb; Threshold Planning Quantity (TPQ), 500/10,000 lb

Listed as a SARA Toxic Chemical (40 CFR 372.65)

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).

Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. Where potential exists for exposures near or over 19 mg/m³, use a MSHA/NIOSH-approved full facepiece respirator with an organic vapor cartridge/canister and dust/mist prefilter. Increased protection is obtained from full facepiece powered-air purifying respirators. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*

Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent skin contact. ACGIH recommends neoprene or butyl rubber as good-to-excellent protective materials.

Ventilation: Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL and ACGIH TLV (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[103]

Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.

Contaminated Equipment: Never wear contact lenses in the work area: soft lenses may absorb, and all lenses concentrate, irritants. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in closed containers in a cool, dry, well-ventilated area away from heated surfaces, open flame, and ignition sources. Outside or detached storage is preferred. Protect containers from physical damage.

Engineering Controls: Enclose all operations, eliminating all possible phenol exposure routes. Educate workers about phenol's hazards and potential dangers. Use only with appropriate personal protective gear and adequate ventilation. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Provide local exhaust ventilation at the site of chemical release. Practice good personal hygiene and housekeeping procedures.

Medical Surveillance: Provide preplacement or periodic medical examinations that emphasize central nervous system (CNS), hepatic, renal, and skin. Tests should include BUN, creatinine, LFTs, and urinalysis. Phenol can be detected in urine in free or conjugated forms. The ACGIH biological exposure index (BEI) is 250 mg total phenol/g creatinine or 15 mg/hr.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Phenol
DOT Hazard Class: Poison B
ID No.: UN1671
DOT Label: Poison
DOT Packaging Exceptions: 173.364
DOT Packaging Requirements: 173.369

IMO Shipping Name: Phenol
IMO Hazard Class: 6.1
ID No.: UN1671
IMO Label: Poison
IMDG Packaging Group: II

MSDS Collection **References:** 1, 2-12, 15, 19, 23, 24, 26, 31, 34, 37, 38, 59, 73, 79, 84, 85, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 138-140, 143, 146, 148, 149

Prepared by: MJ Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Upfal, MD, MPH; **Edited by:** JR Stuart, MS

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Material Safety Data Sheets Collection:

Sheet No. 351
Styrene *monomer*

Issued: 8/79 Revision: D, 6/92

Section 1. Material Identification

Styrene *monomer* ($C_6H_5CHCH_2$) **Description:** Produced by catalytic dehydrogenation of ethylbenzene at 932 to 1292 °F (500 to 700 °C) at 30 mm Hg; catalyst is a mixture of zinc oxide (86%), aluminum, calcium, and magnesium. Available in technical (99.2% pure) and polymer (99.6% pure) grades. Occurs naturally in the sap of styracaceous plants, in pyrolysis and cracking products of petroleum derivatives, in bituminous-coal and shale-oil tars, in rubber latexes, and as a product of organic substance pyrolysis. Used in the manufacture of a wide range of polymers including polystyrene and copolymer elastomers such as butadiene-styrene rubber or acrylonitrile-butadiene-styrene (ABS); in production of plastics and insulators, as a resin modifying additive, dental filling component, chemical reaction intermediate, and in agricultural products.
Other Designations: CAS No. 100-42-5, cinnamene, Diarex HF 77, ethenylbenzene, NCI-C02200, phenylethylene, styrol, styropor, vinylbenzene.
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.
Cautions: Styrene is extremely flammable and polymerizes easily. The vapor is irritating to eyes, skin, and respiratory system and the liquid may cause burns. Inhalation of high concentrations can lead to central nervous system (CNS) depression.

R 2
I 3
S 2*
K 3
* Skin absorption

NFPA†

HMIS
H 2
F 3
R 2
PPG‡
‡ Sec. 8

† Rating is for *inhibited* monomer

Section 2. Ingredients and Occupational Exposure Limits

Styrene *monomer*, ca 99.6%, containing inhibitors butylcatechol or hydroquinone

1991 OSHA PELs
8-hr TWA: 50 ppm (215 mg/m³)
15-min STEL: 100 ppm (425 mg/m³)

1990 IDLH Level
5000 ppm

1990 NIOSH RELs
TWA: 50 ppm (215 mg/m³)
STEL: 100 ppm (425 mg/m³)

1991-92 ACGIH TLVs (Skin)
TWA: 50 ppm (213 mg/m³)
STEL: 100 ppm (426 mg/m³)

1990 DFG (Germany) MAKs
Ceiling: 20 ppm (85 mg/m³)
Half-life: < 2 hr
Peak Exposure Limit: 40 ppm, 30 min. average value, 4 per shift

1985-86 Toxicity Data*
Human, inhalation, TC_{Lo}: 20 µg/m³ caused eye effects.
Human, skin: 500 mg (non-standard test, *accident*) caused irritation.
Human, HeLa cell: 28 mmol/L caused unscheduled DNA synthesis.
Rat, oral, LD_{50}: 5000 mg/kg; toxic effects not yet reviewed
Rat, inhalation, LC_{50}: 24 g/m³/ 4 hr produced an antipsychotic effect.

* See NIOSH, *RTECS* (WL3675000), for additional irritation, mutation, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 293 °F (145 °C)
Freezing Point: -23 °F (-31 °C)
Vapor Pressure: 5 mm Hg at 68 °F (20 °C)
Viscosity: 0.751 mPa
Refraction Index: 1.5463 at 68 °F (20 °C)
Odor Threshold Range: 0.15 to 25 ppm
Density: 0.9045 at 25/25 °C
Surface Tension: 32.14 dyne/cm at 66.2 °F (19 °C)
Molecular Weight: 104.2
Saturated Vapor Density (air = 1.2 kg/m³): 1.22 kg/m³ or 0.076 lbs/ft³
Water Solubility: Practically insoluble, 0.3 lbs/100 lbs water; floats on water
Other Solubilities: Soluble in benzene, carbon disulfide, carbon tetrachloride, ethanol, ethyl ether and ketones. Dissolves organic substances and polymers.

Appearance and Odor: Colorless to slightly yellow oily liquid with a sweet, pleasant odor at low levels becoming pungent as levels increase.

Section 4. Fire and Explosion Data

Flash Point: 88 °F (31 °C), CC	Autoignition Temperature: 914 °F (490 °C)	LEL: 1.1% v/v	UEL: 7% v/v

Extinguishing Media: A Class 1C flammable liquid. For small fires, use dry chemical, carbon dioxide (CO_2), or regular foam. For large fires, use fog, or regular foam. Water may be ineffective since styrene tends to float on water; use only when other agents are unavailable.
Unusual Fire or Explosion Hazards: Styrene may accumulate static electricity. Hazardous polymerization can occur causing container to rupture due to heat of fire. Vapors may travel to ignition source and flash back. Styrene poses a vapor explosion hazard indoors, outdoors, and in sewers.
Special Fire-fighting Procedures: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing provides only limited protection. Use protective clothing specifically recommended by manufacturer. Apply cooling water to container sides until well after fire is out. If possible without risk, remove container from fire area. Stay away from ends of tanks. For massive fire in cargo area use monitor nozzles or unmanned hose holders; if this is impossible, withdraw from area and let fire burn. Withdraw immediately if you hear a rising sound from venting safety device or notice any tank discoloration due to fire. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Uninhibited styrene monomer is very unstable and even when inhibited (butylcatechol or hydroquinone) polymerization occurs slowly at room temperature and fast at elevated temperatures or in contact with certain initiators. **Chemical Incompatibilities:** Styrene vapor is explosive when exposed to heat or flame; reacts with oxygen above 104 °F (40 °C) to form a heat-sensitive explosive peroxide. Violent polymerization may be initiated by alkali metal-graphite composites, butyllithium, dibenzoyl peroxide, azoisobutyronitrile or di-*tert*-butyl peroxide. Styrene reacts violently with chlorosulfonic acid, oleum, sulfuric acid, chlorine + iron (II) chloride (above 50 °C) and can react vigorously with oxidizing materials. **Conditions to Avoid:** Exposure to heat and ignition sources, light, and contact with incompatibles.
Hazardous Decomposition Products: Thermal oxidative decomposition of styrene can produce carbon dioxide, acrid smoke and irritating fumes.

Section 6. Health Hazard Data

Carcinogenicity: The IARC(164) lists styrene monomer as a carcinogen; Class 2B (possibly carcinogenic, limited human evidence in the absence of sufficient animal data). **Summary of Risks:** Styrene is irritating to the eyes, skin, and respiratory system. It is absorbed through the skin at 9 to 15 mg/m²/hr (hand and forearm). Inhalation of high concentrations can cause CNS depression but styrene's pungent, irritating odor is usually enough to prevent acute toxic exposures. If heavy exposure occurs, styrene can saturate the body in 30-40 minutes, is distributed throughout the organs and is rapidly eliminated (~85% in 24 hr) either in urine (71%) or expired air (10%). Unexcreted styrene accumulates in adipose tissue (subcutaneous connective tissue containing fat cells). Ovulation and menstrual disorders were observed in women exposed to styrene. In one case, CNS effects were observed in infants whose mother was exposed to chemicals such as styrene during pregnancy. In general, pregnant women may be at elevated risk because styrene crosses the placental barrier. **Target Organs:** CNS, eyes, respiratory system, and skin. **Primary Entry Routes:** Inhalation, skin contact/absorption. **Medical Conditions Aggravated by Long-term Exposure:** Possibly, liver, kidney, blood, skin, and CNS disorders.
Acute Effects: Inhalation of concentrations as low as 50 ppm causes irritation of the eyes, and respiratory tract.

Continue on next page

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Section 6. Health Hazard Data, *continued*

Symptoms include watering eyes and nose, chest heaviness or pain, difficulty breathing, coughing, bluish face and lips, wheezing, headache, nausea, vomiting, dizziness, fatigue, diarrhea and risk of pulmonary edema (fluid in lungs). Skin contact is irritating, with itching, inflammation and possible blisters. Splashes to the eyes cause irritation, watering, lid inflammation, chemical corneal burns, and possibly, serious lesions. Cases of ingestion have not been reported but by analogy to animal studies it could cause irritation of the lips, mouth, and throat; painful swallowing, abdominal pain, nausea, vomiting, state of shock, possible convulsions and risk of pulmonary edema. **Chronic Effects:** Repeated exposure has caused "styrene sickness" described by nausea, vomiting, appetite loss, and general weakness. Occupational asthma may occur rarely. Functional disorders of the nervous system, irritation of the upper airways, and blood changes particularly leukopenia (abnormally low number of circulating, nucleated white or colorless blood cells) and lymphocytosis (increased number of lymphocytes which are involved in the immune system) have also been observed. Medical exams revealed toxic hepatitis in workers exposed to ~50 mg/m^3 styrene for over 5 yr. Prolonged exposure to < 50 mg/m^3 caused certain liver function disorders (protein, pigment, glycogen). Peripheral neuropathies were observed in chronically exposed workers. Repeated or prolonged skin exposure may cause dermatitis with rough, dry, fissured skin due to defatting.

FIRST AID Eyes: Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Do *not* allow victim to rub or keep eyes tightly shut. Immediately consult a physician. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center and unless otherwise advised, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute. *Do not induce vomiting!* Gastric lavage may be indicated if victim is at risk of convulsing but the decision should be carefully weighed since severe esophageal irritation may occur. **Note to Physicians:** For acute exposure, give baseline liver and kidney function tests and obtain urinalysis, CBC, amylase and lipase levels. Monitor arterial blood gases and perform chest X-ray if significant respiratory irritation occurs. Phenylglyoxylic and mandelic acid may be determined in urine.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Cleanup personnel should protect against inhalation and eye and skin contact. Shut off all ignition sources. Use water spray to cool and disperse vapors (this may not prevent ignition in closed spaces). For small spill, take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers. For large spills, dike far ahead of liquid spill for later disposal or reclamation. For spills in water, apply activated carbon at 10 X the spilled amount (at least 10,000 ppm) or use barriers or oil spill booms to limit motion. "Universal" gelling agent injected into spill may aid in solidification. Remove material with suction hoses or mechanical dredges. Follow applicable OSHA regulations (29 CFR 1910.120). Report spills in excess of 1000 lb. **Ecotoxicity Values:** TLm, *Pimephales promelas* (fathead minnow), 53.6 mg/L/48 hr; TLm, *Artemia salina* (brine shrimp), 68 mg/L/24 hr and 52 mg/L/48 hr. **Environmental Degradation:** In water, styrene monomer volatilizes rapidly and may be subjected to biodegradation. It is not expected to hydrolyze. In air, styrene will react rapidly with hydroxyl radicals and ozone with a combined calculated half-life of 2.5 to 9 hr. In soil, styrene will biodegrade and leach to groundwater with low to moderate mobility (depending on soil conditions). **Disposal:** Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations Listed as a RCRA Hazardous Waste (40 CFR 261.21 & 261.23): D001 and D003, Characteristic of ignitability and reactivity
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg) [* per CWA, Sec. 311(b)(4)]
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as a SARA Toxic Chemical (40 CFR 372.65)
OSHA Designations Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A & Z-2)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH/MSHA-approved respirator. For < 500 ppm, use any supplied air respirator (SAR) or SCBA. For < 1250 ppm, use any SAR operated in a continuous flow mode. For < 5000 ppm, use any SAR with a full facepiece in positive pressure mode. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a respiratory protection program that includes at least: training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Polyvinyl alcohol is recommended as suitable material for PPG. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes and launder before reuse. Thoroughly decontaminate PPG. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Prevent physical damage to containers. Styrene is corrosive to copper or copper alloy containers. Store in cool (hazardous above 32 °C), dry, well-ventilated area away from incompatibles (Sec. 5). Store small refrigerated amounts in glass containers and large amounts in vented metal tanks in outside or detached storage under an inert blanket (i.e., nitrogen). Install electrical equipment Class 1, Group D. Inhibit styrene during storage to prevent polymerization. Uninhibited vapor may polymerize in vents and cause blockage. To prevent static sparks, electrically ground and bond all equipment used in styrene manufacture, use, storage, transfer, and shipping. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. Continuously monitor workplace air levels of styrene. Make sure ducting, piping, and pipe joints are leak tight. Give preference to continuous rather than batch techniques and mechanize manual operations. **Administrative Controls:** Consider preplacement and periodic medical exams of exposed workers that emphasize the CNS, blood, liver, kidney, and skin. Consider precluding pregnant women from styrene exposure.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Styrene monomer, inhibited
DOT Hazard Class: Flammable liquid
ID No.: UN2055
DOT Label: Flammable liquid
DOT Packaging Exceptions: 173.118
DOT Packaging Requirements: 173.119

IMO Shipping Name: Styrene monomer, inhibited
IMO Hazard Class: 3.3
ID No.: UN2055
IMO Label: Flammable liquid
IMDG Packaging Group: II

MSDS Collection **References:** 73, 89, 100, 101, 103, 124, 126, 127, 131, 132, 133, 136, 139, 140, 148, 149, 153, 159, 162, 163, 164, 167, 168
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** AC Darlington, MPH, MD

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Material Safety Data Sheets Collection:

Sheet No. 318
Xylene *(Mixed Isomers)*

Issued: 11/80 Revision: E, 9/92 Errata: 12/94

Section 1. Material Identification

Xylene (Mixed Isomers) (C_8H_{10}) Description: The commercial product is a blend of the three isomers [*ortho*-(*o*-), *meta*-(*m*-), *para*-(*p*-)] with the largest proportion being *m*- xylene. Xylene is obtained from coal tar, toluene by transalkylation, and pseudocumene. Used in the manufacture of dyes, resins, paints, varnishes, and other organics; as a general solvent for adhesives, a cleaning agent in microscope technique; as a solvent for Canada balsam microscopy; as a fuel component; in aviation gasoline, protective coatings, sterilizing catgut, hydrogen peroxide, perfumes, insect repellants, pharmaceuticals, and the leather industry; in the production of phthalic anhydride, isophthalic, and terephthalic acids and their dimethyl esters which are used in the manufacture of polyester fibers; and as an indirect food additive as a component of adhesives. Around the home, xylene is found as vehicles in paints, paint removers, degreasing cleaners, lacquers, glues and cements and as solvent/vehicles for pesticides.

Other Designations: CAS No. 1330-20-7 [95-47-6; 108-38-3; 106-42-3 (*o*-, *m*-, *p*-isomers)], dimethylbenzene, methyltoluene, NCI-C55232, Violet 3, xylol.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

R 1
I 2
S 2
K 3

NFPA

HMIS
H 2†
F 3
R 0
PPE ‡
† Chronic Effects
‡ Sec. 8

Cautions: Xylene is an eye, skin, and mucous membrane irritant and may be narcotic in high concentrations. It is a dangerous fire hazard.

Section 2. Ingredients and Occupational Exposure Limits

Xylene (mixed isomers): the commercial product generally contains ~ 40% *m*-xylene; 20% each of *o*-xylene, *p*-xylene, and ethylbenzene; and small quantities of toluene. Unpurified xylene may contain pseudocumene.

1991 OSHA PELs
8-hr TWA: 100 ppm (435 mg/m^3)
15-min STEL: 150 ppm (655 mg/m^3)

1990 IDLH Level
1000 ppm

1990 NIOSH RELs
TWA: 100 ppm (435 mg/m^3)
STEL: 150 ppm (655 mg/m^3)

1992-93 ACGIH TLVs
TWA: 100 ppm (434 mg/m^3)
STEL: 150 ppm (651 mg/m^3)
BEI (Biological Exposure Index): Methylhippuric acids in urine at end of shift: 1.5 g/g creatinine

1990 DFG (Germany) MAK
TWA: 100 ppm (440 mg/m^3)
Category II: Substances with systemic effects
Half-life: < 2 hr
Peak Exposure: 200 ppm, 30 min, average value, 4 peaks per shift

1985-86 Toxicity Data*
Human, inhalation, TC_{Lo}: 200 ppm produced olfaction effects, conjunctiva irritation, and other changes involving the lungs, thorax, or respiration.
Man, inhalation, LC_{Lo}: 10000 ppm/6 hr; toxic effects not yet reviewed.
Human, oral, LD_{Lo}: 50 mg/kg; no toxic effect noted.
Rat, oral, LD_{50}: 4300 mg/kg; toxic effect not yet reviewed.
Rat, inhalation, LC_{50}: 5000 ppm/4 hr; toxic effects not yet reviewed.

* See NIOSH, *RTECS* (XE2100000), for additional toxicity data.

Section 3. Physical Data

Boiling Point Range: 279 to 284 °F (137 to 140 °C)*
Boiling Point: *ortho:* 291 °F (144 °C); *meta:* 281.8 °F (138.8 °C); *para:* 281.3 °F (138.5 °C)
Freezing Point/Melting Point: *ortho:* -13 °F (-25 °C); *meta:* -53.3 °F (- 47.4 °C); *para:* 55 to 57 °F (13 to 14 °C)
Vapor Pressure: 6.72 mm Hg at 70 °F (21 °C)
Saturated Vapor Density (Air = 1.2 kg/m^3): 1.23 kg/m^3, 0.077 lbs/ft^3

Appearance and Odor: Clear, sweet-smelling liquid.

Molecular Weight: 106.16
Specific Gravity: 0.864 at 20 °C/4 °C
Water Solubility: Practically insoluble
Other Solubilities: Miscible with absolute alcohol, ether, and many other organic liquids.
Octanol/Water Partition Coefficient: logKow = 3.12-3.20
Odor Threshold: 1 ppm
Viscosity: <32.6 SUS

* Materials with wider and narrower boiling ranges are commercially available.

Section 4. Fire and Explosion Data

Flash Point: 63 to 77 °F (17 to 25 °C) CC | **Autoignition Temperature:** 982 °F (527 °C) (*m*-) | **LEL:** 1.1 (*m*-, *p*-); 0.9 (*o*-) | **UEL:** 7.0 (*m*-, *p*-); 6.7 (*o*-)

Extinguishing Media: For small fires, use dry chemical, carbon dioxide (CO_2), water spray or regular foam. For large fires, use water spray, fog or regular foam. Water may be ineffective. Use water spray to cool fire-exposed containers. **Unusual Fire or Explosion Hazards:** Xylene vapors or liquid (which floats on water) may travel to an ignition source and flash back. The heat of fire may cause containers to explode and/or produce irritating or poisonous decomposition products. Xylene may present a vapor explosion hazard indoors, outdoors, or in sewers. Accumulated static electricity may occur from vapor or liquid flow sufficient to cause ignition. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing will provide limited protection. If feasible and without risk, move containers from fire area. Otherwise, cool fire-exposed containers until well after fire is extinguished. Stay clear of tank ends. Use unmanned hose holder or monitor nozzles for massive cargo fires. If impossible, withdraw from area and let fire burn. Withdraw immediately in case of any tank discoloration or rising sound from venting safety device. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Xylene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Xylene is easily chlorinated, sulfonated, or nitrated. **Chemical Incompatibilities:** Incompatibilities include strong acids and oxidizers and 1,3-dichloro-5,5-dimethyl-2,4-imidazolidindione (dichlorohydrantoin). Xylene attacks some forms of plastics, rubber, and coatings. **Conditions to Avoid:** Avoid heat and ignition sources and incompatibles. **Hazardous Products of Decomposition:** Thermal oxidative decomposition of xylene can produce carbon dioxide, carbon monoxide, and various hydrocarbon products.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,(164) NTP,(169) and OSHA(164) do not list xylene as a carcinogen. **Summary of Risks:** Xylene is an eye, mucous membrane, and respiratory tract irritant. Irritation starts at 200 ppm; severe breathing difficulties which may be delayed in onset can occur at high concentrations. It is a central nervous system (CNS) depressant and at high concentrations can cause coma. Kidney and liver damage can occur with xylene exposure. With prolonged or repeated cutaneous exposure, xylene produces a defatting dermatitis. Chronic toxicity is not well defined, but it is less toxic than benzene. Prior to the 1950s, benzene was often found as a contaminant of xylene and the effects attributed to xylene such as blood dyscrasias are questionable. Since the late 1950s, xylenes have been virtually benzene-free and blood dyscrasias have not been associated with xylenes. Chronic exposure to high concentrations of xylene in animal studies have demonstrated mild reversible decrease in red and white cell counts as well as increases in platelet counts.

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Section 6. Health Hazard Data, *continued*

Menstrual irregularity was reported in association with workplace exposure to xylene perhaps due to effects on liver metabolism. Xylene crosses the human placenta, but does not appear to be teratogenic under conditions tested to date. **Medical Conditions Aggravated by Long-Term Exposure:** CNS, respiratory, eye, skin, gastrointestinal (GI), liver and kidney disorders. **Target Organs:** CNS, eyes, GI tract, liver, kidneys, and skin. **Primary Entry Routes:** Inhalation, skin absorption (slight), eye contact, ingestion. **Acute Effects:** Inhalation of high xylene concentrations may cause dizziness; nausea, vomiting, and abdominal pain; eye, nose, and throat irritation; respiratory tract irritation leading to pulmonary edema (fluid in lung); drowsiness; and unconsciousness. Direct eye contact can result in conjunctivitis and corneal burns. Ingestion may cause a burning sensation in the oropharynx and stomach and transient CNS depression. **Chronic Effects:** Repeated or prolonged skin contact may cause drying and defatting of the skin leading to dermatitis. Repeated eye exposure to high vapor concentrations may cause reversible eye damage, peripheral and central neuropathy, and liver damage. Other symptoms of chronic exposure include headache, fatigue, irritability, chronic bronchitis, and GI disturbances such as nausea, loss of appetite, and gas.

FIRST AID *Emergency personnel should protect against exposure.* **Eyes:** *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. Carefully dispose of contaminated clothing as it may pose a fire hazard. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. Monitor exposed person for respiratory distress. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center and unless otherwise advised, *do not induce vomiting!* If spontaneous vomiting should occur, keep exposed person's head below the hips to prevent aspiration (breathing liquid xylene into the lungs). *Aspiration of a few millimeters of xylene can cause chemical pneumonitis, pulmonary edema, and hemorrhage.* **Note to Physicians:** Hippuric acid or the ether glucuronide of *ortho*-toluic acid may be useful in diagnosis of *meta-*, *para-* and *ortho*-xylene exposure, respectively. Consider gastric lavage if a large quantity of xylene was ingested. Proceed gastric lavage with protection of the airway from aspiration; consider endotracheal intubation with inflated cuff.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, evacuate all unnecessary personnel, remove all heat and ignition sources, and ventilate spill area. Cleanup personnel should protect against vapor inhalation and skin or eye contact. If feasible and without undue risk, stop leak. Use appropriate foam to blanket release and suppress vapors. Water spray may reduce vapor, but does not prevent ignition in closed spaces. For small spills, absorb on paper and evaporate in appropriate exhaust hood or absorb with sand or some non-combustible absorbent and place in containers for later disposal. For large spills dike far ahead of liquid to contain. Do not allow xylene to enter a confined space such as sewers or drains. On land, dike to contain or divert to impermeable holding area. Apply water spray to control flammable vapor and remove material with pumps or vacuum equipment. On water, contain material with natural barriers, booms, or weirs; apply universal gelling agent; and use suction hoses to remove spilled material. Report any release in excess of 1000 lb. Follow applicable OSHA regulations (29 CFR 1910.120). **Environmental Transport:** Little bioconcentration is expected. Biological oxygen demand 5 (after 5 days at 20 °C): 0.64 (no stated isomer). **Ecotoxicity values:** LD_{50}, Goldfish, 13 mg/L/24 hr, conditions of bioassay not specified, no specific isomer. **Environmental Degradation:** In the atmosphere, xylenes degrade by reacting with photochemically produced hydroxyl radicals with a half-life ranging from 1-1.7 hr. in the summer to 10-18 hr in winter or a typical loss of 67-86% per day. Xylenes are resistant to hydrolysis. **Soil Absorption/Mobility:** Xylenes have low to moderate adsorption to soil and when spilled on land, will volatilize and leach into groundwater. **Disposal:** As a hydrocarbon, xylene is a good candidate for controlled incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as a SARA Toxic Chemical (40 CFR 372.65)
Listed as a RCRA Hazardous Waste (40 CFR 261.33): No. U239, F003 (spent solvent)
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg) [* per Clean Water Act, Sec. 311(b)(4); per RCRA, Sec. 3001]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For concentrations >1000 ppm, use any chemical cartridge respirator with organic vapor cartridges; any powered, air-purifying respirator with organic vapor cartridges; any supplied-air respirator; or any self-contained breathing apparatus. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent all skin contact. With breakthrough times > 8 hr, consider polyvinyl alcohol and fluorocarbon rubber (Viton) as materials for PPE. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in clearly labelled, tightly closed, containers in a cool, well-ventilated place, away from strong oxidizing materials and heat and ignition sources. During transferring operations, electrically ground and bond metal containers. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. Use hermetically sealed equipment, transfer xylene in enclosed systems, avoid processes associated with open evaporating surfaces, and provide sources of gas release with enclosures and local exhaust ventilation. Use Class I, Group D electrical equipment. **Administrative Controls:** Establish air and biological monitoring programs and evaluate regularly. Consider preplacement and periodic medical examinations including a complete blood count, a routine urinalysis, and liver function tests. Consider hematologic studies if there is any significant contamination of the solvent with benzene. If feasible, consider the replacement of xylene by less toxic solvents such as petrol (motor fuel) or white spirit. Before carrying out maintenance and repair work, steam and flush all equipment to remove any xylene residues.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Xylenes
DOT Hazard Class: 3
ID No.: UN1307
DOT Packing Group: II
DOT Label: Flammable Liquid
Special Provisions (172.102): T1

Packaging Authorizations
a) Exceptions: 173.150
b) Nonbulk Packaging : 173.202
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5L
b) Cargo Aircraft Only: 60L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: --

MSDS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 139, 140, 148, 149, 153, 159, 163, 164, 167, 171, 174, 176, 180.
Prepared by: MJ Wurth, BS; **Industrial Hygiene Review:** PA Roy, MPH, CIH; **Medical Review:** W Silverman, MD

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Material Safety Data Sheets Collection:

Sheet No. 683
Polychlorinated Biphenyls (PCBs)

Issued: 11/88 Revision: A, 9/92

Section 1. Material Identification

Polychlorinated Biphenyls [$C_{12}H_{10-n}Cl_n$ (n=3, 4, 5)] Description: A class of nonpolar chlorinated hydrocarbons with a biphenyl nucleus (two benzene nuclei connected by a single C-C bond) in which any or all of the hydrogen atoms have been replaced by chlorine. Commercial PCBs are mixtures of chlorinated biphenyl isomers with varying degrees of chlorination. Prepared industrially by the chlorination of biphenyl with anhydrous chlorine in the presence of a catalyst such as ferric chloride or iron filings. Except for limited research and development applications, PCBs have not been produced in the US since 1977. When large quantities of PCBs were manufactured in the US, they were marketed under the tradename Aroclor (Monsanto) and were characterized by four digit numbers. The first two digits indicating biphenyls (12), triphenyls (54), or both (25, 44); the last two digits indicating the weight percent of chlorine. PCBs' thermal stability, nonflammability, and high dielectric capability made them very useful in electrical equipment. Formerly used as additives in hydraulic fluids, heat transfer systems, lubricants, cutting oils, printer's ink, fire retardants, asphalt, brake linings, automobile body sealants, plasticizers, adhesives, synthetic rubber, floor tile, wax extenders, dedusting agents, pesticide extenders, and carbonless reproducing paper. PCBs are still used in certain existing electrical capacitors and transformers that require enhanced electrical protection to avoid heating from sustained electric faults.

R 1
I 4
S 3*
K 1
* Skin absorption

NFPA

HMIS
H 2‡
F 1
R 0
PPE†
† Sec. 8
‡ Chronic Effects

Other Designations: CAS No. 1336-36-3, Aroclor, Clophen, Chlorextol, chlorinated biphenyls, chlorinated diphenyl, chlorinated diphenylene, chloro biphenyl, chloro-1,1-biphenyl, Dykanol, Fenclor, Inerteen, Kaneclor, Montar, Noflamol, Phenoclor, Pyralene, Pyranol, Santotherm, Sovol, Therminol FR-1

Cautions: PCBs are potent liver toxins that may be absorbed through skin. Potentially, chronic or delayed toxicity is significant because PCBs accumulate in fatty tissue and may reasonably be anticipated to be carcinogens. PCBs are a bioaccumulative environmental hazard. When burned, decomposition products may be more hazardous than the PCBs.

Section 2. Ingredients and Occupational Exposure Limits

PCBs, contain various levels of polychlorinated dibenzofurans and chlorinated naphthalenes as contaminants

1991 OSHA PELs, Skin
8-hr TWA (Chlorodiphenyl, 42% chlorine): 1 mg/m³
8-hr TWA (Chlorodiphenyl, 54% chlorine): 0.5 mg/m³

1990 DFG (Germany) MAK, Danger of Cutaneous Absorption
TWA (Chlorodiphenyl, 42% chlorine): 0.1 ppm (1 mg/m³)
Category III: Substances with systemic effects, onset of effect > 2 hr., half-life > shift length (strongly cumulative)
Short-term Level: 1 ppm, 30 min., average value, 1 per shift

TWA (Chlorodiphenyl, 54% chlorine): 0.05 ppm (0.5 mg/m³)
Category III: (see above)
Short-term Level: 0.5 ppm, 30 min., average value, 1 per shift

1985-86 Toxicity Data*
Rat, oral, TD: 1250 mg/kg administered intermittently for 25 weeks produced liver tumors.
Mammal, oral, TD_{Lo}: 325 mg/kg administered to female for 30 days prior to mating and from the 1st to the 36th day of gestation produced effects on newborn (stillbirth; live birth index; viability index).

1990 NIOSH REL
TWA (Chlorodiphenyl, 42% chlorine): 0.001 mg/m³
TWA (Chlorodiphenyl, 54% chlorine): 0.001 mg/m³

1992-93 ACGIH TLVs, Skin *
TWA (Chlorodiphenyl, 42% chlorine): 1 mg/m³
TWA (Chlorodiphenyl, 54% chlorine): 0.5 mg/m³

* These guidelines offer reasonably good protection against systemic intoxication, but may not guarantee that chloroacne won't occur.
† See NIOSH, *RTECS* (TQ1350000), for additional reproductive, tumorigenic, and toxicity data.

Section 3. Physical Data*

Boiling Point: 644-707 °F (340-375 °C)
Melting Point: 42%: -2.2 °F (-19°C); 54%: 14 °F (-10 °C)
Vapor Pressure: 1 mm Hg at 100 °F (38 °C); 10^{-6} to 10^{-3} mm at 20 °C
Molecular Weight: 188.7 to 398.5

Specific Gravity: 1.3 to 1.8 at 20 °C
Water Solubility: Low solubility (0.007 to 5.9 mg/L)
Other Solubilities: Most common organic solvents, oils, and fats; slightly soluble in glycerol and glycols.

Appearance and Odor: PCBs vary from mobile oily liquids to white crystalline solids and hard non-crystalline resins, depending upon chlorine content.

* Physical and chemical properties vary widely according to degree and to the position of chlorination.

Section 4. Fire and Explosion Data

Flash Point: 286-385 °F (141-196 °C) OC*	Autoignition Temperature: 464 °F (240 °C)	LEL: None reported	UEL: None reported

Extinguishing Media: Use extinguishing media suitable to the surrounding fire. Use dry chemical, foam, carbon dioxide (CO_2), or water spray. Water spray may be ineffective. Use water spray to cool fire-exposed containers or transformers. Do not scatter PCBs with high-pressure water streams. **Unusual Fire or Explosion Hazards:** Combustion products (hydrogen chloride, phosgene, polychlorinated dibenzofurans, and furans) are more hazardous than the PCBs themselves. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Approach fire from upwind to avoid highly toxic decomposition products. Structural firefighter's protective clothing will provide *limited* protection. Do not release runoff from fire control methods to sewers or waterways. Dike for later disposal.

* Flash points shown are a range for various PCBs. Some forms do not have flash points.

Section 5. Reactivity Data

Stability/Polymerization: PCBs are very stable materials but are subject to photodechlorination when exposed to sunlight or UV (spectral region above 290 nanometers). Hazardous polymerization cannot occur. **Chemical Incompatibilities:** PCBs are chemically inert and resistant to oxidation, acids, and bases. **Conditions to Avoid:** Avoid heat and ignition sources.
Hazardous Products of Decomposition: Thermal oxidative decomposition [1112-1202 °F (600-650 °C)] of PCBs can produce highly toxic derivatives, including polychlorinated dibenzo-para-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), hydrogen chloride, phosgene and other irritants.

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Section 6. Health Hazard Data

Carcinogenicity: The IARC,[164] and NTP[169] list PCBs as an IARC probable carcinogen (overall evaluation is 2A; limited human data; sufficient animal data) and NTP anticipated carcinogen, respectively. **Summary of Risks:** PCBs are potent liver toxins that can be absorbed through unbroken skin in toxic amounts without immediate pain or irritation. PCBs have low acute toxicity, but can accumulate in fatty tissue and severe health effects may develop later. Generally, toxicity increases with a higher chlorine content; PCB-oxides are more toxic. The toxic action on the liver also increases with simultaneous exposure to other liver toxins, e.g. chlorinated solvents, alcohol, and certain drugs. Pathological pregnancies (abnormal pigmentations, abortions, stillbirths, and underweight births) have been associated with increased PCB serum levels in mothers; PCBs can be passed in breast milk. PCBs can affect the reproductive system of adults. **Medical Conditions Aggravated by Long-Term Exposure:** Skin, liver, and respiratory disease. **Target Organs:** Skin, liver, eyes, mucous membranes, and respiratory tract. **Primary Entry Routes:** Inhalation, dermal contact, ingestion. **Acute Effects:** Exposure to PCB vapor or mist is severely irritating to the skin, eyes, nose, throat, and upper respiratory tract. Intense acute exposure to high concentrations may result in eye, lung, and liver injury. Systemic effects include nausea, vomiting, increased blood pressure, fatigue, weight loss, jaundice, edema and abdominal pain. Cognitive, neurobehavior and psychomotor impairment and memory loss have also been seen after acute exposure. **Chronic Effects:** Repeated exposure to PCBs can cause chloroacne; redness, swelling, dryness, thickening and darkening of the skin and nails; swelling and burning of the eyes, and excessive eye discharge; distinctive hair follicles; gastrointestinal disturbances; neurological symptoms including headache, dizziness, depression, nervousness, numbness of the extremities, and joint and muscle pain; liver enlargement; menstrual changes in women; and chronic bronchitis. Cancer, primarily liver, is also a possible result of exposure, but data is inconclusive.

FIRST AID **Eyes:** *Do not* allow victim to rub or keep eyes tightly shut. Rinsing eyes with medical oil (olive, mineral) initially may remove PCB and halt irritation better than water rinsing alone. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. *Multiple soap and water washings are necessary.* Avoid the use of organic solvents to clean the skin. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** In most cases, accidental PCB ingestion will not be recognized until long after vomiting would be of any value. Never give anything by mouth to an unconscious or convulsing person. Vomiting of the pure substance may cause aspiration. Consult a physician. Note to **Physicians:** Monitor patients for increased hepatic enzymes, chloroacne, and eye, gastrointestinal, and neurologic symptoms listed above. Diagnostic tests include blood levels of PCBs and altered liver enzymes.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, evacuate all unnecessary personnel, provide adequate ventilation, and isolate hazard area. Cleanup personnel should protect against vapor inhalation and skin or eye contact. For small spills, take up with sand or other noncombustible material and place into containers for later disposal. For larger spills, dike far ahead of spill to contain for later disposal. Follow applicable OSHA regulations (29 CFR 1910.120). **Environmental Transport:** PCBs have been shown to bio-concentrate significantly in aquatic organisms. **Ecotoxicity:** Bluegill, TLm: 0.278 ppm/96 hr. Mallard Duck, LD_{50}: 2000 ppm. **Environmental Degradation:** In general, the persistence of PCBs increases with an increase degree of chlorination. **Soil Absorption/Mobility:** PCBs are tightly absorbed in soil and generally do not leach significantly in most aqueous soil systems. However, in the presence of organic solvents, PCBs may leach rapidly through the soil. Volatilization of PCBs from soil may be slow, but over time may be significant. **Disposal:** Approved PCB disposal methods include: incineration with scrubbing, high-efficiency boilers, landfills, and EPA-approved alternative disposal methods. Each disposal method has various criteria. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

RCRA Hazardous Waste (40 CFR 261.33): Not listed
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as a SARA Toxic Chemical (40 CFR 372.65)
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1 lb (0.454 kg) [* per CWA, Sec. 311(b)(4) and 307(a)]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. Minimum respiratory protection should include a combination dust-fume-mist and organic vapor cartridge or canister or air-supplied, depending upon the situation. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent all skin contact. Butyl rubber, neoprene, Teflon, and fluorocarbon rubber have break through times greater than 8 hrs. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes and launder before reuse. Segregate contaminated clothing in such a manner so that there is no direct contact by laundry personnel. Implement quality assurance to ascertain the completeness of the cleaning procedures. Remove this material from your shoes and clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in a closed, labelled, container in a ventilated area with appropriate air pollution control equipment. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. **Administrative Controls:** Inform employees of the adverse health effects associated with PCBs. Limit access to PCB work areas to authorized personnel. Consider preplacement and periodic medical examinations with emphasis on the skin, liver, lung, and reproductive system. Monitor PCB blood levels. Consider possible effects on the fetus. Keep medical records for the entire length of employment and for the following 30 yrs.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Polychlorinated biphenyls
DOT Hazard Class: 9
ID No.: UN2315
DOT Packing Group: II
DOT Label: CLASS 9
Special Provisions (172.102): 9, N81

Packaging Authorizations
a) Exceptions: 173.155
b) Non-bulk Packaging: 173.202
c) Bulk Packaging: 173.241

Quantity Limitations
a) Passenger Aircraft or Railcar: 100 L
b) Cargo Aircraft Only: 220 L

Vessel Stowage Requirements
a) Vessel Stowage: A
b) Other: 34

MSDS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 163, 164, 168, 169, 174, 175, 180
Prepared by: MJ Wurth, BS; **Industrial Hygiene Review:** PA Roy MPH, CIH; **Medical Review:** AC Darlington, MD

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Material Safety Data Sheet Collection

2, 3, 7, 8-Tetrachlorodibenzo-*p*-dioxin (TCDD)

MSDS No. 906 Date of Preparation: 6/94

Section 1 - Chemical Product and Company Identification 44

Product/Chemical Name: 2, 3, 7, 8-Tetrachlorodibenzo-*p*-dioxin (TCDD)
Chemical Formula: $C_{12}H_4Cl_4O_2$
CAS No.: 1746-01-6
Synonyms: dioxin; dioxine; NCI-C03714; tetrachlorodibenzodioxin; 2, 3, 7, 8-tetrachlorodibenzo(b, e)(1, 4)dioxin; 2, 3, 7, 8-tetrachlorodibenzo-1, 4-dioxin; TCDBD; TCDD; 2, 3, 7, 8-TCDD; tetradioxin
Derivation: TCDD is not manufactured, but is formed as a by-product of chlorobenzenes, chlorophenols, and the herbicides 2, 4, 5-trichlorophenoxyacetic acid (2, 4, 5-T) and 2-(2, 4, 5-trichlorophenoxy)propionic acid (Silvex) which are produced from 2, 4, 5-trichlorophenol (TCP). 2, 4, 5-T, commonly known as Agent Orange, was the defoliant used during the Vietnam War. TCP, 2, 4, 5-T and Silvex are no longer commercially produced in the U.S. As a chemical and toxicological standard, TCDD can be prepared by catalytic condensation of potassium 2, 4, 5-trichlorophenate. TCDD has been released to the environment during the incineration of chemical wastes including chlorinated benzenes, chlorophenols, and biphenyl ethers, from the improper disposal of certain chlorinated chemical wastes, in emissions from wood burning in the presence of chlorine, in accidental fires involving transformers containing PCBs, and from the use of the herbicides 2, 4, 5-T and Silvex.
General Use: TCDD is an extremely toxic, unwanted by-product and essentially has no beneficial uses. It may be used as a research chemical. **Vendors:** Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

2, 3, 7, 8-Tetrachlorodibenzo-*p*-dioxin, ca 100 %wt. TCDD normally persists as a contaminant in TCP in variable amounts (0.07-6.2 mg/kg). Consequently, the concentrations of TCDD in different batches of Agent Orange varied greatly with an average concentration of about 2 ppm.

OSHA PEL*
None established

NIOSH REL
Carcinogen, lowest feasible concentration.

DFG (Germany) MAK
None established

ACGIH TLV
None established

* A preliminary occupational exposure limit of 0.2 ng/m^3 (200 pg/m^3) is recommended. It provides an ample margin of safety to prevent chloracne and takes into consideration the chronic effects of animal studies and accidental human exposure. [Leung HW et al; *American Industrial Hygiene Association Journal*, 49 (9): 466-74 b(1988)]

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

TCDD is a colorless, crystalline solid at room temperature. It is highly toxic and a potential human carcinogen. Exposure to TCDD-contaminated materials may cause a severe and disabling acne-like rash that may persist for years (chloracne), metabolic disorders, and nervous system and liver damage. In animals, TCDD causes teratogenesis, tumorigenesis, and immunological dysfunction. Findings in humans are inconclusive, but human toxicology is under continuing investigation. Workers may be exposed to TCDD from residues from prior production or use of 2, 4, 5-T or Silvex, waste materials contaminated by TCDD, or contamination resulting from transformer fires. Take every precaution to avoid any exposure to TCDD.

Wilson Risk Scale	
R	1
I	4
S	4*
K	1

*Skin absorption

HMIS	
H	4†
F	1
R	0

†Chronic Effects
PPE‡
‡Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation (dust),* skin contact, ingestion.
Target Organs: Skin, liver, and nervous system.
Acute Effects
Inhalation: Shortness of breath, headaches, fatigue, severe muscle pains, weakness, and digestive disturbance. Most symptoms develop slowly, over many days.
Eye: Conjunctivitis and chemical burns.
Skin: Chemical burns. In most cases, chloracne appears within 2 to 4 weeks after initial exposure. It consists of blackheads with small, pale-yellow cysts. In severe cases, there may be papules (red spots) or even pustules (pus-filled spots). This acne-like rash appears on the cheekbones under the eyes and behind the ears in very mild cases. With increasing severity, the rest of the face and neck are affected and the outer upper arms, chest, back, abdomen, outer thighs and genitalia may be involved in varying degrees in the worst cases. In the worst cases, lesions may be active 15 or more years after the contact has ceased. Chloracne may also appear after ingestion or inhalation. Skin fragility, hirsutism (excessive growth of hair of normal or abnormal distribution), and photosensitivity may also occur.
Ingestion: Nausea, vomiting, and possible pancreatitis.

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Carcinogenicity: The IARC, NTP, MAK , and NIOSH list TCDD as an IARC-2B (possibly carcinogenic to humans: inadequate evidence of carcinogenicity in humans but there is sufficient evidence of carcinogenicity in experimental animals), an NTP-2 (reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals), an MAK-A2 (unmistakably carcinogenic in animal experimentation only), and a NIOSH-X (carcinogen defined with no further categorization). OSHA does not list TCDD as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Skin, liver, nervous and endocrine system disorders.
Chronic Effects: Lack of energy, loss of sex drive, personality and mood changes, numbness, weakness and pain in the legs, liver damage, chloracne, and elevated blood lipids. TCDD increased the incidence of a variety of tumors in animals, but human data is inconclusive. Little is known of the human health effects (if any) as a result of long-term exposures to low concentrations.
Comments: The observed health effects from clinical or epidemiological studies of populations who were occupationally and non-occupationally exposed cannot be solely attributed to TCDD because of the concurrent exposure to 2, 4, 5-T and TCP and to other herbicides as well. There is no report of human exposure to TCDD alone.
* Vapor inhalation is unlikely because TCDD has a low vapor pressure.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.
Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.
Skin Contact: *Quickly* remove contaminated clothing. Flush with water to remove solid particles; follow with a soap and water wash of exposed areas. For reddened or blistered skin, consult a physician.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: For an acute exposure, obtain liver function tests, CBC, prothrombin time, serum lipids, and uroporphyrins. EMG may be useful in detecting subclinical neuropathy. Current analytical techniques to detect dioxins in human tissue specimens involve gas chromatography and mass spectrometry. Chloracne may respond to topical retinoic acid, and oral tetracyclines may help secondary pustular follicles. Resistant cases may require dermabrasion or acne surgery. Isotretinoin may be tried.
Special Precautions/Procedures: Emergency personnel should protect against contamination.

Section 5 - Fire-Fighting Measures

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Flash Point: None reported.
Autoignition Temperature: None reported.
LEL: None reported.
UEL: None reported.
Extinguishing Media: Use dry chemical, carbon dioxide, water spray, or foam extinguisher.
Unusual Fire or Explosion Hazards: None reported.
Hazardous Combustion Products: Toxic fumes of chlorine.
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Notify safety personnel of spill, evacuate all unnecessary personnel, remove heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against skin and eye contact and dust inhalation.
Small Spills: Carefully collect and place in sealed containers for disposal.
Large Spills
Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Cleanup: Avoid generating dust. *Do not* sweep! Provide an organized procedure of containment, collection, and disposal of contaminated solutions and residues generated during cleanup. Provide separate facilities for decontamination of large equipment. Conduct repetitive wash/rinse cycles separately, either by using different locations or by spacing in time.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120). For specific recommendations, contact your Department of Environmental Protection or your regional EPA office.

Section 7 - Handling and Storage

Handling Precautions: Handle with extreme caution. Take all the necessary precautions to avoid any exposure.
Storage Requirements: Store in tightly closed and properly labeled containers in a cool, well-ventilated area.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Isolate work areas involving TCDD or TCDD-contaminated materials.

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Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.(103) **Administrative Controls:** Consider preplacement and periodic medical examinations with emphasis on the skin, liver, nervous and endocrine systems. Regularly monitor glassware, bench tops, instruments, and tools with wipe tests (wipe with filter paper and measure amount of TCDD). **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For situations where TCDD contamination is low (e.g., exposure to dust contaminated with low levels of TCDD), wear an air-purifying respirator until the extent and characterization of the exposure can be determined. For materials highly contaminated with TCDD, wear respirators that consist of self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive pressure mode. An alternate method utilizes a combination Type C supplied-air respirator, with full facepiece, operated in a pressure-demand mode and equipped with auxiliary positive pressure self-contained air supply. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Protective Clothing/Equipment:** Consider disposable clothing due to the uncertainty of adequate decontamination. Wear protective clothing consisting of both outer (zippered coverall with attached hood and draw string or elastic sleeves, gloves and closure boots) and inner (cotton overalls, undershirts, undershorts, gloves, and socks) garments. For dust or particulate exposure, wear coveralls of a non-woven fabric such as Tyvek or spun bonded polyethylene. For exposure to liquids, wear coveralls, gloves, and boots made of chemically resistant materials such as Saranax coated Tyvek or butyl, nitrile, or neoprene rubber. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses. **Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area. **Contaminated Equipment:** Shower and change clothes after potential exposures or at the end of the work day. Separate contaminated work clothes from street clothes. Launder before reuse. Place disposable clothing in marked and approved containers for disposal. Remove this material from your shoes and clean personal protective equipment. To prevent cross-contact, provide segregated decontamination locations with separate, controlled, and well-marked entry/exit routes and locations. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance and Odor: Colorless needles
Water Solubility: 19.3 ng/L
Other Solubilities: *o*-dichlorobenzene (1.4 g/L); chlorobenzene (0.72 g/L); benzene (0.57 g/L); chloroform (0.37 g/L); acetone (0.11 g/L); *n*-octanol (0.05 g/L); methanol (0.01 g/L); lard oil (0.04 g/L)

Vapor Pressure: 7.4×10^{-10} mm Hg at 77 °F (25 °C)
Formula Weight: 322
Melting Point: 581-583 °F (305-306 °C)
Octanol/Water Partition Coefficient: log Kow= 7.02
Henry's Law Constant: 1.62×10^{-5} atm m^3/mole at 25 °C (estimated)

Section 10 - Stability and Reactivity

Stability: TCDD is relatively stable toward heat, acids, and alkalis. It is changed chemically when exposed in isooctane or *n*-octanol to UV light. **Polymerization:** Hazardous polymerization cannot occur. **Chemical Incompatibilities:** None reported. **Conditions to Avoid:** Avoid heat and ignition sources. **Hazardous Decomposition Products:** Thermal oxidative decomposition of TCDD can produce toxic fumes of chlorine. Decomposition begins at 932 °F (500 °C) and complete decomposition occurs within 21 sec at 1472 °F (800 °C).

Section 11- Toxicological Information

Toxicity Data:*

Eye Effects:
Rabbit, eye: 2 mg caused moderate irritation.
Acute Effects:
Human, skin, TD_{Lo}: 107 µg/kg produced dermatitis and allergic reaction.
Mammal, oral, LD_{50}: 4200 ng/kg produced changes of the liver, kidney, ureter, bladder, and spleen.
Rat, oral, LD_{50}: 20 µg/kg
Reproductive Effects:
Monkey, oral, TD_{Lo}: 92 ng/kg (46 weeks prior to mating, on each day during gestation, and for 17 weeks following birth) caused effects on the newborn (behavioral; delayed effects).
Genetic Effects:
Human cell: 100 pmol/L caused unscheduled DNA synthesis.

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Genetic Effects *(continued)*:
Human cell: 10 nmol/L caused DNA inhibition.
Tumorigenic Effects:
Rat, oral: 52 µg/kg/2 yr (intermittent) caused liver and thyroid tumors.
Rat, oral: 27 µg/kg/65 weeks (continuous) caused liver and kidney tumors.
Multiple Dose:
Rat, oral: 6500 ng/kg/13 weeks (intermittent) caused changes in liver and thymus weight and pigmented or nucleated red blood cells.
Mouse, skin: 97 µg/kg/13 weeks (intermittent) caused diffuse hepatitis (hepatocellular necrosis); changes in spleen; and death.
* See NIOSH, *RTECS* (HP3500000), for additional toxicity data.

Section 12 - Ecological Information

Environmental Transport: Bioconcentration will occur in aquatic organisms. Due to TCDD's low solubility in water and lipids as well as its low partition coefficient in lipids, TCDD is not likely to accumulate in as many biological systems as DDT.
Environmental Degradation: When released to the atmosphere, gas-phase TCDD is degraded by reaction with hydroxyl radicals and direct photolysis (half-life =8.3 days). Particulate-phase TCDD may be physically removed from air by wet and dry deposition. TCDD may be transported long distances through the atmosphere with surface water sediments being an ultimate environmental sink of airborne particulates. TCDD will absorb to sediment and limit the overall rate by which TCDD is removed from water. TCDD near the water's surface may experience significant photodegradation. 1.5 yr is the persistence half-life of TCDD in lakes. TCDD is generally resistant to biodegradation. Photodegradation on terrestrial surfaces may be an important transformation process. During warm conditions, volatilization from soil surfaces may be a major removal mechanism. Volatilization of TCDD from dry soil surfaces is likely to be faster than from wet soil surfaces. TCDD that has been mixed into soil depths beneath the upper surface boundary will volatilize extremely slowly. On soil surfaces, persistence half-life of TCDD on soil surfaces varies from less than 1 yr to 3 yr. Half-lives in soil interiors may be as long as 12 yr.
Soil Absorption/Mobility: TCDD is immobile in soil and is not expected to leach. Lateral movement due to surface erosion may occur.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Environmentally hazardous substances, solid, n.o.s.*
Shipping Symbols: —
Hazard Class: 9
ID No.: UN3077
Packing Group: III
Label: Class 9
Special Provisions (172.102): 8, B54, N50

Packaging Authorizations
a) Exceptions: 173.155
b) Non-bulk Packaging: 173.213
c) Bulk Packaging: 173.240

Quantity Limitations
a) Passenger, Aircraft, or Railcar: None
b) Cargo Aircraft Only: None

Vessel Stowage Requirements
a) Vessel Stowage: A
b) Other: —

* If it is in a quantity, in one package which equals or exceeds the RQ of 1 lb (0.454 kg).

Section 15 - Regulatory Information

EPA Regulations: RCRA Hazardous Waste (40 CFR 261.33): Not listed
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) specific per CWA, Sec. 307(a)
CERCLA Reportable Quantity (RQ), 1 lb (0.454 kg)
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations: Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

Section 16 - Other Information

References: 73, 103, 124, 132, 136, 139, 184, 187, 189, 190, 193
Prepared By MJ Wurth, BS **Industrial Hygiene Review** PA Roy, MPH, CIH **Medical Review** T Thoburn, MD, MPH
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Material Safety Data Sheets Collection:
Sheet No. 317
Toluene
Issued: 8/79 Revision: E, 9/92 Errata: 2/94

Section 1. Material Identification 43

Toluene ($C_6H_5CH_3$) Description: Derived from petroleum i.e., dehydrogenation of cycloparaffin fractions followed by the aromatization of saturated aromatic hydrocarbons or by fractional distillation of coal-tar light oil and purified by rectification. Used widely as a solvent (replacing benzene in many cases) for oils, resins, adhesives, natural rubber, coal tar, asphalt, pitch, acetyl celluloses, cellulose paints and varnishes; a diluent for photogravure inks, raw material for organic synthesis (benzoyl & benzilidene chlorides, saccharine, TNT, toluene diisocyanate, and many dyestuffs), in aviation and high octane automobile gasoline, as a nonclinical thermometer liquid and suspension solution for navigational instruments.

Other Designations: CAS No. 108-88-3, Methacide, methylbenzene, methylbenzol, phenylmethane, toluol, Tolu-sol.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

Cautions: Toluene is an eye, skin, and respiratory tract irritant becoming narcotic at high centrations. Liver and kidney damage has occurred. Pregnant women chronically exposed to toluene have shown teratogenic effects. Toluene is highly flammable.

R 1
I 3
S 2*
K 3
* Skin absorption

NFPA

HMIS
H 2- Chronic effects
F 3
R 0
PPE-Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Toluene, < 100%; may contain a small amount of benzene (~ 1%), xylene, and nonaromatic hydrocarbons.

1991 OSHA PELs
8-hr TWA: 100 ppm (375 mg/m³)
15-min STEL: 150 ppm (560 mg/m³)

1990 IDLH Level
2000 ppm

1990 NIOSH RELs
TWA: 100 ppm (375 mg/m³)
STEL: 150 ppm (560 mg/m³)

1992-93 ACGIH TLV (Skin)
TWA: 50 ppm (188 mg/m³)

1990 DFG (Germany) MAK*
TWA: 100 ppm (380 mg/m³)
Half-life: 2 hr to end of shift
Category II: Substances with systemic effects
Peak Exposure Limit: 500 ppm, 30 min average value, 2/shift

1985-86 Toxicity Data†
Man, inhalation, TC_{Lo}: 100 ppm caused hallucinations, and changes in motor activity and changes in psychophysiological tests.
Human, oral, LD_{Lo}: 50 mg/kg; toxic effects not yet reviewed
Human, eye: 300 ppm caused irritation.
Rat, oral, LD_{50}: 5000 mg/kg
Rat, liver: 30 µmol/L caused DNA damage.

* Available information suggests damage to the developing fetus is probable.
†See NIOSH, *RTECS* (XS5250000), for additional irritation, mutation, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 232 °F (110.6 °C)
Melting Point: -139 °F (-95 °C)
Molecular Weight: 92.15
Density: 0.866 at 68 °F (20/4 °C)
Surface Tension: 29 dyne/cm at 68 °F (20 °C)
Viscosity: 0.59 cP at 68 °F (20 °C)
Refraction Index: 1.4967 at 20 °C/D

Water Solubility: Very slightly soluble, 0.6 mg/L at 68 °F (20 °C)
Other Solubilities: Soluble in acetone, alcohol, ether, benzene, chloroform, glacial acetic acid, petroleum ether, and carbon disulfide.
Vapor Pressure: 22 mm Hg at 68 °F (20 °C); 36.7 mm Hg at 86 °F (30 °C)
Saturated Vapor Density (Air = 0.075 lb/ft³ or 1.2 kg/m³): 0.0797 lb/ft³ or 1.2755 kg/m³
Odor Threshold (range of all referenced values): 0.021 to 69 ppm

Appearance and Odor: Colorless liquid with a sickly sweet odor.

Section 4. Fire and Explosion Data

Flash Point: 40 °F (4.4 °C) CC	Autoignition Temperature: 896 °F (480 °C)	LEL: 1.27% v/v	UEL: 7.0% v/v

Extinguishing Media: Toluene is a Class 1B flammable liquid. To fight fire, use dry chemical carbon dioxide, or 'alcohol-resistant' foam. Water spray may be ineffective as toluene floats on water and may actually spread fire. **Unusual Fire or Explosion Hazards:** Concentrated vapors are heavier than air and may travel to an ignition source and flash back. Container may explode in heat of fire. Toluenes' burning rate = 5.7 mm/min and its flame speed = 37 cm/sec. Vapor poses an explosion hazard indoors, outdoors, and in sewers. May accumulate static electricity. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing provides only limited protection. Apply cooling water to sides of tanks until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from fire and let burn. Withdraw immediately if you hear a rising sound from venting safety device or notice any tank discoloration due to fire because a BLEVE (boiling liquid expanding vapor explosion) may be imminent. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Toluene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization can't occur. **Chemical Incompatibilities:** Strong oxidizers, concentrated nitric acid, nitric acid + sulfuric acid, dinitrogen tetroxide, silver perchlorate, bromine trifluoride, tetranitromethane, and 1,3-dichloro-5,5-dimethyl-2,4-imidazolididione. **Conditions to Avoid:** Contact with heat, ignition sources, or incompatibles. **Hazardous Products of Decomposition:** Thermal oxidative decomposition of toluene can produce carbon dioxide, and acrid, irritating smoke.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,(164) NTP,(169) and OSHA(164) do not list toluene as a carcinogen. **Summary of Risks:** Toluene is irritating to the eyes, nose, and respiratory tract. Inhalation of high concentrations produces a narcotic effect sometimes leading to coma as well as liver and kidney damage. 93% of inhaled toluene is retained in the body of which 80% is metabolized to benzoic acid, then to hippuric acid and excreted in urine. The remainder is metabolized to *o*-cresol and excreted or exhaled unchanged. Toluene metabolism is inhibited by alcohol ingestion and is synergistic with benzene, asphalt fumes, or chlorinated hydrocarbons (i.e. perchloroethylene). Toluene is readily absorbed through the skin at 14 to 23 mg/cm²/hr. Toluene is absorbed quicker during exercise than at rest and appears to be retained longer in obese versus thin victims; presumably due to its lipid solubility. There is inconsistent data on toluene's ability to damage bone marrow; chronic poisoning has resulted in anemia and leucopenia with biopsy showing bone marrow hypo-plasia. These reports are few and some authorities argue that the effects may have been due to benzene contaminants. Chronic inhalation during pregnancy has been associated with teratogenic effects on the fetus including microcephaly, CNS dysfunction, attentional deficits, developmental delay + language impairment, growth retardation, and physical defects including a small midface, short palpebral fissures, with deep-set eyes, low-set ears, flat nasal bridge with a small nose, micrognathia, and blunt fingertips. There is some evidence that toluene causes an autoimmune illness in which the body produces antibodies that cause inflammation of its own kidney.

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Section 6. Health Hazard Data

Medical Conditions Aggravated by Long-Term Exposure: Alcoholism and CNS, kidney, skin, or liver disease. **Target Organs:** CNS, liver, kidney, skin. **Primary Entry Routes:** Inhalation, skin contact/absorption. **Acute Effects:** Vapor inhalation causes respiratory tract irritation, fatigue, weakness, confusion, dizziness, headache, dilated pupils, watering eyes, nervousness, insomnia, parasthesis, and vertigo progressing to narcotic coma. Death may result from cardiac arrest due to ventricular fibrillation with catecholamines loss. Liquid splashed in the eye causes conjunctival irritation, transient corneal damage and possible burns. Prolonged skin contact leads to drying and fissured dermatitis. Ingestion causes GI tract irritation and symptoms associated with inhalation. **Chronic Effects:** Symptoms include mucous membrane irritation, headache, vertigo, nausea, appetite loss and alcohol intolerance. Repeated heavy exposure may result in encephalopathies (cerebellar ataxia and cognitive dysfunction), liver enlargement, and kidney dystrophy (wasting away). Symptoms usually appear at workdays end, worsen at weeks end and decrease or disappear over the weekend. **FIRST AID Eyes:** *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult an ophthalmologist immediately. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center and unless otherwise advised, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute. *Do not* induce vomiting because of danger of aspiration into the lungs. Gastric lavage may be indicated if large amounts are swallowed; potential toxicity needs to be weighed against aspiration risk when deciding for or against gastric lavage. **Note to Physicians:** Monitor cardiac function. If indicated, use epinephrine and other catecholamines carefully, because of the possibility of a lowered myocardial threshold to the arrhythmogenic effects of such substances. Obtain CBC, electrolytes, and urinalysis. Monitor arterial blood gases. If toluene has > 0.02% (200 ppm) benzene, evaluate for potential benzene toxicity. BEI: hippuric acid in urine, sample at shift end (2.5 g/g creatinine); Toluene in venous blood, sample at shift end (1.0 mg/L).

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Cleanup personnel protect against inhalation and skin/eye contact. Use water spray to cool and disperse vapors but it may not prevent ignition in closed spaces. Cellosolve, hycar absorbent materials, and fluorocarbon water can also be used for vapor suppression/containment. Take up small spill with earth, sand, vermiculite, or other absorbent, noncombustible material. Dike far ahead of large spills for later reclamation or disposal. For water spills, (10 ppm or greater) apply activated carbon at 10X the spilled amount and remove trapped material with suction hoses or use mechanical dredges/lifts to remove immobilized masses of pollutants and precipitates. Toluene can undergo fluidized bed incineration at 842 to 1796 °F (450 to 980 °C), rotary kiln incineration at 1508 to 2912 °F (820 to 1600 °C), or liquid injection incineration at 1202 to 2912 °F (650 to 1600 °C). Follow applicable OSHA regulations (29 CFR 1910.120). **Ecotoxicity Values:** Blue gill, LC_{50} = 17 mg/L/24 hr; shrimp (*Crangonfracis coron*), LC_{50} = 4.3 ppm/96 hr; fathead minnow (*Pimephales promelas*), LC_{50} = 36.2 mg/L/96 hr. **Environmental Degradation:** If released to land, toluene evaporates and undergoes microbial degradation. In water, toluene volatilizes and biodegrades with a half-life of days to several weeks. In air, toluene degrades by reaction with photochemically produced hydroxyl radicals. **Disposal:** Treat contaminated water by gravity separation of solids, followed by skimming of surface. Pass through dual media filtration and carbon absorption units (carbon ratio 1 kg to 10 kg soluble material). Return waste water from backwash to gravity separator. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations
Listed as a RCRA Hazardous Waste (40 CFR 261.33): No. U220
SARA Extremely Hazardous Substance (40 CFR 355), TPQ: Not listed
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg)
[* per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307 (a)]
Listed as a SARA Toxic Chemical (40 CFR 372.65): Not listed

OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses with shatter-resistant glass and side-shields or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For < 1000 ppm, use any chemical cartridge respirator with appropriate organic vapor cartridges, any supplied-air respirator (SAR), or SCBA. For < 2000 ppm, use any SAR operated in continuous-flow mode, any SAR or SCBA with a full facepiece, or any air-purifying respirator with a full facepiece having a chin-style, front or back mounted organic vapor canister. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Polyvinyl alcohol with a breakthrough time of > 8 hr, Teflon and Viton are recommended as suitable materials for PPE. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes and launder before reuse. Remove toluene from your shoes and clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Prevent physical damage to containers. Store in a cool, dry, well-ventilated area away from ignition sources and incompatibles. Outside or detached storage is preferred. If stored inside, use a standard flammable liquids warehouse, room, or cabinet. To prevent static sparks, electrically ground and bond all equipment used with toluene. Do not use open lights in toluene areas. Install Class 1, Group D electrical equipment. Check that toluene is free of or contains < 1% benzene before use. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. **Administrative Controls:** Adopt controls for confined spaces (29 CFR 1910.146) if entering areas of unknown toluene levels (holes, wells, storage tanks). Consider preplacement and periodic medical exams of exposed workers that emphasize the CNS, liver, kidney, and skin. Include hemocytometric and thrombocyte count in cases where benzene is a contaminant of toluene. Monitor air at regular intervals to ensure effective ventilation.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Toluene
DOT Hazard Class: 3
ID No.: UN1294
DOT Packing Group: II
DOT Label: Flammable Liquid
Special Provisions (172.102): T1

Packaging Authorizations
a) Exceptions: 150
b) Non-bulk Packaging: 202
c) Bulk Packaging: 242

Quantity Limitations
a) Passenger Aircraft or Railcar: 5L
b) Cargo Aircraft Only: 60L

Vessel Stowage Requirements
Vessel Stowage: B
Other: --

CHRIS Collection References: 26, 73, 100, 101, 103, 124, 126, 127, 132, 140, 148, 153, 159, 163, 164, 167, 169, 171, 174, 175, 176, 180.
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** PA Roy, CIH, MPH; **Medical Review:** AC Darlington, MD, MPH

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Section 1. Material Identification

Nitric Acid (HNO_3) Description: A solution of nitrogen dioxide in water commercially available in many concentrations. Derived by oxidation of ammonia by catalytic process (heated platinum catalyst); or by direct synthesis, combining atmospheric nitrogen and oxygen in an electric arc (an expensive process, thus largely abandoned). HNO_3 is usually found in conjunction with nitrogen dioxide, which is considered more hazardous. Used in fertilizer production (ammonium nitrate), in photoengraving, steel etching, explosives (TNT, nitroglycerin, trinitrophenol); manufacture of metallic nitrates, sulfuric acid, aqua regia and oxalic acid, jewelry, various dyes and dyestuffs, pharmaceuticals; as a laboratory reagant, in metallurgy (*mainly* as a pickling agent) and the printing industy.
Other Designations: CAS No. 7697-37-2, aqua fortis, aqua regia, azotic acid, engravers nitrate, hydrogen nitrate, red fuming nitric acid (RFNA), white fuming nitric acid (WFNA).
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*[73] for suppliers list.

Cautions: Nitric acid is a corrosive, strong oxidizer that causes irritation or severe burns to the skin, eyes, and respiratory tract. Exposures to high levels of the concentrated acid can be fatal. Increases the flammability of combustibles. Use extreme caution when handling HNO_3.

R	2	HMIS			NFPA
I	4	H	3*	*Fuming* nitric acid	
S	4	F	0		
K	0	R	1		
		PPE**			

R	2	HMIS			
I	4	H	3*	*>40%* nitric acid	
S	4	F	0		
K	0	R	1		
		PPE**			

R	2	HMIS			
I	3	H	3*	*≤40%* nitric acid	
S	3	F	0		
K	0	R	0		
		PPE**			

* Chronic effects ** See Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Nitric acid, various %. Commercially available in nearly all concentrations; most common are 56 and 68%. RFNA (85%), WFNA (97.5%).

1991 OSHA PELs
8-hr TWA: 2 ppm (5 mg/m³)
15-min STEL: 4 ppm (10 mg/m³)

1990 IDLH Level
100 ppm

1990 NIOSH REL
8-hr TWA: 2 ppm (5 mg/m³)
15-min STEL: 4 ppm (10 mg/m³)

1992-93 ACGIH TLVs
TWA: 2 ppm (5.2 mg/m³)
STEL: 4 ppm (10 mg/m³)

1990 DFG (Germany) MAK
2 ppm (5 mg/m³)
Category I: local irritants
Peak Exposure Limit: 2 ppm
5 min momentary value, 8 per shift

1985-86 Toxicity Data*
Man, unreported route, LD_{Lo}: 110 mg/kg; toxic effects not yet reviewed
Rat, oral, TD_{Lo}: 5275 g/kg administered from 1 to 21 days of pregnancy caused post-implantation mortality and specific developmental abnormalities of the musculoskeletal system.
Rat, inhalation, LC_{50}: 67 ppm (NO_2)/4 hr; toxic effects not yet reviewed

* See NIOSH, *RTECS* [QU5775000 (nitric acid), QU5900000 (RFNA), QU6000000 (WFNA)] , for additional reproductive and toxicity data.

Section 3. Physical Data

Boiling Point: 186.8 °F (86 °C)
Melting Point: -43.6 °F (-42 °C)
Vapor Pressure: 67% HNO_3 = 6.8 mm Hg at 68 °F (20 °C); 95 to 98% = 113 at 100.4 °F (38 °C)
Saturated Vapor Density (Air = 1.2 kg/m³): 1.212 kg/m³ or 0.0757 lb/ft³ (67 % HNO_3)
pH: 1

Molecular Weight: 63.02
Density: 1.50269 at 77/39.2 °F (25/4 °C)
Water Solubility: Soluble (releases heat)
Ionization Potential: 11.95 eV

Appearance and Odor: Transparent, clear to yellow, fuming liquid with an acrid, suffocating odor which darkens to a brownish color on aging and exposure to light. "Fuming" nitric acid is red-brown in color.

Section 4. Fire and Explosion Data

Flash Point: Noncombustible	**Autoignition Temperature:** Noncombustible	**LEL:** None reported	**UEL:** None reported

Extinguishing Media: For small fires (< 40% HNO_3), use dry chemical, carbon dioxide (CO_2), water spray, or regular foam. For large fires, use water spray, fog, or regular foam. For small fires (> 40% HNO_3), use water spray, dry chemical, or soda ash. For large fires, flood area with water (*do not* get inside HNO_3 containers). Apply water from as far a distance as possible.
Unusual Fire or Explosion Hazards: HNO_3 is noncombustible but is an oxidizer which increases fire involving combustibles and can initiate an explosion. It releases flammable hydrogen gas in contact with many metals.
Special Fire-fighting Procedures: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighters' protective clothing is not effective for fires involving nitric acid. Acid-resistant clothing is needed. Apply cooling water to sides of containers until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from area and let fire burn. *Do not* release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Nitric acid decomposes in air and in contact with light and organic matter. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Nitric acid reacts explosively with combustibles, organics or readily oxidizable materials such as wood, turpentine, metal powder and hydrogen sulfide, carbides, cyanides, and alkalies; causes spattering with strong bases; is corrosive to paper, cloth and most metals (except aluminum, gold, platinum, thorium, and tantalum. Will also attack some forms of plastics, rubber, and coatings. There are at least 150 chemicals and chemical combinations which are incompatible with nitric acid. HNO_3 reacts with water to produce heat and toxic corrosive fumes. Refer to *Genium* references 126 and 159 for further detail. **Conditions to Avoid:** Avoid exposure to moisture, heat, and incompatibles.
Hazardous Decomposition Products: Thermal oxidative decomposition of HNO_3 produces nitrogen peroxide and toxic, irritating nitrogen oxides.

Section 6. Health Hazards Data

Carcinogenicity: The IARC,[164] NTP,[169] and OSHA[164] do not list nitric acid as a carcinogen.
Summary of Risks: Nitric acid is very corrosive to the skin, eyes, digestive and respiratory tract or any tissue it comes in contact with. 58 to 68% (nitric acid) vapors are moderately irritating and can't be tolerated at high concentrations. 95% (nitric acid) vapors cause severe irritation at very low levels and the liquid causes 2nd and 3rd degree burns on short contact with skin or eyes. Vapor inhalation may cause pulmonary edema (fluid in lungs) leading to death. HNO_3 vapor or mist can slowly corrode teeth when chronically exposed. **Medical Conditions Aggravated by Long-Term Exposure:** Chronic respiratory diseases. **Target Organs:** Eyes, skin, respiratory tract, teeth.

Continue on next page

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Section 6. Health Hazard Data, continued

Primary Entry Routes: Inhalation, ingestion, skin and eye contact. **Acute Effects:** Inhalation symptoms may take several hours and include throat and nose irritation, cough, chest pain, difficulty breathing, salivation, giddiness, nausea, muscular weakness, ulceration of nasal mucous membranes, pulmonary edema, and chemical pneumonia. Skin contact is moderately irritating to severely corrosive depending on % of nitric acid. Burns may penetrate deeply causing ulcers. Skin may be stained yellowish brown. Dilute solutions cause irritation and tend to harden the epithelium (outer skin layer) without destroying it. HNO_3 liquid causes yellow discoloration of the eyes and severe burns which may result in permanent damage, i.e., sight loss. Ingestion produces immediate pain and digestive tract burns followed by throat swelling, convulsions, risk of stomach perforation (causing a rigid abdomen) and possible coma. **Chronic Effects:** Repeated inhalation of low concentrations may cause chronic bronchitis, tooth erosion, and/or appetite loss. Repeated exposure to $NO_{(x)}$ such as produced by thermal decomposition of HNO_3 is implicated in chronic lung diseases.

FIRST AID

Eyes: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing (*do not force removal if stuck to skin*). Rinse with flooding amounts of water for at least 15 min. Apply a 5% triethanolamine solution to affected area. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute followed by lime milk or milk of magnesia. Do not induce vomiting. *Do not* give sodium bicarbonate or attempt to neutralize the acid.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Observe for several hours since symptoms such as pulmonary edema may be delayed.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Immediately notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Cleanup personnel should wear fully-encapsulating vapor-protective clothing. Use water spray to cool and disperse vapor. Keep combustibles away from spilled material. For small spills, take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in dry containers for disposal. For large spill, flush with water to containment area and neutralize with agricultural (slaked) lime, sodium bicarbonate, crushed limestone, soda ash, or lime. Report any release in excess of 1000 lb. Control runoff and dike for disposal. Follow applicable OSHA regulations (29 CFR 1910.120).

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a SARA Toxic Chemical (40 CFR 372.65)
Listed as a SARA Extremely Hazardous Substance (40 CFR 355), TPQ: 1000 lb
Listed as a RCRA Hazardous Waste (40 CFR 261.22): No. D001, Characteristic of corrosivity
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg) [* per CWA, Sec. 311(b)(4)]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)
Listed as a Process Safety Hazardous Chemical (29 CFR 1910.119), TQ: 500 lb

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For < 50 ppm, use any supplied-air respirator operated in a continuous-flow mode. For < 100 ppm, use any supplied-air respirator or SCBA with a full facepiece. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear acid-proof gloves, boots, aprons, and gauntlets to prevent skin contact. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean personal protective equipment. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Prevent physical damage to containers. Store in aluminum, stainless steel, or glass containers on a cement floor in a cool, dry, well-ventilated area away from incompatibles (Sec. 5). Dike around storage tanks with large kirbs or stills to retain the acid in event of leakage. Keep neutralization agents on hand and install a fire hydrant in storage area. (See NFPA Code 43A). **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. **Administrative Controls:** Consider preplacement and periodic medical exams of exposed workers that emphasize the eyes, skin, respiratory tract and teeth. Pulmonary function tests (FEV< FVC) are helpful. Educate workers about the hazardous properties of nitric acid.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: *, †, ‡, §, ¥, ψ, ϕ
DOT Hazard Class: 8
ID No.: UN1826 (*†), UN1796 (‡§), UN2031 (¥ψ), UN2032 (ϕ)
DOT Packing Group: I (†§¥ϕ), II (*‡ψ)
DOT Packaging Label: Corrosive (*‡¥ψ), Corrosive, Oxidizer (†§), Corrosive, Oxidizer, Poison (ϕ)
Special Provisions (172.102): B2, T12, T27 (*); T12, T27 (†); B2, T12, T27 (‡); T12, T27 (§); B12, B53, T9, T27 (¥); B2, B12, B53, T9, T27(ψ); 2, B9, B32, B74, T38, T43, T45(ϕ)

Packaging Authorizations

a) Exceptions: None
b) Non-bulk Packaging: 173.158 (*†‡§¥ψ), 173.227 (ϕ)
c) Bulk Packaging: 173.242 (*‡ψ), 173.243 (†§¥), 173.244(ϕ)

Quantity limitations

a) Passenger Aircraft or Railcar: Forbidden
b) Cargo Aircraft Only: 30L (*‡ψ), 2.5L (†§¥), Forbidden (ϕ)

Vessel Stowage Requirements

a) Vessel stowage: D
b) Other: 40(*); 40, 66, 89 (†); 40 (‡); 40, 66, 89 (§); 110, 111 (¥); 110, 111 (ψ); 40, 66, 74, 89, 90, 95 (ϕ)

* Nitrating acid mixtures spent, < 50% HNO_3
† Nitrating acid mixtures spent, > 50% HNO_3
‡ Nitrating acid mixtures, < 50% HNO_3
§ Nitrating acid mixtures, > 50% HNO_3
¥ Nitric acid other than red fuming, > 70% HNO_3
ψ Nitric acid other than red fuming, < 70% HNO_3
ϕ Nitric acid, red fuming.

MSDS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 136, 139, 140, 148, 149, 153, 159, 162, 163, 164, 167, 168, 171, 174, 175

Prepared by: M Gannon, BA; **Industrial Hygiene Review:** PA Roy, MPH, CIH; **Medical Review:** W Silverman, MD

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Material Safety Data Sheet Collection

Coal Tar Creosote

MSDS No. 757

Date of Preparation: 7/91 Revision: A, 9/97

Section 1 - Chemical Product and Company Identification 50

Product/Chemical Name: Coal tar creosote

Chemical Formula: Not found; consists of many compounds and the composition depends on the coal used to make the tar and the design and operating conditions of the coke oven and still.

CAS Number: 8001-58-9

Synonyms: AWPA #1; brick oil; Caswell No. 225; coal tar oil; creosote; creosote oil; creosote P1; creosotum; cresylic creosote; heavy oil; liquid pitch oil; naphthalene oil; Preserv-o-sote; Sakresote; tar oil; wash oil

Derivation: By distillation of coal tar produced by high-temperature carbonization of bituminous coal; by mixing strained naphthalene oil, wash oil, and strained or light anthracene oil; as a by-product of conventional coal coking.

General Use: Used mainly as a wood preservative for railroad ties, poles, fence posts, marine pilings, and other lumber for outdoor use; as a water-proofing agent, fuel oil constituent, frothing agent for mineral separation, tap hole refractory cement, and lubricant for die molds. Used only in limited quantities as an animal and bird repellent, animal dip, and insecticide (ovicide).

Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Coal tar creosote consists of aromatic hydrocarbons, anthracene, naphthalene, and phenanthrene derivatives; some tar acids; and tar bases. Polycylic aromatic hydrocarbons make up at least 75%.* (198)

OSHA PEL†
8-hr TWA: 0.2 mg/m^3

NIOSH REL†
0.1 mg/m^3 (cyclohexane-extractable fraction)
Carcinogen

DFG (Germany) MAK
None established

ACGIH TLV†
TWA: 0.2 mg/m^3

IDLH Level†
80 mg/m^3

* Creosote contains several carcinogenic polycyclic aromatic hydrocarbons including benz[a]anthracene, benzo[a]pyrene, and dibenz[a,h]anthracene.

† Coal tar pitch volatiles, as benzene solubles (CAS No. 65996-93-20)

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Coal tar creosote is a colorless (pure) or yellow to black (industrial) liquid with an aromatic smoky smell. It is irritating to the eyes, skin and respiratory tract and can be corrosive, causing severe burns. Coal tar creosote is a probable human carcinogen. It is a combustible liquid that is a moderate fire hazard when exposed to an ignition source.

Wilson Risk Scale
R 1
I 3
S 3
K 2
* Skin absorption

HMIS
H 3†
F 2
R 0
PPE‡
†Chronic effects
‡Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, skin absorption, and skin and/or eye contact

Target Organs: Eyes, skin, bladder, kidneys, and respiratory system

Acute Effects *Note! Phenol and phenolic derivatives of various aromatic hydrocarbons (tar acids), present in low concentrations, are the constituents most likely to be responsible for acute toxicity.*

Inhalation: Inhalation of vapors causes moderate irritation to the nose, throat, and upper respiratory tract.

Eye: Contact with liquid causes conjunctivitis (inflammation of the eye's lining), keratitis (corneal inflammation), or corneal burns with scarring. May cause loss of vision.

Skin: Contact causes irritation, burning, itching, redness, pigment changes, dermatitis (a rash of redness and bumps), or burns. Photosensitization (worsening of rash with exposure to sunlight) may occur.

Ingestion: Causes salivation, nausea; vomiting; gastrointestinal tract irritation or bleeding; abdominal pain; rapid, thready pulse; vertigo; headaches; loss of pupillary reflexes; hypothermia; cyanosis; respiratory distress; shock and mild convulsions. Large doses may be fatal.

Carcinogenicity: IARC classifies coal tar creosote as Group 2A: probably carcinogenic to humans: limited human evidence, sufficient animal evidence. NTP classifies coal tar creosote as Group 2B: sufficient evidence of carcinogenicity from studies in experimental animals. OSHA does not specifically classify coal tar creosote as a carcinogen. NIOSH classifies coal tar pitch volatiles, as benzene solubles, as a carcinogen defined with no further categorization.

Medical Conditions Aggravated by Long-Term Exposure: Skin disorders.

Chronic Effects: Include dermatitis and, possibly, skin cancer or other forms of cancer. An increased risk of scrotal cancer for creosote-exposed brick makers was indicated in a worker mortality analysis. Epidemiological studies of coke oven workers reveal increased incidences of lung, bladder, prostate, pancreas, and intestinal cancer.

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Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air, monitor for respiratory distress, and support breathing as needed.
Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician or ophthalmologist immediately.
Skin Contact: *Quickly* remove contaminated clothing. Prior to washing and if readily available, use undiluted polyethylene glycol 300 to 400. Wash affected area with soap and flooding amounts of water for at least 15 min. *Do not* rub or apply pressure to the affected skin, apply any oily substance or use hot water to rinse. For reddened or blistered skin, consult a physician.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Rinse the mouth several times with cold water. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water. *Do not induce vomiting!* Keep victim warm and at rest.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: Creosote may be detected in urine.
Special Precautions/Procedures: An exposed person should examine their skin periodically for growths, changes in warts or moles, and sores that do not heal.

Section 5 - Fire-Fighting Measures

Flash Point: 165.2 °F (74 °C)
Flash Point Method: CC
Autoignition Temperature: 637 °F (336 °C)
LEL: None reported.
UEL: None reported.
Flammability Classification: OSHA IIIA combustible liquid
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or regular foam. For large fires, use water spray, fog or regular foam.
Unusual Fire or Explosion Hazards: Coal tar creosote may present a vapor explosion hazard indoors, outdoors, and in sewers. Vapors may travel to an ignition source and flash back.
Hazardous Combustion Products: Include carbon oxides.
Fire-Fighting Instructions: If feasible and without undue risk, remove containers from fire hazard area. Otherwise use water spray to cool fire-exposed containers until well after they are extinguished. *Do not* release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Also, wear full protective clothing. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from area and let fire burn. Immediately leave area if you hear a rising sound from venting safety device or notice any fire-caused tank discoloration as a BLEVE (boiling liquid expanding vapor explosion) may be imminent. Isolate area for 1/2 mile in all directions if fire involves tank, rail car or tank truck. Fully decontaminate or properly dispose of personal protective clothing.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Notify safety personnel. Isolate hazard area, deny entry, and stay upwind of spills. Shut off all ignition sources. Cleanup personnel should protect against vapor inhalation and skin and eye contact.
Small Spills: Take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers for later disposal.
Large Spills
Containment: Consider initial downwind evacuation for at least 300 meters (1000 feet). For large spills, dike far ahead of liquid spill for later disposal. Water spray may reduce vapor. *Do not* release into sewers or waterways.
Cleanup: Use nonsparking tools.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid vapor inhalation and skin and eye contact. Use ventilation sufficient to reduce airborne exposures to nonhazardous levels (Sec. 2). Wear protective gloves, goggles, and clothing to avoid contact. Wear respiratory protection when necessary (Sec. 8). Consult your industrial hygienist. Practice good personal hygiene procedures to avoid inadvertently ingesting this material. Keep away from ignition sources.
Storage Requirements: Store in a cool, dry, well-ventilated area away from heat and ignition sources. Store coal tar creosote as close to area of use as possible to minimize transporting distance. Avoid physical damage to containers.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Enclose all operations and/or ventilate at the site of release to avoid vapor dispersion into the work area. To prevent static sparks, electrically ground and bond all containers and equipment.

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Ventilation: Provide general or local exhaust ventilation systems equipped with high-efficiency particulate filters to maintain airborne concentrations below OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source. (103)

Administrative Controls: Preplacement and periodic medical examinations of exposed workers emphasizing respiratory, skin, liver, and kidney disorders, including comprehensive work and medical history, physical examination, CXR, PFTs, urinalysis, LFT, and sputum cytology as the attending physician considers appropriate. Educate workers about the health and safety hazards associated with coal tar creosote.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. (The following respirator recommendations are for coal tar pitch volatiles.) For concentrations above the NIOSH REL or at any detectable concentrations, wear a SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; or any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent any skin contact. With breakthrough times of >8 hr, butyl rubber, Teflon™, and Viton™ are recommended materials. Frequent change of protective garments is an additional protective measure. Wear protective eyeglasses or chemical safety goggles and face shield, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Oily liquid

Appearance and Odor: Colorless (pure) or yellow to black (industrial); aromatic smoky smell

Specific Gravity (H_2O=1, at 4 °C): 1.07 to 1.08 at 68 °F (20 °C)

Water Solubility: Slightly soluble

Other Solubilities: Soluble in alcohol; ether; glycerin; dimethyl sulfate; fixed or volatile oils; in solution of fixed alkali hydroxides.

Boiling Point Range: 381 to 752 °F (194 to 400 °C)

Octanol/Water Partition Coefficient: log K_{ow} = 1.0

Heat of Combustion: -12,500 Btu/lb; -6,900 cal/g

Section 10 - Stability and Reactivity

Stability: Coal tar creosote is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Creosote oil mixed with chlorosulfonic acid in a closed container causes an increase in temperature and pressure.

Conditions to Avoid: Avoid excessive heat and contact with chlorosulfonic acid.

Hazardous Decomposition Products: Thermal oxidative decomposition of coal tar creosote can produce carbon oxides and thick, black, acrid smoke.

Section 11 - Toxicological Information

Toxicity Data:*

Genetic Effects:

S. typhimurium: 20 µg/plate (-S9) produced mutations.

Hamster, ovary cell: 10 mg/L induced sister chromatid exchange.

Reproductive Effects:

Mouse, oral: 2 g/kg administered on gestational days 5-9 produced maternal effects and fetotoxicity.

Acute Oral Effects:

Rat, oral, LD_{50}: 725 mg/kg

Mouse, oral, LD_{50}: 433 mg/kg

Tumorigenicity: Mouse, skin, 99 g/kg/33 weeks administered intermittently produced tumors on skin and appendages (carcinogenic by RTECS criteria).

* See NIOSH, *RTECS* (GF8615000), for additional toxicity data.

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Section 12 - Ecological Information

Ecotoxicity: TL_{50}, goldfish (*Carassius auratus*), 3.51 ppm/24 hr (60:40) mixture of creosote and coal tar; TL_{50}, rainbow trout (*Salmo gairdneri*), 3.72 ppm/24 hr (60:40) mixture of creosote and coal tar; LD_{50}, bob white quail (*Colinus virginianus*), 1,260 ppm/8 days (60:40) mixture of creosote and coal tar.
Environmental Fate: Data not found.

Section 13 - Disposal Considerations

Disposal: Coal tar creosote is a good candidate for rotary kiln and fluidized bed incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
Container Cleaning and Disposal: Handle empty containers carefully as hazardous residues may still remain.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Corrosive liquids, n.o.s.
Shipping Symbols: Not listed.
Hazard Class: 8
ID No.: UN1760
Packing Group: I, II, or III*
Label: CORROSIVE
Special Provisions: A7, B10, T42†; B2, T14 ‡; T7 §

Packaging Authorizations
a) **Exceptions:** None †; 173.154 ‡ §
b) **Non-bulk Packaging:** 173.201†; 173.202‡; 173.203§
c) **Bulk Packaging:** 173.243†; 173.242‡; 173.241§

Quantity Limitations
a) **Passenger, Aircraft, or Railcar:** 0.5 L†; 1 L‡; 5 L§
b) **Cargo Aircraft Only:** 2.5 L†; 30 L‡; 60 L§

Vessel Stowage Requirements
a) **Vessel Stowage:** B†; B‡; A§
b) **Other:** 40†‡§

* See 49 CFR 173.137 to assign Packing Group. Data was not available for Genium to make this determination.
† Packing Group I
‡ Packing Group II
§ Packing Group III

Section 15 - Regulatory Information

EPA Regulations:
Listed as a RCRA Hazardous Waste (40 CFR 261.33), Hazardous Material No. U051
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) listed specific per RCRA, Sec. 3001
CERCLA Final Reportable Quantity (RQ), 1 lb (0.454 kg)
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Listed (as coal tar pitch volatiles) as an Air Contaminant (29 CFR 1910.1000, Table Z-1)
Listed as an OSHA Specifically Regulated Substance (29 CFR 1910.1002; interpretation of term)

Section 16 - Other Information

References: 73, 103, 124, 136, 139, 184, 196, 197, 198, 200, 209 W5-MAC

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Material Safety Data Sheets Collection:

Sheet No. 789
Cyanide

Issued: 11/91

Section 1. Material Identification

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Cyanide (CN^-) Description: Derived by combining a carbon ion with a nitride ion. Used in rat and pest poisons, silver and metal polishes, photographic solutions, fumigating products, and electroplating solutions. Cyanide may also be liberated in burning of plastics, natural fabrics (wool or silk), polyurethane bedding or furniture, acrylic baths, nylon carpets, and melamine resin insulation.

Other Designations: CAS No. 57-12-5, carbon nitride ion, cyanide anion, isocyanide.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*™ for a suppliers list.

R	1
I	4
S	2
K	1

Genium

HMIS
H 4
F 1
R 1
PPG*
* Sec. 8

Cautions: Cyanide is severely toxic by all routes of entry and its lethal dose is an estimated 1 µg/ml. Take necessary precautions to avoid all possible exposure to this material.

Section 2. Ingredients and Occupational Exposure Limits

Cyanide, ca 100%

1990 OSHA PEL (Skin)
STEL: 4.7 ppm, 5 mg/m³, as hydrogen cyanide (gas)

1991-92 ACGIH TLV (Skin)
Ceiling: 10 ppm, 11 mg/m³, as hydrogen cyanide (gas)

1990 DFG (Germany) MAK (*Danger of cutaneous absorption*)
TWA: 10 ppm, 11mg/m³ as hydrogen cyanide (gas)

1990 IDLH Level
50 mg/m³

1990 NIOSH REL (Skin)
STEL: 4.7 ppm, 5 mg/m³ as hydrogen cyanide (gas)

1985-86 Toxicity Data*
Mouse, intraperitoneal, LD_{50}: 3 mg/kg; toxic effects not yet reviewed

* See NIOSH, *RTECS* (GS7175000), for additional toxicity data.

Section 3. Physical Data

Boiling Point: Varies with specific CN^- compound
Melting Point: Varies with specific CN^- compound
Molecular Weight: 26.02
Density: Varies with specific CN^- compound
Water Solubility: Varies with specific CN^- compound

Appearance and Odor: Varies with specific CN^- compound, but usually has an almond odor.

Section 4. Fire and Explosion Data

Flash Point: None reported	Autoignition Temperature: None reported	LEL: None reported	UEL: None reported

Extinguishing Media: Cyanide is combustible. For small fires, use dry chemical, water spray or foam. *Do not use carbon dioxide (CO_2)!* For large fires, use water spray, fog, or regular foam. *Do not scatter* material with more water than needed to extinguish fire.

Unusual Fire or Explosion Hazards: Combustible by chemical reaction with heat, moisture, or acid. Many cyanides readily evolve hydrogen cyanide (HCN), a toxic flammable gas.

Special Fire-fighting Procedures: Since fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing *is ineffective* for fires involving cyanide. Wear chemical protective clothing that the shipper or manufacturer specifically recommends. If possible without risk, remove container from fire area. Fight fire from maximum distance. Stay away from ends of tanks. Be aware of runoff from fire control methods. Do not release to sewers or waterways. Remove and isolate contaminated clothing at the site.

Section 5. Reactivity Data

Stability/Polymerization: Cyanide is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: Cyanide may react violently with hypochlorite solutions at pH 10 to 10.3, is explosive with nitrites if heated above 450 °C, and is incompatible with chlorates, fluorine, magnesium, nitrates, and all inorganic acids.

Conditions to Avoid: Avoid exposure to heat and contact with incompatibles.

Hazardous Products of Decomposition: Thermal oxidative decomposition of cyanide can produce carbon dioxide and toxic, flammable vapors of CN^-.

Section 6. Health Hazard Data

Carcinogenicity: In 1990 reports, the IARC, NTP, and OSHA do not list cyanide as a carcinogen.

Summary of Risks: Cyanide is a potent, fast-acting, chemical asphyxiant (material which causes pulse and breathing obstruction) that prevents tissue utilization of oxygen by inhibiting the enzyme involved (cytochrome oxidase). Death can occur within seconds to minutes after inhalation of some cyanide gases, and may take as long as an hour after ingestion of a large amount of a cyanide salt due to a slower absorption. Toxicity is dependent on the form of cyanide the victim is exposed to. Mortality from acute exposures is high, but recovery is generally complete in nonfatal cases.

Medical Conditions Aggravated by Long-Term Exposure: None reported.

Continue next page

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Section 6. Health Hazard Data, *continued*

Target Organs: Brain, heart, lungs, skin, blood.
Primary Entry Routes: Inhalation, ingestion, skin absorption.
Acute Effects: Inhalation of cyanide gases may cause rapid toxicity where the victim may only have time to utter a warning cry before succumbing to unconsciousness caused by asphyxiation. If exposure is small there may be a weak, rapid, irregular heartbeat with bright-pink coloration of the skin due to high oxyhemoglobin content in the veins before person loses consciousness. A telltale sign of inhalation or ingestion is the odor of bitter almonds on the breath, however up to half the population is genetically unable to detect this smell. Dialated pupils are common in severe poisonings. Contact with broken skin can cause cyanide absorption into the bloodstream. Cyanide ingestion can cause a bitter, burning taste, salivation, nausea, vomiting, anxiety, confusion, vertigo (dizziness), giddiness, sensation of stiffness in the lower jaw, and dyspnea (difficult respiration). In severe cases symptoms could progress to convulsions, paralysis, coma, cardiac arrhythmias, followed by death due to respiratory failure.
Chronic Effects: Chronic skin contact may cause cyanide rash, characterized by itching, and macular (blotches), papular (small, solid, conical, elevation of the skin), and vesicular (blister-like) eruptions. Chronic cyanide inhalation may cause appetite loss, headache, weakness, nausea, dizziness, and symptoms of irritation of the upper respiratory tract and eyes. Other symptoms of chronic exposure include goiter, B12 and folate abnormalities, chest discomfort, epistaxis (nose bleed), poor appetite and sleeping, and functional changes in hearing.
FIRST AID: *Emergency personnel should protect against contamination!*
Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.
Skin: *Quickly* remove contaminated clothing. Speed is extremely important. Rinse with flooding amounts of water for at least 15 min. Wash exposed area *extremely thoroughly* with soap and water. If irritation and pain persist, consult a physician.
Inhalation: Remove exposed person to fresh air and immediately begin administering 100% oxygen. Avoid mouth-to-mouth resuscitaton during CPR to prevent self-poisonings.
Ingestion: Obtain and prepare the Lilly cyanide antidote kit [Eli Lilly Co. (Stock No. M76)] for use in symptomatic patients. Never give anything by mouth to an unconscious or convulsing person. Do not induce vomiting with Ipecac syrup. Consider gastric lavage. Activated charcoal is said to be ineffective.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: If the victim is unconscious, bradycardia and absence of cyanosis may be key diagnostic signs. Consider administration of amyl nitrite followed by sodium nitrite and sodium thiosulfate (antidote kit). Consider use of 100% oxygen.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Immediately notify safety personnel, isolate area, deny entry, and stay upwind. Shut off all ignition sources—no flames, flares, or smoking in hazard area. Cleanup personnel should wear fully encapsulating, vapor-protective clothing for spills or leaks without fire. For small dry spills, carefully scoop into clean, dry, suitable container and cover loosely. For small solution spill, take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers. For large spills, dike far ahead of solution spills for later disposal. Follow applicable OSHA regulations (29 CFR 1910.120).
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
EPA Designations
Listed as a RCRA Hazardous Waste (40 CFR 261.33): Hazardous Waste No. P030
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity: *An RQ is not being assigned to the general class* [* per Clean Water Act, Sec. 307(a)]
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as a SARA Toxic Chemical (40 CFR 372.65)
OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Since contact lens use in industry is controversial, establish your own policy.
Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. Select the respirator based on its suitability provide adequate worker protection for the given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA with a full facepiece operated in pressure-demand or other positive-pressure mode. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*
Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent repeated or prolonged skin contact.
Ventilation: Provide general and local exhaust ventilation systems to maintain airborne concentrations below OSHA PEL (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[103]
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. Cyanide detoxifying kits and instructions should be available in use areas. Instruct employees working in these areas on how and when to use these kits.

Section 9. Special Precautions and Comments

Storage Requirements: Avoid physical damage to containers. Store in tightly closed and properly labeled containers in cool, dry, well-ventilated area away from heat and incompatibles.
Engineering Controls: To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control hazardous airborne contaminants and to maintain concentrations at the lowest practical level.
Other Precautions: If respirators are used, implement a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Consider preplacement and periodic medical examinations of exposed workers that emphasize the heart, blood, and respiratory system.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Cyanide *or* cyanide mixture, dry
DOT Hazard Class: Poison B
ID No.: UN1588
DOT Label: Poison
DOT Packaging Exceptions: 173.364
DOT Packaging Requirements: 173.370

IMO Shipping Name: Cyanides, inorganic, n.o.s.
IMO Hazard Class: 6.1
ID No.: UN1588
IMO Label: Poison
IMDG Packaging Group: I/II; Stow 'away from' acids

MSDS Collection **References:** 73, 101, 103, 126, 127, 136, 143, 146, 148, 153, 159, 161, 163
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** AC Darlington, MPH, MD; **Edited by:** JR Stuart, MS

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MATERIAL SAFETY DATA SHEET: CRYSTAL SIMPLE GREEN®

I. PRODUCT & COMPANY INFORMATION

PRODUCT NAME: **CRYSTAL SIMPLE GREEN®**

OTHER NAMES: **CRYSTAL SIMPLE GREEN® - SPECIALIZED CLEANER / DEGREASER**
SIMPLE GREEN SAFETY TOWELS (fluid only)

COMPANY NAME: **SUNSHINE MAKERS, INC.**
15922 Pacific Coast Highway
Huntington Harbour, CA 92649 USA
Telephone: 800-228-0709 • 562-795-6000
Fax: 562-592-3034
Website: www.simplegreen.com

Version No. 4006
Issue Date: January 2002

For 24-hour emergency, call Chem-Tel, Inc.: 800-255-3924

USE OF PRODUCT: A specialized cleaner and degreaser for use in the industrial and institutional workplace..

II. INGREDIENT INFORMATION

The only ingredient of Crystal Simple Green® with established exposure limits is undiluted 2-butoxyethanol (<6%) (Butyl Cellosolve; CAS No. 111-76-2): the OSHA PEL and ACGIH TLV is 25 ppm (skin). Note, however, that Butyl Cellosolve is only one of the raw material ingredients that undergo processing and dilution during the manufacture of Crystal Simple Green®. Upon completion of the manufacturing process, Crystal Simple Green® does not possess the occupational health risks associated with exposure to undiluted Butyl Cellosolve. Verification of this is contained in the independent test results detailed under "Toxicological Information" on Page 3 of this MSDS.

The Butyl Cellosolve in Crystal Simple Green® is part of a chemical category (glycol ethers) regulated by the Emergency Planning and Community Right-to-Know Act (SARA, Title III, section 313); therefore, a reporting requirement exists. Based upon chemical analysis, Crystal Simple Green® contains no known EPA priority pollutants, heavy metals, or chemicals listed under RCRA, CERCLA, or CWA. Analysis by TCLP (Toxicity Characteristic Leaching Procedure) according to RCRA revealed no toxic organic or inorganic constituents.

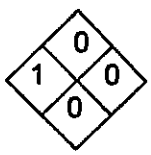
All components of Crystal Simple Green® are listed on the TSCA Chemical Substance Inventory.

III. HAZARDS IDENTIFICATION

UN Number: Not required
Dangerous Goods Class: Nonhazardous

Hazard Rating (NFPA/HMIS)

Health = 1* Reactivity = 0
Fire = 0 Special = 0



Rating Scale

0 = minimal 1 = slight
2 = moderate 3 = serious
4 = severe

*Mild eye irritant, non-mutagenic and non-carcinogenic. **None of the ingredients in Crystal Simple Green® are regulated or listed as potential cancer agents by Federal OSHA, NTP, or IARC.**

IV. FIRST AID MEASURES

SYMPTOMS OF OVEREXPOSURE AND FIRST AID TREATMENT

Eye contact: Reddening may develop. Immediately rinse the eye with large quantities of cool water; continue 10-15 minutes or until the material has been removed; be sure to remove contact lenses, if present, and to lift upper and lower lids during rinsing. Get medical attention if irritation persists.

Skin contact: Minimal effects, if any; rinse skin with water, rinse shoes and launder clothing before reuse. Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area and get medical attention if reaction persists.

Swallowing: Essentially non-toxic. Give several glasses of water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.

Inhalation: Non-toxic. Exposures to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Get medical attention if irritation persists.

V. FIRE FIGHTING MEASURES

Crystal Simple Green® is stable, not flammable, and will not bum.

Flash Point/Auto-Ignition:	Not flammable.
Flammability Limits:	Not flammable.
Extinguishing Media:	Not flammable/nonexplosive. No special procedures required.
Special Fire Fighting Procedures:	None required.

VI. ACCIDENTAL RELEASE MEASURES

Recover usable material by convenient method; residual may be removed by wipe or wet mop. If necessary, unrecoverable material may be washed to drain with large quantities of water.

VII. HANDLING, STORAGE & TRANSPORT INFORMATION

No special precautions are required. **This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations.** Crystal Simple Green® requires no special labeling or placarding to meet U.S. Department of Transportation requirements.

UN Number:	Not required
Dangerous Goods Class:	Nonhazardous

VIII. EXPOSURE CONTROLS

Exposure Limits: The Crystal Simple Green® formulation presents no health hazards to the user when used according to label directions for its intended purposes. Mild skin and eye irritation is possible (please see Eye contact and Skin contact in Section IV.).

Ventilation: No special ventilation is required during use. Large-scale uses indoors should provide an increased rate of air exchange.

Human Health Effects or Risks from Exposure: Adverse effects on human health are not expected from Crystal Simple Green®, based upon twenty years of use of Simple Green without reported adverse health incidence in diverse population groups, including extensive use by inmates of U.S. Federal prisons in cleaning operations.

Crystal Simple Green® is a mild eye irritant; mucous membranes may become irritated by concentrate-mist.

Crystal Simple Green® is not likely to irritate the skin in the majority of users. Repeated daily application to the skin without rinsing, or continuous contact of Crystal Simple Green® on the skin may lead to temporary, but reversible, irritation.

Medical Conditions Aggravated by Exposure: No aggravation of existing medical conditions is expected; dermal-sensitive users may react to dermal contact by Crystal Simple Green®.

IX. PERSONAL PROTECTION

Precautionary Measures: No special requirements under normal use conditions.
Eye Protection: Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur.
Skin Protection: No special precautions required; rinse completely from skin after contact.
Respiratory Protection: No special precautions required except during large-scale spray applications where spray mist levels are high.
Work and Hygienic Practices: Wash or rinse hands before touching eyes or contact lenses. Follow standard hygienic practices for handling cleaning agents.

X. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/odor::	Clear liquid	Vapor Pressure:	18 mm Hg @ 20 °C; 23.5 mm Hg @ 26 °C
Specific Gravity:	1.020	Vapor Density:	1.3 (air = 1)
pH of concentrate:	9.35	Density:	8.5 lbs./gallon
Evaporation:	>1 (butyl acetate = 1)		
Boiling Point:	100.6 °C (212 °F)		
Freezing Point:	-9 °C (16 °F) If product freezes, it will reconstitute without loss of efficacy when brought back to room temperature and agitated.		

VOC Composite Partial Pressure: 0 mm Hg @ 20 °C
Volatile Organic Compounds (VOCs): 0 g/L per ASTM Method D-2369. Per California AQMD's VOC test method, product must be diluted at least 2 parts of water to 1 part Crystal Simple Green® in order to meet SCAQMD Rule 1171 & Rule 1122 and BAAQMD Regulation 8-16 VOC requirements for solvent cleaning operations.
Water Solubility: Completely soluble in water.
Detection: Crystal Simple Green® has a characteristic odor that is not indicative of any hazardous situation.

XI. STABILITY AND REACTIVITY INFORMATION

Nonreactive. Crystal Simple Green® is stable, even under fire conditions, and will not react with water or oxidizers. Hazardous polymerization will not occur.

XII. TOXICOLOGICAL INFORMATION

The information and conclusions cited in this section are based on data and testing of Simple Green®. The data are directly applicable to Crystal Simple Green® because, except for the fragrance and dyes which have been removed, it contains the same ingredients as Simple Green®.

Nonhuman Toxicity

Acute Mortality Studies:
Oral LD_{50} (rat): >5.0 g/kg body weight // Dermal LD_{50} (rabbit): >2.0 g/kg body weight

Dermal Irritation: Only mild, but reversible, irritation was found in a standard 72-hr test on rabbits. A value of 0.2 (non-irritating) was found on a scale of 8.

Eye Irritation: With or without rinsing with water, the irritation scores in rabbits at 24 hours did not exceed 15 (mild irritant) on a scale of 110.

Subchronic dermal effects: No adverse effects, except reversible dermal irritation, were found in rabbits exposed to Simple Green® (up to 2.0 g/kg/day for 13 weeks) applied to the skin of 25 males and 25 females. Only female body weight gain was affected. Detailed microscopic examination of all major tissues showed no adverse changes.

Fertility Assessment by Continuous Breeding: The Simple Green® formulation had no adverse effect on fertility and reproduction in CD-1 mice with continuous administration for 18 weeks, and had no adverse effect on the reproductive performance of their offspring.

XIII. BIODEGRADABILITY AND ENVIRONMENTAL TOXICITY INFORMATION

Biodegradability:
Like Simple Green®, Crystal Simple Green® is readily decomposed by naturally occurring microorganisms. The biological oxygen demand (BOD), as a percentage of the chemical oxygen demand (COD), after 4, 7, and 11 days was 56%, 60%, and 70%, respectively. Per OECD Closed Bottle Test, Crystal Simple Green® meets OECD and EPA recommendations for ready biodegradability.

In a standard biodegradation test with soils from three different countries, Butyl Cellosolve reached 50% degradation in 6 to 23 days, depending upon soil type, and exceeded the rate of degradation for glucose, which was used as a control for comparison.

Environmental Toxicity Information:
Crystal Simple Green® is considered practically non-toxic per EPA's aquatic toxicity scale.

XIV. DISPOSAL CONSIDERATIONS

Crystal Simple Green® is fully water soluble and biodegradable and will not harm sewage-treatment microorganisms if disposal by sewer or drain is necessary. Dispose of in accordance with all applicable local, state, and federal laws.

XV. OTHER INFORMATION

Containers:	Crystal Simple Green® residues can be completely removed by rinsing with water; the container may be recycled or applied to other uses.
Contact Point:	Sunshine Makers, Inc., Research and Development Division: 562-795-6000.

***** NOTICE *****

All information appearing herein is based upon data obtained by the manufacturer and recognized technical sources. Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, Sunshine Makers, Inc. or its distributors extends no warranties, makes no representations and assumes no responsibility as to the suitability of such information for application to purchaser's intended purposes or for consequences of its use.

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Material Safety Data Sheets Collection

Fuel Oil No. 4

MSDS No. 886

Date of Preparation: 10/93

Section 1 - Chemical Product and Company Identification 42

Product/Chemical Name: Fuel Oil No. 4
Chemical Formula: Not given
CAS No.: 68476-31-3
Synonyms: heating oil
Derivation: A petroleum fraction consisting of heavier straight-run or cracked distillates.
General Use: Used in commercial or industrial burner installations not equipped with preheating facilities.
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Fuel Oil No. 4, ca 100 % vol
Trace Impurities: All petroleum fractions contain appreciable amounts of aromatics (toluene, xylene) and saturated rings (cycloparaffins, naphthenes).

OSHA PEL	NIOSH REL	DFG (Germany) MAK
None established	None established	None established

ACGIH TLV
None established

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Fuel oil no. 4 is a moderately dark, viscous liquid. It is flammable when exposed to heat or flame. Prolonged or repeated skin contact may cause dermatitis. It is a DOT flammable liquid.

Wilson Risk Scale	
R	1
I	-
S	1
K	2

HMIS	
H	1
F	2
R	0

PPE† †Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion.
Target Organs: Skin, CNS (severe exposure).
Acute Effects
Inhalation: Excessive inhalation of aerosol or mist can cause respiratory tract irritation, headache, dizziness, nausea, increased rate of respiration, tachycardia (excessively rapid heart beat), stupor, convulsions, cyanosis (dark purplish coloration of the skin and mucous membranes caused by deficient blood oxygenation), or unconsciousness, depending on concentration and length of exposure.
Eye: None reported.
Skin: Prolonged or repeated skin contact may cause irritation of the hair follicles and may block the sebaceous glands, producing a rash of acne pimples and spots, usually on arms and legs.
Ingestion: Ingestion may cause nausea, vomiting, diarrhea, and abdominal pain; occasionally, mild CNS depression or excitement occur after ingestion.
Carcinogenicity: IARC lists fuel oils, residual heavy as a possible carcinogen (2B; limited animal data). OSHA and NTP do not list fuel oil no. 4 as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Dermatitis.
Chronic Effects: Repeated skin contact may cause defatting and dermatitis.
Comments: Fuel oil no. 4 may be a synergist to pesticides.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.
Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of tepid water for at least 15 min. If pain and irritation persist, consult an ophthalmologist.
Skin Contact: Remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, *do not* induce vomiting.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Comments: Following ingestion of hydrocarbons, the primary concern is aspiration into the lungs. Hydrocarbons with the lowest viscosity and surface tension have the greatest risk for aspiration. Fuel oil no. 4 is a viscous liquid and therefore, has a lesser risk for aspiration. Risk for vapor inhalation of fuel oil no. 4 is less than other hydrocarbons such as gasoline or kerosene because fuel oil no. 4 is less volatile. In general, fuel oil no. 4 is more viscous and less toxic than kerosene.

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Section 5 - Fire-Fighting Measures

Flash Point: 142-240 °F (61-116 °C): reported by NFPA; 129 °F (54 °C)

NFPA

Autoignition Temperature: 505 °F (263 °C)
LEL: None reported.
UEL: None reported.
Flammability Classification: Depending on the flash point, fuel oil no. 4 is classified as an OSHA Class II, Class IIIA or IIIB Combustible Liquid.*
Extinguishing Media: For small fires, use dry chemical, CO_2, water spray, or regular foam. For large fires, use water spray, fog, or regular foam.
Unusual Fire or Explosion Hazards: Containers may explode in the heat of fire.
Hazardous Combustion Products: Acrid smoke and irritating fumes.
Fire-Fighting Instructions: If feasible and without undue risk, move containers from fire hazard area. Otherwise, apply cooling water to containers until well after fire is extinguished. Withdraw immediately in case of any tank discoloration or rising sound from venting safety device due to fire. For massive fires, use monitor nozzles or unmanned hose holders. Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing will provide limited protection.
* You will notice that there is a difference in classifications of a flammable and combustible liquid between OSHA and the DOT. The DOT classifies fuel oil (no. 1, 2, 4, 5, 6) as flammable liquids (See Sec. 14).

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Notify safety personnel of large spills, remove all heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against vapor inhalation and skin or eye contact. Clean up spills promptly to reduce fire hazards. Use nonsparking tools.
Small Spills: Use an inert, noncombustible, absorbent material to pick up small spills or residues.
Large Spills
Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Cleanup: Consider using straw, polyurethane foam, activated carbon, or peat to soak up oil. There is a wide variety of sorbents, dispersants, sinking agents, combustion promoters, and mechanical systems to treat oil spills.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid vapor or mist inhalation or prolonged skin contact.
Storage Requirements: Store in closed containers in a well-ventilated area away from heat and ignition sources. No smoking in storage or use areas.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations.
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.(103)
Administrative Controls: Practice good personal hygiene and housekeeping procedures. Do not wear oil contaminated clothing.
Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.
Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Barrier creams may be helpful. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy.
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

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Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Moderately dark, viscous.
Medium Odor Threshold: 0.5 ppm
Water Solubility: Insoluble
Melting Point: -51 °F (-46 °C)

Section 10 - Stability and Reactivity

Stability: Fuel oil no. 4 is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization cannot occur.
Chemical Incompatibilities: Oxidizing materials.
Conditions to Avoid: Heat and ignition sources.
Hazardous Decomposition Products: Thermal oxidative decomposition of fuel oil no. 4 can produce various hydrocarbons and hydrocarbon derivatives and partial oxidation products including carbon oxides.

Section 11- Toxicological Information

Toxicity Data: None reported*

* Monitor NIOSH, *RTECS* (LS8965000), for future toxicity data.

Section 12 - Ecological Information

Aquatic Toxicity:
Striped bass, LC_{50}, 96 hr: 25.1 ppm (static test environment)
Carp, LC_{50}, 24 hr: 50 ppm (static test environment)
Striped bass, LC_{50}, 96 hr: 0.62 ppm (static test environment with 1.5 mg/L LAS)
Carp, LC_{50}, 24 hr: 5.1 ppm (static with 1.5 mg/L LAS)

Section 13 - Disposal Considerations

Disposal: Consider incineration (permit-approved facilities only). Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Fuel oil (No. 1, 2, 4, 5, or 6)
Shipping Symbols: D
Hazard Class: 3
ID No.: NA1993
Packing Group: III
Label: Flammable Liquid*
Special Provisions (172.102): B1

* DOT defines a flammable liquid as a liquid having a flash point at or above 100 °F (37.8 °C) and not more than 141 °F (60.5 °C). OSHA defines a flammable liquid as any liquid having a flash point below 100 °F.

Packaging Authorizations
a) Exceptions: 173.150
b) Non-bulk Packaging: 173.203
c) Bulk Packaging: 173.241

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 60 L
b) Cargo Aircraft Only: 220 L

Vessel Stowage Requirements
a) Vessel Stowage: A
b) Other: —

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste (40 CFR 261.33): Not listed
Classified as a RCRA Hazardous Waste (40 CFR 261.21): Characteristic of Ignitability [if flash point <140 °F (60 °C)]
CERCLA Hazardous Substance (40 CFR 302.4): Listed if classified as a RCRA Hazardous Waste, Characteristic of Ignitability
CERCLA Reportable Quantity (RQ), 100 lb (45.4 kg)
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed
OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

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Section 16 - Other Information

References: 73, 101, 103, 126, 132, 136, 164

Prepared by ..... MJ Wurth, BS
Industrial Hygiene Review ..... DJ Wilson, CIH
Medical Review ..... J Brent, MD, PhD
Revision Notes:

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Material Safety Data Sheets Collection:

Sheet No. 467
Automotive Gasoline, Lead-free

Issued: 10/81 Revision: A, 9/91

Section 1. Material Identification

35

Automotive Gasoline, Lead-free, Description: A mixture of volatile hydrocarbons composed mainly of branched-chain paraffins, cycloparaffins, olefins, naphthenes, and aromatics. In general, gasoline is produced from petroleum, shale oil, Athabasca tar sands, and coal. Motor gasolines are made chiefly by cracking processes, which convert heavier petroleum fractions into more volatile fractions by thermal or catalytic decomposition. Widely used as fuel in internal combustion engines of the spark-ignited, reciprocating type. Automotive gasoline has an octane number of approximately 90. A high content of aromatic hydrocarbons and a consequent high toxicity are also associated with a high octane rating. Some gasolines sold in the US contain a minor proportion of tetraethyllead, which is added in concentrations not exceeding 3 ml per gallon to prevent engine "knock." However, methyl-tert-butyl ether (MTBE) has almost completely replaced tetraethyllead.

Other Designations: CAS No. 8006-61-9, benzin, gasoline, gasolene, motor spirits, natural gasoline, petrol.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

R 1
I 2
S 2*
K 4
* Skin absorption

NFPA

HMIS
H 2
F 3
R 1
PPG†
† Sec. 8

Cautions: Inhalation of automotive gasoline vapors can cause intense burning in throat and lungs, central nervous system (CNS) depression, and possible fatal pulmonary edema. Gasoline is a dangerous fire and explosion hazard when exposed to heat and flames.

Section 2. Ingredients and Occupational Exposure Limits

Automotive gasoline, lead-free*

1990 OSHA PELs
8-hr TWA: 300 ppm, 900 mg/m³
15-min STEL: 500 ppm, 1500 mg/m³

1990-91 ACGIH TLVs
TWA: 300 ppm, 890 mg/m³
STEL: 500 ppm, 1480 mg/m³

1990 NIOSH REL
None established

1985-86 Toxicity Data*
Man, inhalation, TC_{Lo}: 900 ppm/1 hr; toxic effects include sense organs and special senses (conjunctiva irritation), behavioral (hallucinations, distorted perceptions), lungs, thorax, or respiration (cough)
Human, eye: 140 ppm/8 hr; toxic effects include mild irritation
Rat, inhalation, LC_{50}: 300 g/m³/5 min

* A typical modern gasoline composition is 80% paraffins, 14% aromatics, and 6% olefins. The mean benzene content is approximately 1%. Other additives include sulfur, phosphorus, and MTBE.
† See NIOSH, *RTECS* (LX3300000), for additional toxicity data.

Section 3. Physical Data

Boiling Point: Initially, 102 °F (39 °C); after 10% distilled, 140 °F (60 °C); after 50% distilled, 230 °F (110 °C); after 90% distilled, 338 °F (170 °C); final boiling point, 399 °F (204 °C)

Vapor Density (air = 1): 3.0 to 4.0

Density/Specific Gravity: 0.72 to 0.76 at 60 °F (15.6 °C)

Water Solubility: Insoluble

Appearance and Odor: A clear (gasoline may be colored with dye), mobile liquid with a characteristic odor recognizable at about 10 ppm in air.

Section 4. Fire and Explosion Data

Flash Point: -45 °F (-43 °C)	Autoignition Temperature: 536 to 853 °F (280 to 456 °C)	LEL: 1.3% v/v	UEL: 6.0% v/v

Extinguishing Media: Use dry chemical, carbon dioxide, or alcohol foam as extinguishing media. Use of water may be ineffective to extinguish fire, but use water spray to knock down vapors and to cool fire-exposed drums and tanks to prevent pressure rupture. Do not use a solid stream of water since it may spread the fuel.

Unusual Fire or Explosion Hazards: Automobile gasoline is an OSHA Class IB flammable liquid and a dangerous fire and explosion hazard when exposed to heat and flames. Vapors can flow to an ignition source and flash back. Automobile gasoline can also react violently with oxidizing agents.

Special Fire-fighting Procedures: Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode, and full protective clothing. When the fire is extinguished, use nonsparking tools for cleanup. Be aware of runoff from fire control methods. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Automotive gasoline is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: Automotive gasoline can react with oxidizing materials such as peroxides, nitric acid, and perchlorates.

Conditions to Avoid: Avoid heat and ignition sources.

Hazardous Products of Decomposition: Thermal oxidative decomposition of automotive gasoline can produce oxides of carbon and partially oxidized hydrocarbons.

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Section 6. Health Hazard Data

Carcinogenicity: In 1990 reports, the IARC list gasoline as a possible human carcinogen (Group 2B). Although the IARC has assigned an overall evaluation to gasoline, it has not assigned an overall evaluation to specific substances within this group (inadequate human evidence).
Summary of Risks: Gasoline vapors are considered moderately poisonous. Vapor inhalation can cause central nervous system (CNS) depression and mucous membrane and respiratory tract irritation. Brief inhalations of high concentrations can cause a fatal pulmonary edema. Reported responses to gasoline vapor concentrations are: 160 to 270 ppm causes eye and throat irritation in several hours; 500 to 900 ppm causes eye, nose, and throat irritation, and dizziness in 1 hr; and 2000 ppm produces mild anesthesia in 30 min. Higher concentrations are intoxicating in 4 to 10 minutes. If large areas of skin are exposed to gasoline, toxic amounts may be absorbed. Repeated or prolonged skin exposure causes dermatitis. Certain individuals may develop hypersensitivity. Ingestion can cause CNS depression. Pulmonary aspiration after ingestion can cause severe pneumonitis. In adults, ingestion of 20 to 50 g gasoline may produce severe symptoms of poisoning.
Medical Conditions Aggravated by Long-Term Exposure: None reported.
Target Organs: Skin, eye, respiratory and central nervous systems.
Primary Entry Routes: Inhalation, ingestion, skin contact.
Acute Effects: Acute inhalation produces intense nose, throat, and lung irritation; headaches; blurred vision; conjunctivitis; flushing of the face; mental confusion; staggering gait; slurred speech; and unconsciousness, sometimes with convulsions. Ingestion causes inebriation (drunkenness), vomiting, dizziness, fever, drowsiness, confusion, and cyanosis (a blue to dark purplish coloration of skin and mucous membrane caused by lack of oxygen). Aspiration causes choking, cough, shortness of breath, increased rate of respiration, excessively rapid heartbeat, fever, bronchitis, and pneumonitis. Other symptoms following acute exposure include acute hemorrhage of the pancreas, fatty degeneration of the liver and kidneys, and passive congestion of spleen.
Chronic Effects: Chronic inhalation results in appetite loss, nausea, weight loss, insomnia, and unusual sensitivity (hyperesthesia) of the distal extremities followed by motor weakness, muscular degeneration, and diminished tendon reflexes and coordination. Repeated skin exposure can cause blistering, drying, and lesions.
FIRST AID
Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.
Skin: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.
Inhalation: Remove exposed person to fresh air and support breathing as needed.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, *do not induce vomiting* due to aspiration hazard. Give conscious victim a mixture of 2 tablespoons of activated charcoal mixed in 8 oz of water to drink. Consult a physician immediately.
After first aid, get appropriate in-plant, paramedic, or community medical support.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources, and provide maximum explosion-proof ventilation. Cleanup personnel should protect against vapor inhalation and liquid contact. Use nonsparking tools. Take up small spills with sand or other noncombustible adsorbent. Dike storage areas to control leaks and spills. Follow applicable OSHA regulations (29 CFR 1910.120).
Aquatic Toxicity: Bluegill, freshwater, LC_{50}, 8 ppm/96 hr.
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
EPA Designations
RCRA Hazardous Waste (40 CFR 261.21): Characteristic of ignitability
CERCLA Hazardous Substance (40 CFR 302.4): Not listed
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
SARA Toxic Chemical (40 CFR 372.65): Not listed
OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Since contact lens use in industry is controversial, establish your own policy.
Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. There are no specific NIOSH recommendations. However, for vapor concentrations not immediately dangerous to life or health, use chemical cartridge respirator equipped with organic vapor cartridge(s), or a supplied-air respirator. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*
Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Materials such as neoprene or polyvinyl alcohol provide excellent/good resistance for protective clothing. **Note:** Resistance of specific materials can vary from product to product.
Ventilation: Provide general and local explosion-proof exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[103]
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in closed containers in a cool, dry, well-ventilated area away from heat and ignition sources and strong oxidizing agents. Protect containers from physical damage. Avoid direct sunlight. Storage must meet requirements of OSHA Class IB liquid. Outside or detached storage preferred.
Engineering Controls: Avoid vapor inhalation and skin or eye contact. Consider a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Indoor use of this material requires explosion-proof exhaust ventilation to remove vapors. Only use gasoline as a fuel source due to its volatility and flammable/explosive nature. Practice good personal hygiene and housekeeping procedures. Wear clean work clothing daily.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Gasoline (*including casing-head and natural*)
DOT Hazard Class: Flammable liquid
ID No.: UN1203
DOT Label: Flammable liquid
DOT Packaging Exceptions: 173.118
DOT Packaging Requirements: 173.119

IMO Shipping Name: Gasoline
IMO Hazard Class: 3.1
ID No.: UN1203
IMO Label: Flammable liquid
IMDG Packaging Group: II

MSDS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 138, 140, 143, 146, 153, 159
Prepared by: M Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** W Silverman, MD; **Edited by:** JR Stuart, MS

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Material Safety Data Sheet Collection

Fuel Oil No. 2 **MSDS No. 469**

Date of Preparation: 10/81 Revision: B, 3/98

Section 1 - Chemical Product and Company Identification 51

Product/Chemical Name: Fuel oil no. 2
Chemical Formula: Unspecified or Variable
CAS Number: 68476-30-2
Synonyms: #2 home heating oil; API no. 2 fuel oil; diesel oil; gas oil; home heating oil no. 2; number 2 burner fuel; number 2 fuel oil
Derivation: Residue from distillation (straight run or cracked) of crude oil.
General Use: Used as a fuel in atomizing burners for domestic and industrial heating, in engines of heavy units (ships, trucks, trains), as a source of synthesis gas, in drilling muds, and for mosquito control (coats breeding waters).
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Fuel oil no. 2, ca 100% vol (complex mixture (< 95%) of paraffinic, olefinic, naphthenic, and aromatic hydrocarbons)
Trace Impurities: water and sediment (< 0.05% vol), carbon residue (< 0.35%), ash (< 0.01% wt), sulfur (< 0.7% wt) and benzene (< 100 ppm).

OSHA PEL
As petroleum distillates
8-hr TWA: 500 ppm (2000 mg/m^3)

ACGIH TLV
As diesel fuel
Notice of impending change (1997):
TWA: 100 mg/m^3, *Skin*

NIOSH REL
As petroleum distillates
10-hr TWA: 350 mg/m^3
Ceiling (15 min): 1800 mg/m^3

IDLH Level
As petroleum distillates
1,100 ppm

DFG (Germany) MAK
None established

Section 3 - Hazards Identification

ANSI Signal Word: Warning!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Fuel oil no. 2 is an amber to brown, slighty viscous liquid with a petroleum odor. It can be irritating to the skin and respiratory tract. This low viscosity fuel oil presents a significant aspiration hazard following ingestion, which can result in chemical pneumonitis and respiratory failure. Also Causes: vomiting, diarrhea, central nervous system (CNS) depression, increased rate of respiration, rapid heart beat, and cyanosis (blue coloration of the skin caused by oxygen deficiency). Fuel oil no. 2 can be an environmental hazard if spilled. This flammable liquid is a moderate fire hazard. When heated to decomposition, it will emit acrid smoke and irritating fumes.

Wilson Risk Scale	
R	1
I	2
S	2
K	2

HMIS	
H	1*
F	2
R	0
PPE†	

*Chronic effects
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion
Target Organs: Skin, CNS, cardiovascular system (CVS), respiratory system, mucous membranes
Acute Effects
Inhalation: Respiratory tract irritation, headache, dizziness, euphoria, nausea, increased respiration rate, tachycardia (excessively rapid heart beat), cyanosis, stupor, convulsions, and unconsciousness can result from inhalation of fuel oil no. 2 mist.
Eye: Contact may result in irritation.
Skin: Contact may cause irritation.
Ingestion: Gastrointestinal irritation, vomiting, diarrhea, and in severe cases, CNS depression, progressing to coma and death, can result. Since intestinal absorption of longer chain hydrocarbons is minimal, aspiration into lungs following ingestion is a more significant exposure route; it may result in transient CNS depression, hemorrhaging and pulmonary edema, progressing to renal (kidney) involvement, chemical pneumonitis, and respiratory failure.
Carcinogenicity: IARC lists distillate (light) fuel oils as Group 3 (not classifiable as to carcinogenicity to humans). ACGIH lists a notice of impending change for diesel fuels as TLV-A3 (Animal carcinogen). NTP and OSHA do not list fuel oil no. 2 as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: None reported.

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Chronic Effects: Prolonged and repeated skin contact can cause dermatitis, irritate the hair follicles and may block the (oil) sebaceous glands, producing a rash of acne pimples, usually on the arms and legs. Repeated exposures producing CNS effects may lead to permanent nervous system damage.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain and/or irritation develop.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water followed by washing the exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. *Do not* induce vomiting unless the poison control center advises otherwise.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Gastric lavage for treatment of ingestion is contraindicated due to aspiration hazard. Administer charcoal slurry cathartic (30 g/240 mL diluent). In cases of severe aspiration pneumonitis, consider monitoring arterial blood gases and obtain chest x-ray.

Section 5 - Fire-Fighting Measures

Flash Point: 136 °F (57.78 °C)

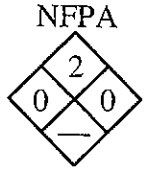
Flash Point Method: CC

Autoignition Temperature: 494 °F (257 °C)

LEL: 0.6% v/v

UEL: 7.5% v/v

NFPA



Flammability Classification: OSHA Class II Combustible Liquid.

Extinguishing Media: Use dry chemical, carbon dioxide, foam, water fog or spray. Water may be ineffective in putting out a fire involving fuel oil no. 2, and a solid water stream may spread the flames; however, a water spray may be used to cool fire-exposed containers, and flush spills away from ignition sources.

Unusual Fire or Explosion Hazards: Can form explosive mixtures in air. In still air, the heavier-than-air vapors of fuel oil no. 2 may travel along low-lying surfaces to distant sources of ignition and flash back to the material source. Containers may explode in heat of fire.

Hazardous Combustion Products: Heating fuel oil no. 2 to decomposition can produce thick acrid smoke and irritating fumes.

Fire-Fighting Instructions: If tank, rail car or tank truck is involved in fire isolate for 1/2 mile (800 m). *Do not* release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. *Do not* touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Isolate area for at least 80-160 ft (25-50 m) in all directions. Water spray or fire fighting foam may suppress vapor, but may not prevent ignition in closed spaces. Use natural barriers or oil spill control booms to confine oil slicks on surface water.

Small Spills: Absorb fuel oil no. 2 with vermiculite, earth, sand or similar material.

Large Spills

Containment: For large spills, consider downwind evacuation of at least 1000 ft (300 m). Dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways.

Cleanup: Ground all equipment. Spills can be absorbed with materials such as peat, activated carbon, polyurethane foam, or straw. Sinking agents, gelling agents, dispersants, and mechanical systems can also be used to treat oil spills. Use clean non-sparking tools to collect absorbed material.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid vapor or mist inhalation, and skin and eye contact. Use only with ventilation sufficient to reduce airborne concentrations as low as possible. Wear protective gloves (or use barrier cream) and clothing (see Sec. 8). Keep away from heat and ignition sources. Ground and bond all containers during transfers to prevent static sparks. Use non-sparking tools to open and close containers.

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Storage Requirements: Store in tightly closed container in cool, well-ventilated area, away from heat, ignition sources and incompatibles (See Sec. 10). Periodically inspect stored materials. Equip drums with self-closing valves, pressure vacuum bungs, and flame arrestors.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.106) for a Class II Combustible Liquid.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Enclose operations and/or provide local exhaust ventilation at the site of chemical release designed for flammable vapors/mists. Where possible, transfer fuel oil no. 2 from drums or other storage containers to process containers. Minimize sources of ignition in surrounding low-lying areas.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), use an SCBA.
Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets of Viton™ or nitrile rubber, if possible, or alternatively, polyvinyl chloride, chlorinated polyethylene or neoprene to prevent skin contact. Butyl rubber may degrade after contact and is not recommended. Wear protective eyeglasses per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance and Odor: Amber to brown, slightly viscous; petroleum odor

Odor Threshold: 0.082 ppm

Formula Weight: N/A

Specific Gravity (H_2O=1, at 4 °C): 0.8654 at 59 °F (15 °C)

Water Solubility: Slightly soluble

Boiling Point: 450 °F (232 °C)

Freezing Point: -50.8 °F (-46 °C)

Viscosity: 268 centistoke at 100 °F (37.8 °C)

Surface Tension: 25 dynes/cm, estimated

Henry's Law Constant (H): 29 to 68 atm-m^3/mole at 77 °F (25 °C), estimated

Octanol/Water Partition Coefficient: log K_{ow} = 8.2 to 9.7

Soil Sorption Coefficient (K_{oc}): $1x10^4$, estimated

Section 10 - Stability and Reactivity

Stability: Fuel oil no. 2 is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Include strong oxidizing agents.

Conditions to Avoid: Heat and ignition sources.

Hazardous Decomposition Products: Thermal oxidative decomposition of fuel oil no. 2 can produce various hydrocarbons, hydrocarbon derivatives, partial oxidation products (carbon dioxide (CO_2), carbon monoxide (CO), sulfur dioxide (SO_2)).

Section 11- Toxicological Information

Toxicity Data:*

Skin Effects:
Rabbit, skin, standard Draize test: 500 mg/24 hr, resulted in moderate irritation.

Acute Dermal Effects:
Rabbit, skin, LD: > 5 g/kg

Acute Oral Effects:
Rat, oral, LD_{50}: 12 g/kg

Eye Effects:
Rabbit, eye, standard Draize test: 100 mg/30 seconds, resulted in mild irritation.

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Section 11- Toxicological Information - *continued*

Toxicity Data:*

Tumorigenicity:
Mouse, skin: 243 g/kg/97 weeks, administered intermittently, caused skin and appendage tumors (carcinogenic by RTECS criteria).

Multiple Dose Toxicity Data:
Rabbit, skin: 100 mL/kg/12 days, continuously, caused irritative dermatitis, weight loss or decreased weight gain, and death.

* See NIOSH, *RTECS* (LS8930000), for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: Juvenile American shad, TLm/24 hr: 200 ppm; bluegill, LC_{50} = 95 mg/L/96 hr; carp, LC_{50} = 8.2 mg/L/24 hr; pumpkin seed, LC_{50} = 1.9 mg/L/24 hr. Through its coating action, this material can pose a hazard to aquatic biota including water birds, plankton, algae and fish.

Environmental Fate: Based on a calculated BCF ($1.02x10^4$ to $1.4x10^4$), bioconcentration could be an important environmental fate process; however, it may be limited for the chief components of fuel oil no. 2 due to metabolism.

Environmental Degradation: It may biodegrade in water and soil, or volatilize from water (half-life of 4.4- 4.8 hours from a model river) and moist soil surfaces, but adsorption may attenuate the rate of these processes. In the atmosphere, fuel oil no. 2 will rapidly degrade by reaction with photochemically produced hydroxyl radicals (estimated half-life 1 day or less).

Soil Adsorption/Mobility: A high Koc indicates significant sorption and low mobility in the soil column.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Material may be sprayed into an incinerator. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Fuel oil (1, 2, 4, 5 or 6)
Shipping Symbols: D
Hazard Class: 3
ID No.: NA1993
Packing Group: III
Label: Flammable Liquid
Special Provisions (172.102): B1

Packaging Authorizations
a) **Exceptions:** 173.150
b) **Non-bulk Packaging:** 173.203
c) **Bulk Packaging:** 173.242

Quantity Limitations
a) **Passenger, Aircraft, or Railcar:** 60 L
b) **Cargo Aircraft Only:** 220 L

Vessel Stowage Requirements
a) **Vessel Stowage:** A
b) **Other:** –

Section 15 - Regulatory Information

EPA Regulations:
Classified as a RCRA Hazardous Waste (40 CFR 261.21), Characteristic of Ignitability
RCRA Hazardous Waste Number: D001
Listed as a CERCLA Hazardous Substance (40 CFR 302.4), Unlisted Hazardous Waste, Characteristic of Ignitability, per RCRA Section 3001
CERCLA Final Reportable Quantity (RQ), 100 lb (45.4 kg)
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1, as petroleum distillates)

Section 16 - Other Information

References: 1, 73, 103, 136, 190, 223, 230, 231

Prepared By..... HM Spliethoff, MS
Industrial Hygiene Review..... PA Roy, MPH, CIH
Medical Review..... T Thoburn, MD, MPH

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Material Safety Data Sheet Collection

Diesel Fuel Oil No. 2-D **MSDS No. 470**

Date of Preparation: 10/81 Revision: B, 3/98

Section 1 - Chemical Product and Company Identification 51

Product/Chemical Name: Diesel fuel oil no. 2-D
Chemical Formula: Unspecified or variable
CAS Number: 68334-30-5
Synonyms: automotive diesel oil; diesel fuel; diesel oil (medium); diesel oil no. 2; diesel oil (petroleum); diesel oils; diesel test fuel; fuels, diesel; no. 2 diesel oil; olej napeldowy III (Polish)
Derivation: Fuel oil may be a distilled fraction of petroleum, a residuum from refinery operations, a crude petroleum or a blend of two or more of these.
General Use: This medium viscosity residual fuel oil has both light and heavy grades, and is used in furnaces and boilers of utility and industrial power plants, ships, locomotives, and metallurgical operations.
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Diesel fuel oil no. 2-D, ca 100% vol; diesel fuels consist primarily of aliphatic (64% vol), aromatic (35% vol), and olefinic (1-2% vol) hydrocarbons.
Trace Impurities: May contain sulfur (< 0.5), benzene (<100 ppm), and additives such as sulfurized esters.

OSHA PEL
As petroleum distillates
8-hr TWA: 500 ppm (2000 mg/m^3)

ACGIH TLV
As diesel fuel
Notice of impending change (1997):
TWA: 100 mg/m^3, *Skin*

NIOSH REL
As petroleum distillates
10-hr TWA: 350 mg/m^3
Ceiling (15 min): 1800 mg/m^3

IDLH Level
As petroleum distillates
1,100 ppm

DFG (Germany) MAK
None established

Section 3 - Hazards Identification

ANSI Signal Word: Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Diesel fuel oil no. 2-D is a brown, slightly viscous liquid with a kerosene-like odor. It is irritating to the skin and respiratory tract. Inhalation of mist or vapor may result in headache, nausea, vomiting, diarrhea, central nervous system (CNS) depression, tachycardia (rapid heart beat), cyanosis (blue coloration of skin due to oxygen deficiency), pulmonary edema (fluid in the lungs), and liver or kidney injury. Diesel fuel oil no. 2-D is an environmental hazard when spilled. When exposed to heat or flame, this flammable liquid is a fire hazard. When heated to decomposition, diesel fuel oil no. 2-D will emit acrid smoke and irritating vapors.

Wilson Risk Scale	
R	1
I	2
S	2*
K	2

*Skin absorption

HMIS	
H	1*
F	2
R	0
PPE†	

*Chronic effects
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin contact/absorption
Target Organs: Skin, CNS, cardiovascular system (CVS), respiratory system, liver, kidneys
Acute Effects
Inhalation: Euphoria, respiratory irritation, cardiac dysrhythmia, increased respiration rates, cyanosis, pulmonary edema, hemoptysis (spitting up blood from the respiratory tract), respiratory arrest, renal (kidney) and liver injury, and CNS toxicity can result from inhalation of diesel fuel oil no. 2-D mist or vapor.
Eye: Contact may result in irritation.
Skin: Contact may cause irritation, systemic effects (see Inhalation), and block the sebaceous (oil) glands, resulting in a rash of acne-like pimples and spots, usually on the arms and legs.
Ingestion: Gastrointestinal irritation, vomiting, diarrhea, and in severe cases, CNS depression progressing to coma and death and other systemic effects (see Inhalation) can result. Aspiration can result in transient CNS depression or excitement, hypoxia, infection, pneumatocele (abnormal cavities in lungs) formation, and chronic lung dysfunction.
Carcinogenicity: IARC lists occupational exposure in petroleum refining as Group 2A (Probable human carcinogen) and distillate light (diesel) fuels as Group 3 (Not classifiable as to carcinogenicity to humans). ACGIH lists a notice of impending change for diesel fuels as TLV-A3 (Animal carcinogen). NTP and OSHA do not list diesel fuel oil no. 2-D as a carcinogen.

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Medical Conditions Aggravated by Long-Term Exposure: None reported.

Chronic Effects: Prolonged or repeated skin contact causes dermatitis and possible systemic toxicity. Prolonged or repeated inhalation can cause CNS and peripheral nervous system damage.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain and/or irritation develops.

Skin Contact: Quickly remove contaminated clothing. Rinse with flooding amounts of water followed by washing the exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Have the *conscious and alert* person drink 1 to 2 glasses of water. Contact a poison control center. Because of aspiration risk, *do not* induce vomiting unless the poison control center advises otherwise.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Gastric lavage is contraindicated due to aspiration risk. Instead, consider administration of charcoal or milk. If ingestion amount is large, gastric emptying in the alert patient can be accomplished through administration of Syrup of Ipecac. Treat overexposure symptomatically and supportively.

Section 5 - Fire-Fighting Measures

Flash Point: 100.4 °F (38 °C)

Flash Point Method: CC

Autoiguition Temperature: 351-624 °F (177-329 °C)

LEL: 1.3% v/v

UEL: 75% v/v

NFPA

Flammability Classification: OSHA Class II Combustible Liquid

Extinguishing Media: Use dry chemical, carbon dioxide, foam, low velocity water fog or spray. Use a smothering technique to extinguish fire. Water may be ineffective in putting out a fire involving diesel fuel oil no. 2-D, and a solid water stream may spread the flames; however, a water spray may be used to cool fire-exposed containers, and flush spills away from ignition sources.

Unusual Fire or Explosion Hazards: Vapor or mist can form explosive mixtures in air. In still air, the heavier-than-air vapors of diesel fuel oil no. 2-D from a large source may travel along low-lying surfaces to distant sources of ignition and flash back to the material source. Containers may explode in heat of fire.

Hazardous Combustion Products: Heating diesel fuel oil no. 2-D to decomposition can produce acrid smoke and irritating vapors.

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Ground all equipment used when handling this product. *Do not* touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A fire fighting foam may be used to suppress vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material.

Small Spills: Absorb diesel fuel oil no. 2-D with vermiculite, earth, sand or similar material.

Large Spills

Containment: For large spills, consider downwind evacuation of at least 1000 ft (300 m). Dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways.

Cleanup: Ground all equipment. Use non-sparking tools. Spills can be absorbed with materials such as peat, activated carbon, polyurethane foam, or straw. Sinking agents, gelling agents, dispersants, and mechanical systems can also be use to treat oil spills.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid vapor or mist inhalation, and skin and eye contact. Use only with ventilation sufficient to reduce airborne concentrations to non-hazardous levels (see Sec. 2). Wear protective gloves (or use barrier cream), and clothing (see Sec. 8). Keep away from heat and ignition sources. Ground and bond all containers during transfers to prevent static sparks. Use non-sparking tools to open and close containers.

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Storage Requirements: Store in tightly closed container in cool, well-ventilated area, away from heat, ignition sources and incompatibles (see Sec. 10). Periodically inspect stored materials. Equip drums with self-closing valves, pressure vacuum bungs, and flame arrestors.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.106) for Class II Combustible Liquid.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Enclose operations and/or provide local exhaust ventilation appropriately designed for flammable mist and vapor at the site of chemical release. Where possible, transfer diesel fuel oil no. 2-D from drums or other storage containers directly to process containers. Minimize sources of ignition in surrounding low-lying areas.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), use an SCBA.
Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets. Wear protective eyeglasses, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Brown, slightly viscous; kerosene-like odor
Odor Threshold: 0.7 ppm
Vapor Pressure: < 0.1 mm Hg at 68 °F (20 °C)
Vapor Density (Air=1): > 6
Formula Weight: N/A

Specific Gravity (H_2O=1, at 4 °C): < 0.86
Water Solubility: Insoluble
Boiling Point: 340-676 °F (171-358 °C)
Freezing Point: -29.2 °F (-34 °C)
Viscosity: 1.9-4.1 centistoke at 104 °F (40 °C)
Surface Tension: 23-32 dynes/cm at 68 °F (20 °C)

Section 10 - Stability and Reactivity

Stability: Diesel fuel oil no. 2-D is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Include strong oxidizing agents.

Conditions to Avoid: Exposure to heat and ignition sources.

Hazardous Decomposition Products: Thermal oxidative decomposition of diesel fuel oil no. 2-D can produce low molecular weight hydrocarbons, hydrocarbon derivatives, carbon oxides (CO_x), and sulfur oxides (SO_x).

Section 11- Toxicological Information

Acute Oral Effects:
Rat, oral, LD_{50}: 7500 mg/kg

Acute Dermal Effects:
Rabbit, skin, LD: > 5 mL/kg

Skin Effects:
Rabbit, skin, standard Draize test: 500 µL/24 hr, resulted in severe reaction.

Toxicity Data:*

Other Multiple Dose Toxicity Data:
Rat, inhalation: 2 g/m³/6 hr/3 weeks, intermittently, resulted in changes in blood erythrocyte (RBC) count, and focal fibrosis (pneumonoconiosis) and other changes in the lung, thorax or respiration.
Rat, inhalation: 400 µg/m³/16 hr/2.5 years, intermittently, caused other changes in the blood, and biochemical effects - transaminases.
Rabbit, skin: 80 mL/kg/12 days, continuously, resulted in other changes in the liver, kidney, ureter, and bladder, and death.

* See NIOSH, *RTECS* (HZ1800000), for additional toxicity data.

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Section 12 - Ecological Information

Ecotoxicity: Juvenile American shad, salt water TLm: 204 mg/L/24 hr; mallard duck, LD_{50}=20 mg/kg.

Environmental Fate: Diesel fuel oil no. 2-D will evaporate from water or soil. In surface water, it may partition from the water column to suspended sediments.

Environmental Degradation: Biodegradation may occur in soil and water.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Diesel fuel
Shipping Symbols: D
Hazard Class: 3
ID No.: NA1993
Packing Group: III
Label: None
Special Provisions (172.102): B1

Packaging Authorizations
a) **Exceptions:** 173.150
b) **Non-bulk Packaging:** 173.203
c) **Bulk Packaging:** 173.242

Quantity Limitations
a) **Passenger, Aircraft, or Railcar:** 60 L
b) **Cargo Aircraft Only:** 220 L

Vessel Stowage Requirements
a) **Vessel Stowage:** A
b) **Other:** –

Section 15 - Regulatory Information

EPA Regulations:

Classified as RCRA Hazardous Waste (40 CFR 261.21): Characteristic of Ignitability
RCRA Hazardous Waste Number: D001
Listed as a CERCLA Hazardous Substance (40 CFR 302.4), Unlisted Hazardous Waste, Characteristic of Ignitability per RCRA Sec. 3001
CERCLA Final Reportable Quantity (RQ): 100 lb (45.4 kg)
SARA Toxic Chemical (40 CFR 372.65): Not listed
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A, as petroleum distillates)

Section 16 - Other Information

References: 73, 103, 136, 190, 209, 222, 230, 231

Prepared By..... HM Spliethoff, MS
Industrial Hygiene Review..... PA Roy, MPH, CIH
Medical Review..... T Thoburn, MD, MPH

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Material Safety Data Sheet Collection

Thallium **MSDS No. 80**

Date of Preparation: 12/80 Revision: B, 3/98

Section 1 - Chemical Product and Company Identification 51

Product/Chemical Name: Thallium
Chemical Formula: Tl
CAS Number: 7440-28-0
Synonyms: elemental thallium; Ramor; thallium metal
Derivation: Exists in flue dusts from lead and zinc smelters and pyrite burners. Obtained from thallium compounds by electrolysis, precipitation, or reduction.
General Use: Alloyed with mercury for switches and closures which operate at subzero temperatures; used in the manufacture of thallium salts; of mercury alloys and low-melting glasses; used in cardiac imaging; electrodes in dissolved oxygen analyzers; in photoelectric cells, lamps, and electronics; in scintillation counters; as a catalyst in organic synthesis; in magnesium seawater batteries; as a rodenticide (former use).
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Thallium, ca 99.9 - 100%
Trace Impurities (technical grade): lead, zinc, nickel, cadmium, indium, germanium, selenium, tellurium, arsenic

OSHA PEL
Thallium, elemental, and soluble compounds, as Tl
8-hr TWA: 0.1 mg/m^3, *Skin*

ACGIH TLV
Thallium, elemental, and soluble compounds, as Tl
TWA: 0.1 mg/m^3, *Skin*
Excursion Limit: Provided the TLV-TWA is not exceeded, exposure may exceed 0.3 mg/m^3 for no more than 30 min/day, never exceed 0.5 mg/m^3.

NIOSH REL
Thallium, elemental, and soluble compounds, as Tl
10-hr TWA: 0.1 mg/m^3, *Skin*

IDLH Level
15 mg/m^3

DFG (Germany) MAK
Thallium, elemental, and soluble compounds, as Tl
TWA: 0.1 mg/m^3
Category III: Substances with systemic effects, onset of effect >2 hr half-life > shift length (strongly cumulative).
Danger of cutaneous absorption

Peak Exposure Limit:
1.0 mg/m^3, 30 min, average value, frequency per shift: 1

Section 3 - Hazards Identification

ANSI Signal Word: Danger!

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Thallium is a bluish-white, odorless soft metal or powder. It is toxic by ingestion and may be absorbed in toxic amounts through skin contact or inhalation. Exposure also causes: skin sensitization, central nervous system (CNS) and gastrointestinal (GI) tract effects, kidney damage, and death. Exposure is cumulative. Thallium dust is flammable.

Wilson Risk Scale
R 2*
I 4
S 3*
K 2
*Powder

HMIS
H 3*
F 2†
R 1
PPE‡
*Chronic effects
†Powder
‡Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin contact
Target Organs: Central nervous system (CNS), peripheral nerves, cardiovascular system (CVS), gastrointestinal (GI) tract, hair, eyes, respiratory system, liver, kidneys

Acute Effects

Inhalation: Irritation and systemic effects including thallium poisoning. Symptoms of thallium poisoning are often delayed 12 to 24 hours and reach a maximum in the second and third week after exposure. Symptoms include severe sudden abdominal pain, nausea, vomiting, diarrhea, headache, chest pain or tightness, excessive salivation, bloody vomit and stools, sensory nerve disorders, painful tingling in extremities, leg pains, insomnia, hypertension (high blood pressure), tachycardia (rapid heart beat), respiratory failure, decreased visual clarity, impaired color vision, weakness, depression, hair loss, green color to urine, kidney damage, and, in severe cases, tremors, delirium, hallucinations, convulsions, paralysis, coma and death, sometimes within 1 to 2 days. Thallium (metal) is not as toxic as some thallium salts.

Eye: Irritation; may cause vision loss.

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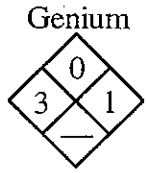
Skin: Irritation, acne, hair loss, impaired nail growth ("Mee's lines"); may be absorbed, causing systemic effects.
Ingestion: Sweating, nerve or nerve sheath structural changes, eye muscle changes; may cause systemic effects (see Inhalation).
Carcinogenicity: IARC, NTP, and OSHA do not list thallium as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Disorders of the CNS, GI tract, kidneys, liver, and eyes may be worsened by exposure to thallium.
Based on animal studies, thallium may cross the placenta to affect an unborn child.
Chronic Effects: Thallium is a cumulative poison. Chronic effects include systemic effects list under Acute Effects, above, but may also include poor appetite, mood changes, irritability, metallic taste in the mouth, pain in extremities (polyneuritis), alopecia (hair loss), loss of vision, tremor or abnormal muscle jerking, nail changes, dry scaly skin, heart, kidney, and endocrine damage. Permanent brain damage is common.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.
Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 min. Consult a physician or ophthalmologist if pain, irritation, swelling, or photophobia persist.
Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. Monitor for systemic effects.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting. Seek medical attention.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: If over exposure is suspected, monitor cardiac, renal and hepatic function; medical observation for several days is suggested. The most reliable urine test for thallium is a 24-hour urine quantitative assay. Diethylthiocarbamate has been reported to result in dangerous redistribution of thallium to the CNS and is contraindicated.

Section 5 - Fire-Fighting Measures



Flash Point: Not applicable, probable noncombustible solid
Autoignition Temperature: None reported.
LEL: None reported.
UEL: None reported.
Flammability Classification: Probable noncombustible solid
Extinguishing Media: For small fires, use dry chemical, carbon dioxide (CO_2) or water spray. For large fires, use water spray, fog, or regular foam. Fire involving tanks or car/trailer loads: fight fire from maximum distance or use unmanned hose holders or monitor nozzles. *Do not* get water inside containers. Cool containers with flooding quantities of water until well after fire is out.
Unusual Fire or Explosion Hazards: Thallium dust is flammable when exposed to heat or flame. Reacts violently with fluorine.
Hazardous Combustion Products: Toxic fumes of thallium.
Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways. *Do not* scatter thallium.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Thoroughly decontaminate equipment after use.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Notify safety personnel, evacuate all unnecessary personnel, remove heat and ignition sources. Isolate and ventilate area, deny entry, stay upwind. Tag container as defective and return to supplier. Use spark-proof tools and explosion proof equipment. Cleanup personnel should protect against exposure.
Small Spills: *Do not* sweep! Carefully scoop up or vacuum (with a HEPA filter). Absorb liquid spill with an inert, noncombustible absorbent such as sand or vermiculite. Collect in sealed containers for disposal.
Large Spills
Containment: For large spills, dike far ahead of liquid spill for later disposal. *Do not* release into sewers or waterways.
Cleanup: If possible, recover for reuse or recycling.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

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Section 7 - Handling and Storage

Handling Precautions: Avoid any exposure to thallium. To avoid dust inhalation, use only with exhaust ventilation sufficient to reduce airborne concentrations to nonhazardous levels (see Sec. 2). Wear personal protective clothing and equipment to prevent contact with skin and eyes, or dust inhalation (see Sec. 8). Remove contaminated clothing and equipment immediately for proper decontamination. Practice good personal hygiene procedures to prevent inadvertently ingesting this material. Wash any areas which might have come in contact with thallium at the end of the work shift. *Do not* attempt to handle broken containers without proper protective equipment. Whenever possible, transfer thallium directly form storage containers to process containers.

Storage Requirements: Store in tightly closed containers in a cool, well-ventilated area away from heat, ignition sources, incompatibles, and food and foodstuffs.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Where feasible, enclose operations and exhaust ventilate to avoid dust dispersion into the work area. To prevent static sparks, electrically ground and bond all containers and equipment.

Ventilation: Provide local exhaust ventilation systems equipped with appropriate dust collectors or scrubbers to maintain airborne concentrations below OSHA PEL (see Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Educate workers about the health and safety hazards associated with this material. Train in work practices and PPE which minimize exposure. Consider preplacement and periodic medical exams with emphasis on the eyes, nervous and respiratory systems, liver, kidneys, gastrointestinal tract, and hair. Monitor workplace exposures.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Exposure Range: >0.1 to 1 mg/m^3: air purifying, negative pressure, half mask; >1 to 10 mg/m^3: air purifying, negative pressure, full face; >10 to <15 mg/m^3: supplied air, constant flow/pressure demand, full face; 15 to unlimited mg/m^3: SCBA, pressure demand, full face; cartridge color: dust/mist filter (use P100 or consult supervisor for appropriate dust/mist filter). Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent any skin contact. Wear protective eyeglasses or chemical safety goggles and face shield, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice disciplined personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance and Odor: Bluish white powder; odorless

Vapor Pressure: 1 mm Hg at 1517 °F (825 °C)

Formula Weight: 204.38

Density: 11.85 g/cm^3

pH: Moderately strong base

Water Solubility: Insoluble

Other Solubilities: Slightly soluble in hydrochloric acid, 100 parts nitric acid; soluble in sulfuric acid.

Boiling Point: 2655 °F (1457 °C)

Melting Point: 578.3 °F (303.5 °C)

Ionization Potential (eV): 6.10829

Section 10 - Stability and Reactivity

Stability: Thallium is stable at room temperature in closed containers under normal storage and handling conditions. Exposure to air will result in surface oxidation.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Include strong acids and strong oxidizing agents. Reacts violently with fluourine (F_2). Reacts with steam or moist air to produce toxic thallium hydroxide (TlOH), with air to produce thallium (I) oxide (Tl_2O).

Conditions to Avoid: Avoid contact with chemical incompatibles, heat, and sources of ignition.

Hazardous Decomposition Products: Thermal oxidative decomposition of thallium can produce thallium fumes.

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Section 11- Toxicological Information

Toxicity Data:*

Acute Oral Effects:
Man, oral, TD_{Lo}: 5714 µg/kg produced toxic effects: peripheral nerve and sensation - structural change in nerve or sheath; sense organs and special senses - change in extra-ocular muscles; skin and appendages - hair.

Acute Effects:
Man, unreported exposure route, LD_{Lo}: 4412 mg/kg

* See NIOSH, *RTECS* (XG3425000), for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: Freshwater: Atlantic salmon, LD_{50}: 0.03 ppm; *daphnia*, 72 hr threshold: 2-4 ppm; *gammarus*, 72 hr threshold: 4 ppm; perch, 72 hr threshold: 60 ppm. Saltwater: brown shrimp, 96 hr LC_{50}: 10 ppm.

Environmental Fate: May persist indefinitely as cation. Thallium bioaccumulates.

Section 13 - Disposal Considerations

Disposal: If possible, recover for reuse or recycling. Contact your supplier or a licensed contractor for detailed recommendations for disposal. Follow applicable Federal, state, and local regulations.

Container Cleaning and Disposal: Handle empty containers carefully as hazardous residues may still remain. Triple rinse containers and dispose of wash wastewater appropriately.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Thallium compounds, n.o.s.
Shipping Symbols: –
Hazard Class: 6.1
ID No.: UN1707
Packing Group: II
Label: POISON
Special Provisions (172.102): –

Packaging Authorizations
a) Exceptions: None
b) Non-bulk Packaging: 173.212
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 25 kg
b) Cargo Aircraft Only: 100 kg

Vessel Stowage Requirements
a) Vessel Stowage: A
b) Other: –

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste (40 CFR 261.33): Not listed
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) specific per CWA, Sec. 307(a)
CERCLA Final Reportable Quantity (RQ), 1000 lb (454 kg)
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1)

Section 16 - Other Information

References: 1, 73, 99, 103, 124, 136, 149, 176, 190, 209, 216, 222, 223, 224, 227, 230

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Industrial Hygiene Review..... PA Roy MPH, CIH
Medical Review..... T Thoburn, MD, MPH

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Material Safety Data Sheet Collection

Mercury **MSDS No. 26**

Date of Preparation: 1/77 Revision: D, 6/94

Section 1 - Chemical Product and Company Identification 44

Product/Chemical Name: Mercury
Chemical Formula: Hg
CAS No.: 7439-97-6
Synonyms: colloidal mercury, hydrargyrum, liquid silver, Quicksilver
Derivation: Obtained by roasting cinnabar (mercury sulfide) and purified by distillation, or as a by-product of gold mining.
General Use: Used in agricultural poisons, anti-fouling paint, dental amalgams, mining amalgamation (to remove gold and other metals from ore), thermometers, barometers, dry cell batteries, chlorine and caustic soda production, electrical apparatus, and as a neutron absorber in nuclear power plants.
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Mercury, ca 100 %wt

OSHA PEL
Ceiling: 0.1mg/m^3 (vapor and inorganic Hg)
8-hr TWA: 0.05 mg/m^3 (vapor), skin; (Vacated 1989 Final Rule Limit)

ACGIH TLVs
TWA: 0.025 mg/m^3 (inorganic compounds), skin

NIOSH REL
10-hr TWA: 0.05 mg/m^3 (vapor), skin

DFG (Germany) MAK
TWA: 0.01 ppm (0.1 mg/m^3)
Category III: Substances with systemic effects
Onset of Effect: > 2 hr
Half-life: > shift length (strongly cumulative)

Peak Exposure Limit:
0.1 ppm (1 mg/m^3), 30 min. average value, 1/shift

IDLH Level
28 mg/m^3

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Mercury exists as a heavy, odorless, silver-white liquid metal. It is highly toxic by both acute and chronic exposure. Exposure can cause corrosion of the eyes, skin, and respiratory tract and may result in irreversible nervous system damage. It readily forms amalgamations with most metals except iron.

Wilson Risk Scale	
R	1
I	4
S	2*
K	1

*Skin absorption

HMIS	
H	4*
F	0
R	0

*Chronic effects
PPE†
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, eye and skin contact/absorption.
Target Organs: Central nervous system, eyes, skin, respiratory system, liver, kidneys.
Acute Effects

Inhalation: Exposure to high vapor concentrations can cause severe respiratory damage. Other symptoms include wakefulness, muscle weakness, anorexia, headache, ringing in the ear, headache, diarrhea, liver changes, fever, gingivitis, chest pain, difficulty breathing, cough, inflammation of the mouth (stomatitis), salivation, bronchitis, and pneumonitis. Acrodynia (pink or Swifts disease), characterized by redness and peeling of the skin on the toes and fingers, was commonly seen in children in the 1950s and is still *infrequently* seen in workers.

Eye: Irritation and corrosion.

Skin: Skin can become severely irritated if allowed to remain in contact with mercury. Skin absorption will occur at 2.2% of the rate of absorption through the lungs.

Ingestion: Mercury generally passes through the digestive tract uneventfully. However, large amounts may get caught up in the intestine and require surgical removal. If an abscess or other perforation is present along the digestive tract, absorption into the blood stream with subsequent mercury poisoning is possible.

Carcinogenicity: IARC, NTP, and OSHA do not list mercury as a carcinogen.
Medical Conditions Aggravated by Long-Term Exposure: Central nervous system disorders.
Chronic Effects: Chronic exposure appears more common than acute and is primarily associated with central nervous system damage which can be permanent (ex. paresthesia of the hands, lips, feet). Early signs of toxicity include weakness, fatigue, anorexia, weight loss, and gastrointestinal disturbances. If exposure levels are high, characteristic tremors of the fingers, eyelids, and lips occur with progression to generalized tremors of the entire body. Psychic disorders are noticeable and characterized by behavior and personality changes, increased excitability, memory loss, insomnia, and depression. In severe cases, delirium and

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hallucinations may occur. Kidney damage is observed with oliguria (decreased urine output) progressing to anuria (urine cessation) and may require dialysis. The cornea and lens of the eyes may take on a brownish discoloration and the extraocular muscles may be damaged. This syndrome has been termed *Asthenic-Vegetative Syndrome* or *Micromercurialism.* Chronic symptoms occur increasingly with exposures to 0.1 mg/m^3 or higher. *Mutation:* Aneuploidy and other chromosomal aberrations have been observed in the lymphocytes from whole blood cultures in workers exposed to mercury. *Reproductive:* Mercury has been detected in stillborn babies of women treated with mercury for syphilis. In a study of six men acutely exposed (occupationally) to mercury levels as high as 44 mg/m^3, all suffered impaired sexual function. Repeated skin contact may cause allergic dermatitis in some individuals.

NOTE: Spilled mercury will release sufficient vapor over time to produce chronic poisoning.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water and then wash exposed area with soap. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. In general, mercury will pass through the digestive tract uneventfully.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: BEI: *blood* (15 µg/L), *urine*: (35 µg/g creatinine). Extremely high urine levels of 0.5 to 0.85 mg Hg/L are indicative of polyneuropathy. 0.4 to 22 µg/L is reported to be the human lethal blood level. Obtain urinalysis including at a minimum: albumin, glucose, and a microscopic examination of centrifuged sediment. Use BAL or 2, 3-dimercaptosuccinic acid as chelators. *Do not* use calcium sodium EDTA because of nephrotoxicity. An electromyograph may determine extent of nerve dysfunction. It has been noted that exposure to mercury may predispose persons to development of carpal tunnel syndrome.

Section 5 - Fire-Fighting Measures

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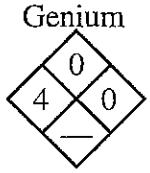

Flash Point: Nonflammable

Autoignition Temperature: Nonflammable

LEL: None reported.

UEL: None reported.

Extinguishing Media: Use agents suitable for surrounding fire.

Unusual Fire or Explosion Hazards: None reported.

Hazardous Combustion Products: Toxic mercury vapor and mercuric oxide.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Keep a mercury spill kit readily available in areas where mercury is used. Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind.

Small and Large Spills: Follow instructions on mercury spill kit. Most kits come with an aspiration-driven vacuum trap with a mercury "sweeper" (copper or copper-plated brush). Wash spill area with a dilute calcium sulfide or nitric acid solution. If spill cannot be taken up readily, dust the top of the spill with flowers of sulfur or preferably, calcium polysulfide. This will produce a surface coating of mercury sulfide which will reduce mercury vapor dispersion into the air.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precantions: Use appropriate PPE when working with mercury. *Do not* use on porous work surfaces (wood, unsealed concrete, etc.) to prevent spills from lodging in cracks.

Storage Requirements: Store in a cool, dry, well-ventilated area away from heat and incompatibles (Sec. 10). Store on non-porous floors and wash them regularly with a dilute calcium sulfide solution. Because mercury will form amalgamations with most metals except iron, metal shelves should be painted with a sufficiently thick coating to prevent this from happening.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Wherever possible, enclose processes to prevent mercury vapor dispersion into work area.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103]

Administrative Controls: Consider pre-placement and periodic medical exams of exposed workers with emphasis on the skin, eyes, central nervous system, liver, and kidneys.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For $\leq$ 0.5 mg/m^3, use any chemical cartridge

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respirator with cartridges providing protection against mercury and equipped with an ESLI (end of service life indicator), any SCBA, or any SAR (supplied-air respirator). For ≤ 1.25 mg/m^3, use any SAR operated in continuous-flow mode, any PAPR (powered, air-purifying respirator) with an ESLI. For ≤ 2.5 mg/m^3, use any SCBA or SAR with a full facepiece, any SAR with a tight-fitting facepiece and operated in continuous-flow mode, or any chemical cartridge respirator with a full facepiece, chemical cartridges providing protection against mercury, and equipped with an ESLI. For ≤28 mg/m^3, use any SAR operated in pressure-demand or other positive-pressure mode. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA with full facepiece and operated in pressure-demand or other positive pressure mode. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets made of butyl rubber, nitrile rubber, fluorocarbon rubber, neoprene rubber, polyvinyl chloride, chlorinated polyethylene, or polycarbonate to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid metal
Appearance and Odor: Silvery-white, odorless
Vapor Pressure: 0.0018 mm Hg at 77 °F (25 °C)
Formula Weight: 200.59
Density (H_2O=1): 13.534 g/cm^3 at 77 °F (25 °C)
Boiling Point: 674.09 °F (356.72 °C)
Freezing Point: -37.97 °F (-38.87 °C)
Viscosity: 15.5 mP at 77 °F (25 °C)
Electrical Resistivity: 95.76 µohm at 68 °F (20 °C)

Water Solubility: 0.28 µmol/L at 77 °F (25 °C)
Other Solubilities: Soluble in boiling sulfuric acid, nitric acid (reacts); slightly in lipids, and 2.7 mg/L in pentane. Insoluble in alcohol, ether, cold sulfuric acid, hydrogen bromide, and hydrogen iodide.
Surface Tension: 484 dyne/cm at 77 °F (25 °C)
Critical Temperature: 2664 °F (1462 °C)
Critical Pressure: 1587 atm

Section 10 - Stability and Reactivity

Stability: Mercury does not tarnish at ordinary temperatures but when heated to near its boiling point, it slowly oxidizes to mercuric oxide.

Polymerization: Hazardous polymerization does not occur.

Chemical Incompatibilities: Mercury forms alloys (amalgamates) with most metals except iron. It is incompatible with oxidizers such as bromine, 3-bromopropyne, methylsilane + oxygen, chlorine, chlorine dioxide, nitric acid, or peroxyformic acid; tetracarbonyl nickel + oxygen, alkynes + silver perchlorate, ethylene oxide, acetylenic compounds (explosive), ammonia (explosive), boron phosphodiiodide, methyl azide, nitromethane, and ground sodium carbide.

Conditions to Avoid: Exposure to high temperatures, metal surfaces or incompatibles.

Hazardous Decomposition Products: Thermal oxidative decomposition of mercury can produce mercuric oxide.

Section 11- Toxicological Information

Toxicity Data:*

Reproductive:
Rat, inhalation: 890 ng/m^3/24 hr for 16 weeks prior to mating had an effect on spermatogenesis.

Acute Dermal Toxicity:
Man, skin, TD_{Lo}: 129 mg/kg for 5 continuous hours caused ringing in the ears, headache, and allergic dermatitis.

Acute Oral Toxicity:
Man, oral, TD_{Lo}: 43 mg/kg caused tremor and jaundice or other liver changes.

Acute Inhalation Effects:
Woman, inhalation, TC_{Lo}: 150 µg/m^3/46 days caused anorexia, diarrhea, and wakefulness.
Man, inhalation, TC_{Lo}: 44300 µg/m^3/8 hr caused muscle weakness, liver changes, and increased body temperature.

Chronic Effects:
Rat, inhalation: 1 mg/m^3/ 24 hr for 5 continuous weeks caused proteinuria.

* See NIOSH, *RTECS* (OV4550000), for additional toxicity data.

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Section 12 - Ecological Information

Ecotoxicity: Catfish, LC_{50} = 0.35 mg/L/96 hr; mollusk (*Modiolus carvalhoi*), LC_{50} = 0.19 ppm/96 hr: tadpole (*Rana hexadactyla*), LC_{50} = 0.051 ppm/96 hr. Mercury is transformed to methyl mercury by bacteria in the environment and undergoes bioaccumulation readily. BCF for freshwater fish = 63,000; for saltwater fish = 10,000; and for marine and freshwater invertebrates = 100,000.

Environmental Degradation: Mercury is expected to volatilize rapidly when deposited on soil surfaces. Once in the air, it can be transported long distances before being redeposited on soil or in water. In water, mercury appears to bind to particulates where it eventually becomes deposited on the bed sediment. In general, mercury entering the environment can be deposited and revolatilized several times.

Section 13 - Disposal Considerations

Disposal: Incineration is *not* an appropriate disposal method. Wastewater may be treated by addition of chlorine to oxidize the mercury to its ionic state. The water can then be passed through an absorbent (an activated charcoal concentrate with a sulfur coating or peanut shell charcoal) to collect the ionic mercury, followed by distillation to recover the mercury. Sodium borohydride, a reducing agent, can be used to precipitate mercury from waste solutions. Bioremediation, using *Pseudomonas putida*, has also been suggested. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Mercury
Shipping Symbols: A, W
Hazard Class: 8
ID No.: UN2809
Packing Group: III
Label: Corrosive
Special Provisions (172.102): --

Packaging Authorizations
a) Exceptions: 173.164
b) Non-bulk Packaging: 173.164
c) Bulk Packaging: 173.240

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 35 kg
b) Cargo Aircraft Only: 35 kg

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: 40, 97

Section 15 - Regulatory Information

EPA Regulations:
Listed as a RCRA Hazardous Waste (40 CFR 261.33): U151
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) per RCRA, Sec. 3001; CWA, Sec. 307(a), CAA, Sec. 112
CERCLA Reportable Quantity (RQ), 1 lb (0.454 kg)
SARA 311/312 Codes: 1, 2
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed
OSHA Regulations:
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A)

Section 16 - Other Information

References: 73, 103, 124, 132, 136, 148, 149, 159, 167, 176, 187, 189

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Medical Review ..... T Thoburn, MD, MPH

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Material Safety Data Sheet Collection

Asbestos **MSDS No. 15**

Date of Preparation: 11/90 Revision: A, 9/97

Section 1 - Chemical Product and Company Identification 50

Product/Chemical Name: Asbestos

Chemical Formula: actinolite, $Ca_2(Fe^{2+}, Mg)_5Si_8O_{22}(OH)_2$; amosite, $(Fe^{2+},Mg)_7Si_8O_{22}(OH)_2$; anthophyllite, $(Mg, Fe^{2+})_7Si_8O_{22}(OH)_2$; chrysotile, $Mg_3Si_2O_5(OH)_4$; crocidolite, $Na_2(Fe^{2+}, Mg)_3Fe^{3+}{}_2Si_8O_{22}(OH)_2$; tremolite, $Ca_2Mg_5Si_8O_{22}(OH)_2$;

CAS Number: CAS No. 1332-21-4, asbestos; CAS No. 12172-73-5, amosite, brown asbestos; CAS No. 12001-29-5, chrysotile, white asbestos; CAS No. 12001-28-4, crocidolite, blue asbestos; CAS No. 17068-78-9, anthophyllite; CAS No. 13768-00-8, actinolite

Synonyms: actinolite; ascarite; amosite; anthophyllite; chrysotile; crocidolite; earth flax; mountain cork; stone flax; tremolite

Derivation: Asbestos is a generic term applied to many naturally occurring, hydrated silicates (minerals) found in rock which separate into flexible fibers when crushed or processed. Commercially important forms are amosite, anthophyllite (mined and used only in Finland), chrysotile, and crocidolite. Other types include tremolite and actinolite.

General Use: Chrysotile was most widely used in US industry. Since asbestos is insensitive to chemical attack and incombustible, asbestos has been used in more than 5,000 products including thermal and electrical insulation, roofing, cement pipe and sheet flooring, friction materials, gaskets, coatings, plastics, textiles, and paper products. However, due to its health hazards, other materials are now replacing it wherever possible. Under TSCA, EPA proposed to prohibit or phase out the manufacture and use of asbestos in certain products. EPA issued a final rule banning the manufacture, importation, processing, and distribution of most asbestos-containing products. Between 1950 and 1972 asbestos was used as spray insulation in buildings, but OSHA now prohibits spray application of actinolite, anthophyllite, asbestos, or tremolite (29 CFR 1910.1001).

Section 2 - Composition / Information on Ingredients

Asbestos, ca 100 %wt

Trace Impurities: Metals including nickel, cobalt, chromium, manganese, beryllium, cadmium, copper, and thallium; other fibrous materials including tremolite and brucite; and oils and waxes.

OSHA PELs*
8-hr TWA: 0.1 f/cc
30-min STEL: 1 f/cc
Carcinogen - See 29 CFR 1910.1001

NIOSH REL*
10-hr TWA: 0.1 f/cc
Carcinogen - Use 29 CFR 1910.1001

DFG (Germany) MAK
None established

ACGIH TLVs†
Amosite (12172-73-5): TWA: 0.5 f/cc ‡
Chrysotile (12001-29-5): TWA: 2 f/cc
Crocidolite (12001-28-4): TWA: 0.2 f/cc
Asbestos, other forms: TWA: 2 f/cc

IDLH Level
Not determined

* The following limits are applicable for amosite (12172-73-5), chrysotile (12001-29-5), crocidolite (12001-28-4), and asbestos, other forms.
† Notice of Intended Change: 0.1 f/cc
‡ Fibers longer than 5 µm; aspect ratio ≥ 3:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination.

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids. Asbestos causes three specific diseases: asbestosis (fibrous lung scarring), lung cancer, and mesothelioma (cancer of the chest lining and abdominal cavities). These diseases typically develop decades (20 to 40 yr) after exposure begins, but may occur sooner. Prevent or minimize asbestos exposure.

Wilson Risk Scale
R 0
I 4
S 1
K 0

HMIS
H 1*
F 0
R 0
PPE†

* Chronic Effects: Cancer Hazard
† Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin and/or eye contact

Target Organs: Respiratory system, eyes; possibly digestive system

Acute Effects

Inhalation: Nose and throat irritation are possible with high exposure.

Eye: Irritation.

Skin: Irritation with exposure to high concentrations.

Ingestion: Gastrointestinal tract irritation is possible.

Carcinogenicity: IARC, NTP, OSHA, ACGIH, NIOSH, EPA, and MAK list asbestos as IARC-1 (carcinogenic to humans), NTP-1 (known to be a carcinogen), OSHA-X (carcinogen defined with no further categorization),

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ACGIH-TLV-A1 (confirmed human carcinogen), EPA-A (human carcinogen), and MAK-A1 (capable of inducing malignant tumors as shown by human experience).

Medical Conditions Aggravated by Long-Term Exposure: Long-term, high-level exposure may aggravate any chronic lung (asthma, emphysema, bronchitis) or heart condition.

Chronic Effects: Asbestos may cause 1) asbestosis, 2) lung cancer, 3) mesothelioma, 4) pleural plaques, and 5) several other forms of cancer. *Asbestosis* is fibrosis (scarring) of lung tissue after many years of high-level occupational exposure. Scarring may be progressive even after exposure ceases. Even though detectable in lungs of a high proportion of adults in industrialized areas, asbestosis does not result from lower level environmental exposure. Its symptoms range from mild shortness of breath and dry cough to severe disabling breathlessness, heart failure, and ultimately death. Lung scarring can be seen on X-ray and alterations in lung function can be detected with spirometry (a medical test). Examination typically detects rales (crackling sounds in lungs). Severe cases may have cyanosis (bluish skin discoloration) and clubbing of fingertips. *Lung cancer* can result from lower exposure levels than asbestosis, but also takes many years to develop. Smokers exposed to asbestos are at 5 to 10X higher risk than exposed nonsmokers. *Mesothelioma* is a very aggressive cancer of the pleura (lining around the lungs) or peritoneum (lining of the abdomen), and develops after decades of (sometimes low level) exposure. Symptoms may include chest and abdominal pain, weight loss, and/or shortness of breath, with death within 2 years of diagnosis. *Pleural plaques* are thickenings, sometimes with calcium deposits, of the lung's lining and may be seen on X-ray. While not associated specifically with health effects, they indicate significant exposure. *Other sites of cancer* include larynx (vocal cords), portions of digestive tract, and possibly the kidney. Asbestos's toxicity depends on fiber type (crocidolite > amosite > chrysotile), size (longer > shorter), shape (long, thin needle-like > curly), and solubility. Health effects depend on dose (exposure concentration and duration), smoking habits, and individual susceptibility.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air. Clean any fibers from nose and mouth. Encourage victim to cough, spit, and blow nose to remove fibers.

Eye Contact: Do not rub. Gently lift eyelids and flush with flooding amounts of water.

Skin Contact: Shower with water and soap. Wet contaminated clothing prior to removal and seal in a plastic bag for disposal as hazardous waste. If rash develops, consult physician.

Ingestion: Induce vomiting *only* if awake and alert. Consult a physician.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Asbestosis diagnosis is based on chest X-ray with an abnormal ILO "B" reading (small irregular opacities), rales, restrictive pattern spirometry, adequate exposure history, and symptoms. Consider pneumovax, annual flu shot, and other supportive treatment as needed. See Sec. 8, Administrative Controls for specific recommendations for medical surveillance.

Special Precautions/Procedures: Emergency personnel should protect against any exposure when aiding victims.

Section 5 - Fire-Fighting Measures

Flash Point: Not applicable (NA); noncombustible solid.

Autoignition Temperature: NA

LEL: NA

UEL: NA

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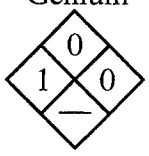

Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Wet asbestos fibers with water spray to prevent dust generation. *Do not* scatter spilled asbestos with high-pressure water streams.

Unusual Fire or Explosion Hazards: None reported.

Hazardous Combustion Products: None; noncombustible solid.

Fire-Fighting Instructions: Isolate hazard area and deny entry. Avoid asbestos dust generation and inhalation; it may have damaging effects on the lungs. *Do not* release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because there may be airborne asbestos fibers, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Notify safety personnel and evacuate all unnecessary personnel. Cleanup personnel should protect against dust inhalation and skin or eye contact. Avoid dust generation, blowing, dry brushing, and dry mopping. Provide HEPA-filtered (high-efficiency particulate air) portable ventilation systems. Use wet cleaning methods or approved HEPA vacuum cleaning system to pick up spills. The techniques used must collect particulate without dispersing dust into air. Place waste in *properly labeled* dust-tight containers or sealed, heavy-gauge, impervious plastic bags for disposal.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Avoid any exposure to asbestos. Work with asbestos only in a sufficient wet state to prevent emission of airborne fibers. Practice good personal hygiene and housekeeping procedures. Use only with ventilation sufficient to reduce airborne concentrations to the lowest feasible level. Wear personal protective clothing and equipment and respiratory protection. Inhaling or ingesting asbestos fibers from contaminated clothing or skin can be hazardous. *Do not* allow dusts and asbestos-containing wastes to accumulate.

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Storage Requirements: Store in closed (dust-tight) containers or heavy-gauge impervious plastic bags in a clean, secure area protected from physical damage. *Do not* open containers that can release asbestos dust without providing proper enclosure or control measure.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Enclose all operations and provide local exhaust ventilation and dust collection systems at the site of release to prevent airborne dispersion.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103]

Administrative Controls: Educate workers about asbestos and asbestos-containing materials' hazards. Inform employees of asbestos standard (29 CFR 1910.1001). Exposure to asbestos, tremolite, anthophyllite, and actinolite in construction work is covered by 29 CFR 1926.58. Instruct employees in proper practices for handling asbestos-containing materials and correct use of protective equipment. Prevent or minimize asbestos exposure. Regulate areas where exposure in excess of the PEL is likely. Post warning signs in all regulated areas. Do not substitute personal protective equipment for proper handling and engineering controls. If exposures exceed the PEL, ensure employees wear appropriate protective clothing. Monitor work areas that expose employees to airborne concentrations at or above the action level (Sec. 2). Whenever production, process, control equipment, personnel, or work practices change, institute new monitoring. Medical surveillance is required for all employees possibly exposed at or above the action level. Provide preplacement medical examination that includes complete medical and work history, complete physical examination that emphasizes respiratory and cardiovascular systems and digestive tract, the respiratory disease standardized questionnaire, a posterior-anterior 14" x 17" chest roentgenogram, and pulmonary function tests [FVC and FEV(1)]. Annual periodic medical examinations shall include all these elements and an abbreviated questionnaire. Encourage smoking cessation due to synergistic effects of smoking and asbestos exposure. If it is 10+ years since first asbestos exposure, an individual should have a chest roentgenogram: every 5 years (ages 15 to 35), every 2 years (ages 35 to 45), every year (age 45+). Within 30 days of employment termination, an individual should receive a periodic medical examination with the elements listed above. Keep medical surveillance records for duration of employment, plus 30 years.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. At concentrations above the NIOSH REL or at any detectable concentration, wear any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode (assigned protection factor = 10,000); or any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA or other positive-pressure mode (assigned protection factor = 10,000). For escape wear an air-purifying, full-facepiece respirator with a high-efficiency particulate filter; or any appropriate escape-type, SCBA. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear coveralls or gauntlets made of cotton polyester material; head-coverings; and foot coverings such as canvas booties, rubber galoshes or safety shoes. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Place contaminated protective devices or work clothing in labeled, impermeable, and sealed containers or bags. Separate contaminated work clothes from street clothes. *Do not* remove asbestos from clothing by blowing or shaking. Launder contaminated clothing before wearing. Inform laundering service of asbestos-contaminated clothing and of asbestos' potential harmful effects (29 CFR 1910.1001). A vacuum with HEPA filter may be used to remove asbestos fibers.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance and Odor: White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids

Formula Weight: Varies with asbestos form (See Sec. 1)

Water Solubility: Insoluble

Melting Point: Decomposes

Section 10 - Stability and Reactivity

Stability: Asbestos is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization does not occur.

Chemical Incompatibilities: Strong acids can attack chrysotile and rapidly extract its MgO and H_2O content; glacial acetic acid can decompose it. Hot water slowly breaks down chrysotile. Like other asbestos forms, it resists strong alkali [(5M NaOH at least up to 212 °F (100 °C)].

Conditions to Avoid: Airborne dispersion of asbestos fibers.

Hazardous Decomposition Products: It is heat resistant, but decomposes and alters its microscopic fiber structure above 1112 °F (600 °C). Chrysotile dehydroxylates at 1112 to 1436 °F (600 to 780 °C); the "asbestos anhydride" in turn breaks down to a mixture of silica (SiO_2) and fosterite (Mg_2SiO_4) at 1472 to 1562 °F (800 to 850 °C). Above 1832 °F (1000 °C), magnesium pyroxenes form and melt at ~2642 °F (1450 °C).

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Section 11 - Toxicological Information

Toxicity Data:*

Acute Inhalation Effects:
Human, inhalation, TC_{Lo}: 1.2 fb/cc/19 yr/continuous; toxic effects: pleural effusion, dyspnea, and sputum.
Genetic Effects:
E. coli: 10 mg/plate (+/-S9) produced mutations.
Tumorigenicity:
Rat, implant: 750 mg/kg; toxic effects: equivocal tumorigenic agent by RTECS criteria; tumors at site of application.
Mouse, intraperitoneal: 80 mg/kg; toxic effects: equivocal tumorigenic agent by RTECS criteria; tumors at site of application.
* NIOSH, *RTECS* (CI6475000; CAS No.: 1332-21-4)

Section 12 - Ecological Information

Environmental Fate: As a mineral asbestos is not affected by photolytic processes. It is considered to be nonbiodegradable by aquatic organisms; no evidence was found regarding bioaccumulation in aquatic organisms.
Soil Adsorption/Mobility: Although some trace metals and organic compounds have an affinity for asbestos minerals, asbestos itself does not have an adsorptive affinity for the solids normally found in natural water systems.

Section 13 - Disposal Considerations

Disposal: Asbestos is a poor candidate for incineration. Place asbestos and asbestos-containing wastes into good quality plastic bags and bury in a landfill. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Asbestos
Shipping Symbols: D
Hazard Class: 9
ID No.: NA2212
Packing Group: III
Label: CLASS 9
Special Provisions (172.102): None listed

Packaging Authorizations
a) **Exceptions:** 173.155
b) **Non-bulk Packaging:** 173.216
c) **Bulk Packaging:** 173.240

Quantity Limitations
a) **Passenger, Aircraft, or Railcar:** 200 kg
b) **Cargo Aircraft Only:** 200 kg

Vessel Stowage Requirements
a) **Vessel Stowage:** A
b) **Other:** 34, 40

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste (40 CFR 261.33): Not listed
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) specific per CWA, Sec. 307(a) and CAA, Sec. 112.
CERCLA Final Reportable Quantity (RQ), 1 lb (0.454 kg); the RQ is limited to friable forms only
Listed as a SARA Toxic Chemical (40 CFR 372.65), as asbestos (friable); effective date 1/1/87.
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1)
Listed as an OSHA Specifically Regulated Substance (29 CFR 1910.1001)

Section 16 - Other Information

References: 73, 103, 124, 136, 139, 147, 167, 184, 190, 197, 198, 209, 223 W5-Mac

Prepared By ..... MJ Wurth, BS
Industrial Hygiene Review ..... DJ Wilson, CIH
Medical Review ..... G Kelafant, MD

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Material Safety Data Sheets Collection:

Sheet No. 296
Arsenic and Compounds

Issued: 4/90

Section 1. Material Identification 31

Arsenic Description: Obtained from flue dust of copper and lead smelters as white arsenic (arsenic trioxide). Reduction with charcoal and sublimation in an N_2 current yields pure arsenic. Metallic arsenic is used for hardening copper, lead, and alloys; as a doping agent in germanium and silicon solid-state products, special solders, and medicine; and to make gallium arsenide for dipoles and other electronic devices. Arsenic compounds are used in manufacturing certain types of glass; in textile printing, tanning, taxidermy, pharmaceuticals, insecticides and fungicides, pigment production, and antifouling paints; and to control sludge formation in lubricating oils. Arsenic trioxide is the source for 97% of all arsenic products.

Other Designations: CAS No. 7440-38-2; arsen; arsenic black; As; gray arsenic; metallic arsenic.

Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide*(73) for a suppliers list.

R 1
I 4
S 2
K 0

Genium

HMIS
H 3
F 2
R 2
PPG*
* Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Arsenic and soluble compounds, as As

OSHA PEL
8-hr TWA: 0.5 mg/m³,* 0.01 mg/m³†

NIOSH REL, 1987
Ceiling: 0.002 mg/m³

ACGIH TLV, 1989-90
TLV-TWA: 0.2 mg/m³

Toxicity Data‡
Man, oral, TD_{Lo}: 76 mg/kg administered intermittently over a 12-year period affects the liver (tumors) and blood (hemorrhage)
Man, oral: 7857 mg/kg administered over 55 years produces gastrointestinal (in the structure or function of the esophagus), blood (hemorrhage), and skin and appendage (dermatitis) changes
Rat, oral, TC_{Lo}: 605 µg/kg administered to a 35-week pregnant rat affects fertility (pre- and post-implantation mortality)

* Organic compounds.
† Inorganic compounds.
‡ See NIOSH, *RTECS* (CG0525000), for additional mutative, reproductive, tumorigenic, and toxicity data.

Section 3. Physical Data*

Boiling Point: sublimes at 1134 °F/612 °C
Melting Point: 1497 °F/814 °C
Vapor Pressure: 1 mm at 702 °F/372 °C (sublimes)
Atomic Weight: 74.92
Density: 5.724 at 57 °F/14 °C
Water Solubility: Insoluble†

Appearance and Odor: A brittle, crystalline, silvery to black metalloid. Odorless.

* This data pertains to arsenic only.
† Arsenic is soluble in nitric acid (HNO_3).

Section 4. Fire and Explosion Data

Flash Point: None reported	**Autoignition Temperature:** None reported	**LEL:** None reported	**UEL:** None reported

Extinguishing Media: Use dry chemical, CO_2, water spray, or foam to fight fires.
Unusual Fire or Explosion Hazards: Flammable and slightly explosive in the form of dust when exposed to heat or flame.
Special Fire-fighting Procedures: Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode. Be aware of runoff from fire control methods. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Arsenic is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Arsenic can react vigorously on contact with powerful oxidizers such as bromates, peroxides, chlorates, iodates, lithium, silver nitrate, potassium nitrate, potassium permanganate, and chromium (VI) oxide. This material is also incompatible with halogens, bromine azide, palladium, dirubidium acetylide, zinc, and platinum.
Hazardous Products of Decomposition: Thermal oxidative decomposition of arsenic and its compounds produces irritating or poisonous gases.

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Section 6. Health Hazard Data

Carcinogenicity: The IARC, NTP, and OSHA list arsenic as a human carcinogen (Group 1). This evaluation applies to arsenic and arsenic compounds as a whole, and not necessarily to all individual chemicals within the group. Studies report that both the trivalent and pentavalent compounds are strongly implicated as causes of skin, lung, and lymphatic cancers. Experimental studies have shown that arsenic has tumorigenic and teratogenic effects in laboratory animals.
Summary of Risks: Arsenic compounds are irritants of the skin, mucous membranes, and eyes. The moist mucous membranes are most sensitive to irritation. Prolonged contact results in local hyperemia (blood congestion) and later vesicular or pustular eruption. Epidermal carcinoma is a reported risk of exposure. Peripheral neuropathy (degenerative state of the nervous system) is common after acute or chronic arsenic poisoning. Symptoms include decreased sensation to touch, pinprick, and temperature; loss of vibration sense; and profound muscle weakness and wasting. Other complications of acute and chronic arsenic poisoning are encephalopathy (alterations of brain structure) and toxic delirium.
Medical Conditions Aggravated by Long-Term Exposure: Damage to the liver, nervous, and hematopoietic (responsible for the formation of blood or blood cells in the body) system may be permanent. Pulmonary and lymphatic cancer may also occur.
Target Organs: Liver, kidneys, skin, lungs, lymphatic system.
Primary Entry Routes: Inhalation, ingestion of dust and fumes, via skin absorption.
Acute Effects: Acute industrial intoxication is more likely to arise from inhalation of arsine. However, with corrosive arsenical vapors, conjunctivitis, eyelid edema, and even corneal erosion may result. Inhalation may result in nasal irritation with perforation of the septum, cough, chest pain, hoarseness, pharyngitis, and inflammation of the mouth. If ingested, metallic or garlic taste, intense thirst, nausea, vomiting, abdominal pain, diarrhea, and cardiovascular arrhythmias (heartbeat irregularities) may occur. Symptoms generally occur within 30 minutes, but may be delayed for several hours if ingested with food. Acute poisoning may result in acute hemolysis (breakdown of red blood cells).
Chronic Effects: Chronic symptoms include weight loss, hair loss, nausea, and diarrhea alternating with constipation, palmar and plantar hyperkeratoses (thickening of the corneous layer of skin on palms and soles of feet), and skin eruptions, and peripheral neuritis (inflammation of the nerves). Leukemia, bone marrow depression, or aplastic anemia (dysfunctioning of blood-forming organs) may occur after chronic exposure.
FIRST AID
Eyes: Flush immediately, including under the eyelids, gently but thoroughly with flooding amounts of running water for at least 15 min.
Skin: *Quickly* remove contaminated clothing. After rinsing affected skin with flooding amounts of water, wash it with soap and water.
Inhalation: Remove exposed person to fresh air and support breathing as needed.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, have a *conscious* person drink 1 to 2 glasses of water, then induce repeated vomiting until vomit is clear.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Physician's Note: If emesis is unsuccessful after two doses of Ipecac, consider gastric lavage. Monitor urine arsenic level. Alkalinization of urine may help prevent disposition of red cell breakdown products in renal tubular cells. If acute exposure is significant, maintain high urine output and monitor volume status, preferably with central venous pressure line. Abdominal X-rays should be done routinely for all ingestions. Chelation therapy with BAL, followed by n-penicillamine is recommended, but specific dosing guidelines are not clearly established.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel of spill, evacuate all unnecessary personnel, remove all heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against dust inhalation and contact with skin and eyes. Use nonsparking tools. With a clean shovel, scoop material into a clean, dry container and cover. Absorb liquid material with sand or noncombustible inert material and place in disposal containers. Do not release to sewers, drains, or waterways. Follow applicable OSHA regulations (29 CFR 1910.120).
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations*
RCRA Hazardous Waste (40 CFR 261.33): Not listed
Listed as a CERCLA Hazardous Substance† (40 CFR 302.4), Reportable Quantity (RQ): 1 lb (0.454 kg) [† per Clean Water Act, Sec. 307(a); per Clean Air Act, Sec. 112]
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as a SARA Toxic Chemical (40 CFR 372.65)

OSHA Designations‡
Air Contaminant (29 CFR 1910.1000, Subpart Z): Not listed

* Designations for arsenic only.
‡ Listed as arsenic organic compounds (as As).

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).
Respirator: Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.
Warning: Air-purifying respirators do *not* protect workers in oxygen-deficient atmospheres.
Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent skin contact.
Ventilation: Provide general and local explosion-proof ventilation systems to maintain airborne concentrations below the OSHA PELs, ACGIH TLVs, and NIOSH REL (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[103]
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Never wear contact lenses in the work area: soft lenses may absorb, and all lenses concentrate, irritants. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in closed, properly labeled, containers in a cool, well-ventilated area away from all incompatible materials (Sec. 5) and heat and ignition sources. Protect containers from physical damage.

Engineering Controls: Avoid inhalation or ingestion of dust and fumes, and skin or eye contact. Practice good personal hygiene and housekeeping procedures. Use only with adequate ventilation and appropriate personal protective gear. Institute a respiratory protection program with training, maintenance, inspection, and evaluation. All engineering systems should be of maximum explosion-proof design and electrically grounded and bonded. Provide preplacement and annual physical examination with emphasis on the skin, respiratory system, and blood.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Arsenic, solid
DOT Hazard Class: Poison B
ID No.: UN1558
DOT Label: Poison
DOT Packaging Requirements: 173.366
DOT Packaging Exceptions: 173.364

IMO Shipping Name: Arsenic, metallic
IMO Hazard Class: 6.1
IMO Label: Poison
IMDG Packaging Group: II
ID No.: UN1558

MSDS Collection **References:** 7, 26, 38, 53, 73, 85, 87, 88, 89, 100, 103, 109, 123, 124, 126, 127, 130, 136, 138
Prepared by: MJ Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Hardies, MD M4

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Material Safety Data Sheets Collection:

Sheet No. 5
Chromic Acid and Chromates

Issued: 10/77 Revision: C, 7/91 Errata: 12/94

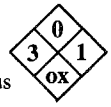
Section 1. Material Identification

45

Chromic Acid (CrO_3) Description: Produced by roasting chromite ore with alkali or lime, leaching with calcium oxide, crystallizing the chromate or dichromate, and then treating it with an excess of sulfuric acid. Used in ceramic glazes, colored glass, dyes, batteries, explosives, water treatment, wood treatment and preservatives, refractories, copper stripping, aluminum anodizing, photomechanical processing, chromium metal plating, purifying oil and acetylene, hardening microscopic preparations, and manufacturing chromated copper arsenate; and as a corrosion inhibitor, a catalyst, an oxidizing agent in organic chemistry, and an etchant for plastics.

R 1
I 4
S 3*
K 0
* Percutaneous (broken skin)

NFPA



HMIS
H 3
F 0
R 1
PPG†
† Sec. 8

Other Designations: CAS No. 1333-82-0; chromic acid; chromic acid, solid (DOT); chromium anhydride; chromium (VI) oxide; chromium trioxide; chromium (6+) trioxide; monochromium trioxide; puratronic chromium trioxide. Chromic acid is the commonly used name, although true chromic acid (CrH_2O_4, CAS No. 7738-94-5) cannot be isolated from solution. Chromic acid and chromates (as CrO_3, CAS No. 7440-47-3).

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

Caution: A powerful oxidizer, chromic acid may explode on contact with reducing agents and cause ignition on contact with organic materials. This poison and human carcinogen is corrosive to skin and irritating to mucous membranes. Eye contact may cause permanent blindness.

Section 2. Ingredients and Occupational Exposure Limits

Chromic acid, 99% CrO_3

1990 OSHA PEL
Ceiling: 0.1 mg(CrO_3)/m³

1987 IDLH Level
30 mg/m³

1990-91 ACGIH TLVs
TWA: 0.05 mg(Cr)/m³
Ceiling: 0.1 mg/m³

1990 NIOSH REL
TWA: 0.025 mg(Cr(VI))/m³
Ceiling: 0.05 mg/m³/15 min (Cr(VI))

1985-86 Toxicity Data*
Rat, oral, LD_{50}: 80 mg/kg
Mouse, oral, LD_{50}: 127 mg/kg
Human, inhalation, TC_{Lo}: exposed continuously to 110 µg over 3 years. Toxic effects include tumorigenic (carcinogenic by *RTECS* criteria); sense organs and special senses (olfaction tumors); lungs, thorax, or respiration (tumors).
Dog, subcutaneous, LD_{Lo}: 330 mg/kg

* See NIOSH, *RTECS* (GB6650000), for additional mutative, reproductive, toxicity and tumorigenic data.

Section 3. Physical Data*

Boiling Point: Decomposes at 482 °F (250 °C) to $Cr_2O_3 + O_2$
Melting Point: 385 °F (196 °C)
Molecular Weight: 99.98

Specific Gravity: 2.7
Water Solubility: Soluble
Heat of Fusion: 37.7 cal/g

Appearance and Odor: Dark, purplish-red, prismatic, deliquescent (absorbs all moisture from air) crystals, or a granular powder with no detectable odor.

* These physical data apply only to chromic acid (CAS No. 1333-82-0).

Section 4. Fire and Explosion Data

Flash Point: None reported	**Autoignition Temperature:** None reported	**LEL:** None reported	**UEL:** None reported

Extinguishing Media: Chromic acid is noncombustible, but accelerates burning of combustibles (wood, paper, oil). For small fires, *use only water,* not dry chemical, carbon dioxide (CO_2), or halon.

Unusual Fire or Explosion Hazards: A powerful oxidizer, chromic acid ignites on contact with acetic acid and alcohol. It may react rapidly enough with organic materials to cause ignition. Containers may explode if involved in fire.

Special Fire-fighting Procedures: Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Cool fire-exposed containers with flooding amounts of water since the decomposing material may form a hot, viscous foam that can cause containers to rupture and explode. *Use caution!* For large fires, flood area from a safe distance, and cool containers from the side with a water spray until after fire is well out. If possible without risk, move containers. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holder. Be aware of runoff from fire control methods. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Chromic acid is generally stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: This material is incompatible with acetic acid, acetic anhydride, acetone, alcohols, alkali metals, ammonia, arsenic, anthracene, benzene, bromine penta fluorine, butyric acid, camphor, chromous sulfide, diethyl ether, glycerol, hydrogen sulfide, methyl alcohol, naphthalene, peroxyformic acid, phosphorus, potassium hexacyanoferrate, pyridine, selenium, sodium, and turpentine. Chromic acid ignites ethyl alcohol and many hydrocarbons.

Conditions to Avoid: Avoid excess heat and contact with combustible or organic materials.

Hazardous Products of Decomposition: Thermal oxidative decomposition of chromic acid can produce carbon dioxide, smoke, and irritating toxic fumes.

Section 6. Health Hazard Data

Carcinogenicity: The IARC and NTP list chromic acid and other forms of hexavalent (VI) chromium as human carcinogens.

Summary of Risks: Chromic acid is a poison and a powerful irritant to skin, eyes, and respiratory tract. Skin or lung sensitization (allergic reactions) may occur. Exposure can cause dermatitis (skin rash), asthma, pulmonary edema (fluid in lungs), kidney damage, a "chrome hole," or a perforation of the nasal septum (tissue between nostrils).

Medical Conditions Aggravated by Long-Term Exposure: Any chronic lung or skin condition.

Target Organs: Skin, respiratory tract (including nose, throat, airways, and lungs), and kidney.

Primary Entry Routes: Eyes, skin contact, inhalation, and ingestion.

Acute Effects: Inhalation may cause irritation or burning of nose, throat, and air passages, cough, wheezing, and shortness of breath. Higher exposures may cause pulmonary edema (fluid in lungs). Skin exposure may cause dermatitis (skin rash), irritation, burning, itching, redness, and ulceration (skin destruction) which may penetrate. Eye contact can cause irritation, burning, lacrimation (watering), loss of sight and permanent blindness if not removed quickly.

Chronic Effects: Chronic inhalation of excessive levels may cause epistaxis (nosebleed), "chrome holes," nasal congestion, tooth enamel erosion, chest pain, asthma (via allergic sensitization), bronchitis, or respiratory tract cancer. Chronic eye exposure may cause conjunctivitis. Skin contact

Continue on next page

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Section 6. Health Hazard Data, *continued*

can cause irritant or allergic contact dermatitis, or skin ulceration. Chronic systemic absorption could cause liver or kidney damage.

FIRST AID

Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Do not let victim rub eyes or keep them tightly shut. Consult a physician immediately.

Skin: Rinse with flooding amounts of water for at least 15 min, and wash with a gentle soap. Promptly remove contaminated clothing. For redness, blistering, or persistent irritation, consult a physician.

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, have that *conscious* person drink 1 to 2 glasses of water. *Do not induce vomiting* since this worsens the victim's condition. *Do not* neutralize this acid.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: After decontamination and neutralization, treatment of acid burns is similar to that of thermal burns, although bullae and loose necrotic tissue should be debrided. Update tetanus status. *For severe acid burns,* fluid resuscitation is critical to prevent mortality from hypovolemia and renal failure. Monitor serial vital signs, urine output, electrolytes, blood count, and urinalysis as clinically indicated. Neurovascular compromise distal to a circumferential extremity burn may require escharotomy or fasciotomy. *For inhalation exposures to acids,* a CXR, EKG, ABGs, PFTs, SMA, and CBC may aid in treatment. Evaluate and treat as indicated for reactive airways, upper airway obstruction and noncardiogenic pulmonary edema (possibly delayed onset). Although literature documentation is inadequate, a burst of steroids may help prevent development of sequelae such as reactive airways dysfunction syndrome or bronchilitis obliterans. For ocular exposures to acids, ensure adequate decontamination. Determination of pH may be helpful. A Morgan Lens© and topical anesthesia may aid in irrigation. Perform fluorescein staining and slit lamp evaluation and consult an opthamalogist. Antibiotic ointments, mydriatic/cycloplegics, topical corticosteroids (after epithelial recovery), patching, and possibly anterior chamber paracentesis may be indicated depending on clinical presentation. Acutely and in follow-up, evaluate as indicated for intraocular pressure, lacrimal and lid function, corneal integrity and infection. Urinary chromium is of questionable value.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel and evacuate all unnecessary personnel. Cleanup personnel should protect against dust inhalation and eye contact. Do not handle broken packages unless wearing appropriate personal protective equipment. Keep combustibles (wood, paper, etc.) away from spilled material. Whenever possible, use wet cleanup methods; if not, use vacuum cleanup. Remove spills immediately to prevent dust dispersion. For a water spill, neutralize with agricultural lime, crushed limestone, or sodium bicarbonate. For a land spill, dig a pit, pond, or lagoon to contain material. If time permits, seal these with an impermeable, flexible membrane liner. Dike surface flow with soil, sand or foamed concrete. Follow applicable OSHA regulations (29 CFR 1910.120).

Environmental Transport: If allowed contact with soil, chromic acid, solid, lowers pH and may leach into water sources, causing an effect similar to acid rain's on water sources. This material's carcinogenicity makes it hazardous to the environment in its hexavalent state.

Environmental Degradation: The recommended disposal means are reduction, precipitation, or ion exchange. Landfill disposal is not recommended since it raises soil acidity.

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.22): Corrosive waste
RCRA Hazardous Waste (40 CFR 261.33): Not listed
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity (RQ): 10 lb (4.54 kg) [*per Clean Water Act, Sec. 311(b)(4)]†
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
SARA Toxic Chemical (40 CFR 372.65): Not listed

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Tables Z-1-A and Z-2)

† Chromic acid (CAS No. 7738-94-5) is listed.

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).

Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For 0.5 mg/m^3 concentrations (if not fumes), use any dust and mist respirator except single-use and quarter-mask respirators. For 1.25 mg/m^3 concentrations, use any powered air-purifying respirator with a high-efficiency particulate filter. For 2.5 mg/m^3 concentrations, use any air-purifying full facepiece respirator with a high-efficiency particulate filter. For 30 mg/m^3 concentrations, use any supplied air respirator with a full facepiece and operated in a pressure-demand or other positive-pressure mode. All concentrations may require eye protection. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*

Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent skin contact.

Ventilation: Provide general and local ventilation systems to maintain airborne concentrations below occupational exposure levels. Local exhaust ventilation is preferred since it prevents contaminant dispersion into work area by controlling it at its source.[103]

Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.

Contaminated Equipment: Contact lenses may minimize or worsen eye injuries. In some cases, soft lenses can actually protect eyes, not worsen corneal damage, due to strong chemicals. In other cases, chemical entrapment is presumed a possible hazard. Since contact lens use in industry is controversial, establish your own policy. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in glass bottles, cans, or drums. Protect against physical damage. Separate from combustible, organic, or other easily oxidizable materials. Protect from excess moisture which could cause containers to rust. Do not store on wooden floors. Store away from foodstuffs and flammable liquids and solids.

Engineering Controls: Avoid dust inhalation and skin or eye contact. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Practice good housekeeping procedures.

Other Precautions: Institute preplacement and periodic medical exams of exposed workers with attention to the skin and respiratory tract. Consider preplacement and periodic chest radiographs.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Chromic acid, solid
DOT Hazard Class: Oxidizer
ID No.: NA1463
DOT Label: Oxidizer
DOT Packaging Exceptions: 173.153
DOT Packaging Requirements: 173.164

IMO Shipping Name: Chromium trioxide, anhydrous
IMO Hazard Class: 5.1
ID No.: UN1463
IMO Label: Oxidizer, Corrosive
IMDG Packaging Group: II

MSDS Collection **References:** 26, 38, 73, 85, 100, 101, 103, 124, 126, 127, 132, 133, 136, 138, 139, 140, 143, 142, 145, 148, 159

Prepared by: M Gannon, BA; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Upfal, MD, MPH; **Edited by:** JR Stuart, MS

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Material Safety Data Sheets Collection:

Sheet No. 686
Hydrogen Cyanide

Issued: 8/89

Section 1. Material Identification

Hydrogen Cyanide Description: Large-scale preparation by the catalytic oxidation of ammonia-methane mixtures. Used in the fumigation of ships, railroad cars, orchards, buildings, tabacco, and various foods. Can be produced in petroleum refining, electroplating, metallurgy, and photographic development.
Other Designations: Hydrocyanic acid; prussic acid; anhydrous hydrogen cyanide; HCN; CAS No. 0074-90-8.
Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide* (Genium ref. 73) for a suppliers list.

R 1
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PPG*
* Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Hydrogen cyanide, ca 100%

OSHA PEL (Skin*)
Ceiling: 10 ppm, 10 mg/m³

ACGIH TLV (Skin*), 1988-89
TLV Ceiling: 10 ppm, 10 mg/m³

NIOSH REL, 1976
10-min ceiling: 4.7 ppm CN, 5 mg CN/m³

Toxicity Data†
Human, oral, LD_{Lo}: 570 µg/kg
Human, inhalation, LC_{Lo}: 200 mg/m³/10 min
Rat, inhalation, LC_{50}: 484 ppm/5 min

* This material can be absorbed through intact skin, which contributes to overall exposure.
† See NIOSH, *RTECS* (MW6825000), for additional data with references.

Section 3. Physical Data

Boiling Point: 79 °F (29 °C)
Melting Point: 7.88 °F (-13.4 °C)
Vapor Pressure: 620 torr at 68 °F (20 °C)
Vapor Density (Air = 1): 0.941

Molecular Weight: 27 g/mol
Specific Gravity (H_2O = 1): 0.7
Water Solubility: Miscible
% Volatile by Volume: 100

Appearance and Odor: A colorless gas or blue-white liquid; a characteristic faint odor resembling bitter almonds for those individuals able to perceive its presence by smell.

Section 4. Fire and Explosion Data

Flash Point: 0 °F (-17.78 °C) CC	**Autoignition Temperature:** 1000 °F (538 °C)	**LEL:** 5.6% v/v	**UEL:** 40% v/v

Extinguishing Media: Hydrogen cyanide is an extremely toxic, flammable material. In advanced or massive fires, firefighting should be done from a safe, protected location. Use carbon dioxide (CO_2), dry chemical, or foams to put out hydrogen cyanide fires. Use water sprays to cool fire-exposed containers, protect the personnel attempting to seal the source of the leaking gas, flush spills away from sensitive exposures (heat, sources of ignition, or incompatible chemicals), disperse the vapors, and dilute spills to nonflammable mixtures.
Unusual Fire or Explosion Hazards: This gas is extremely poisonous and flammable. Consider evacuation of the incident area in large fires.
Special Fire-fighting Procedures: Wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode. Fire fighters must wear a complete set of personal protective equipment to prevent virtually any contact with this deadly poison. They must not have exposed skin surfaces since their skin can absorb fatal amounts of hydrogen cyanide.

Section 5. Reactivity Data

Stability/Polymerization: Hydrogen cyanide is stable at room temperature in during routine operations.. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Hydrogen cyanide can react dangerously with acetaldehyde.
Conditions to Avoid: *Specially trained personnel must handle hydrogen cyanide. Never permit inexperienced workers to handle it.* Never expose this material to any heat or ignition sources such as lighted cigarettes or pipes, open flames, or uninsulated heating elements.
Hazardous Products of Decomposition: Thermal oxidative degradation of hydrogen cyanide can produce carbon dioxide, toxic oxides of nitrogen (N_xO_y) and carbon monoxide (CO). Hydrogen cyanide is a very toxic material even when not decomposed during fires.

Section 6. Health Hazard Data

Carcinogenicity: Neither the NTP, IARC, nor OSHA lists hydrogen cyanide as a carcinogen.
Summary of Risks: Inhalation of high concentrations of hydrogen cyanide causes tachypnea (rapid breathing) resulting in increased cyanide intake; then dyspnea, paralysis, convulsions, and respiratory arrest. Death may occur within minutes. Lesser concentrations can cause headache, vertigo, nausea, and vomiting. Concentrations of 270 ppm are immediately fatal; 181 ppm in 10 min are fatal; 135 ppm in 30 min are fatal; 110 to 135 ppm in 1 hr are potentially fatal; 45 to 54 ppm are tolerable for 30 to 60 min without immediate or late effects; and 18 to 36 ppm cause slight symptoms after several hours of exposure. **Medical Conditions Aggravated by Long-Term Exposure:** None reported. **Target Organs:** All body cells. **Primary Entry:** Inhalation, skin contact/absorption. **Acute Effects:** Burning sensation in mouth and throat. Initially rapid pulse and high blood pressure followed by decreasing blood pressure and pulse. Cherry-red mucous membranes may be noted. Headache, weakness, mental

Continue on next page

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Section 6. Health Hazard Data (continued)

confusion, nausea, vomiting, shock, convulsions, coma, and possible death. **Chronic Effects:** Enlargement of the thyroid gland, fatique, weakness, headache, changes in taste and smell, irritation of throat, effort dyspnea, nervous instability, lachrymation, abdominal colic, and precordial pain were reported in workers exposed at concentrations between 4 and 12 ppm for approximately 7 years.

FIRST AID

Eyes: Flush immediately, including under the eyelids, gently but thoroughly with flooding amounts of running water for at least 15 min. **Skin:** Immediately remove all contaminated clothing. After rinsing affected area with flooding amounts of water, wash it with soap and water. Avoid contact with this chemical. **Inhalation:** Remove the exposed person to fresh air and support breathing as needed. Have qualified medical personnel administer oxygen as required. **Ingestion:** Never induce vomiting or perform mouth-to-mouth respiration! Provide 100% oxygen as soon as possible. Institute gastric lavage after endotracheal intubation. **After first aid, get appropriate in-plant, paramedic, or community medical attention and support.** Seek prompt medical assistance for further observation and treatment.

Physician's Note: *Treat all exposures as life-threatening emergencies.* An antidote to hydrogen cyanide is sodium nitrite and sodium thiosulfate. Commercially available cyanide poisoning first-aid kits should be purchased. Competent medical personnel should carefully train appropriately selected workers on how to use these kits in emergencies. Several detailed medical treatments are available for cyanide poisoning. After reviewing the specific uses of hydrogen cyanide in their operation, the safety personnel and/or the industrial hygienists should develop a precise emergency first-aid treatment protocol before an incident occurs. Heart monitorings should be instituted.

Section 7. Spill, Leak, and Disposal Procedures

Spill Leak: *Design and practice a hydrogen cyanide spill control and countermeasure plan (SCCP). Immediately evacuate the incident area and alert the appropriate local officials to the specifics of the hydrogen cyanide release.* When a spill occurs, notify safety personnel, eliminate heat or ignition sources, provide optimum explosion-proof ventilation, and implement the SCCP. Cleanup personnel must wear a complete ensemble of personal protective equipment (Sec. 8), including self-contained breathing apparatus and total body-covering clothes, to prevent skin contact or inhalation. Use nonsparking tools and equipment. Use water sprays to protect personnel attempting to locate and seal the source of the escaping hydrogen cyanide gas. **Waste Management/ Disposal:** Contact your supplier or a licensed contrator for detailed recommendations. Follow applicable Federal, state, and local regulations.

OSHA Designations

Listed as Air Contaminant (29 CFR 1910.1000, Subpart Z)

EPA Designations

Listed as RCRA Hazardous Waste No. P063 (40 CFR 261.33)

Listed aa a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity (RQ): 10 lb (4.54 kg) [* per CWA, Sec. 311(b)(4) and RCRA, Sec. 3001]

SARA Extremely Hazardous Substance (40 CFR 355), Threshold Planning Quantity (TPQ): 100 lb

SARA Toxic Chemical* (40 CFR 372.65) [* EPA Form R may apply to your facility; see 40 CFR 372.85 for instructions]

Section 8. Special Protection Data

Goggles: Always wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). **Respirator:** Wear a NIOSH-approved respirator if necessary. Follow OSHA respirator regulations (29 CFR 1910.134). For emergency or nonroutine operations (leaks or cleaning reactor vessels and storage tanks), wear an SCBA. **Warning:** Air-purifying respirators do *not* protect workers in oxygen-deficient atmospheres. **Other:** Wear impervious gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. **Ventilation:** Provide general and local explosion-proof ventilation systems to maintain airborne concentrations below the OSHA PEL standard (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by eliminating it at its source (Genium ref. 103). **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Never wear contact lenses in the work area: soft lenses may absorb, and all lenses concentrate, irritants. Launder contaminated clothing before wearing. Remove this material from your shoes and equipment. **Other:** Use hydrogen cyanide in closed-confinement, pressurized engineering systems. Automatic shutoff valves/sensors to the main feed lines are recommended in the event of a catastrophic pressure drop from the rupture of a pressurized HCN pipeline. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store hydrogen cyanide in tightly closed, airtight, moisture-proof containers in a cool, dry, well-ventilated, fireproof area away from heat or ignition sources and incompatible chemicals (Sec. 5.) Protect these containers from physical damage; shield them from direct sunlight. Limit access to the storage area to authorized personnel only. **Special Handling/Storage:** Proper stock rotation of hydrogen cyanide is vital for safety. Individual HCN cylinders should not be sored longer than 90 days. Check with your supplier for detailed recommendations concerning proper shelf rotation of stock, and proper dispensing equipment such as valves, flanges, and manifolds. **Engineering Controls:** To prevent static sparks, electrically ground and bond all containers, cylinders, and pipelines used in shipping, receiving, or transferring operations in production and storage areas. **Other Precautions:** Consider installing automatic sensing equipment which alerts workers to airborne concentrations of hydrogen cyanide greater than the 10 ppm ceiling (Sec. 2).

Transportation Data (49 CFR 172.101-2)

DOT Shipping Name: Hydrocyanic acid solution
DOT Hazard Class: Poison A *or* Poison B
DOT ID No. : UN1613 *or* NA1051
DOT Label: Poison gas and flammable gas

IMO Shipping Name: Hydrogen cyanide
IMO Hazard Class: 6.1
IMO Label: Poison and flammable liquid
IMDG Packaging Group: I

Proper shipping names, hazard classes, labels, and identification numbers vary with the hydrogen cyanide's concentration or strength.

MSDS Collection **References:** 1, 6, 7, 84-94, 100, 116, 117, 119, 120, 122

Prepared by: PJ Igoe, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** W Silverman, MD

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Material Safety Data Sheets Collection:

Sheet No. 52
Hydrogen Sulfide

Issued: 7/79 Revision: B, 9/92

Section 1. Material Identification 39

Hydrogen Sulfide (H_2S) Description: Formed as a byproduct of many industrial processes (breweries, tanneries, slaughter houses), around oil wells, where petroleum products are used, in decaying organic matter, and naturally occurring in coal, natural gas, oil, volcanic gases, and sulfur springs. Derived commercially by reacting iron sulfide with dilute sulfuric or hydrochloric acid, or by reacting hydrogen with vaporized sulfur. Used in the production of various inorganic sulfides and sulfuric acid, in agriculture as a disinfectant, in the manufacture of heavy water, in precipitating sulfides of metals; as a source of hydrogen and sulfur, and as an analytical reagent.

R 2
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K 3

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* Sec. 8

Other Designations: CAS No. 7783-06-4, dihydrogen monosulfide, hydrosulfuric acid, sewer gas, stink damp, sulfuretted hydrogen, sulfur hydride.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

Cautions: Hydrogen sulfide is a highly flammable gas and reacts vigorously with oxidizing materials. It is highly toxic and can be instantly fatal if inhaled at concentrations of 1000 ppm or greater. Be aware that the sense of smell becomes rapidly fatigued at 50 to 150 ppm, and that its strong rotten-egg odor is not noticeable even at very high concentrations.

Section 2. Ingredients and Occupational Exposure Limits

Hydrogen sulfide: 98.5% *technical*, 99.5% *purified*, and CP *(chemically pure grade)*

1991 OSHA PELs
8-hr TWA: 10 ppm (14 mg/m³)
15-min STEL: 15 ppm (21 mg/m³)

1990 IDLH Level
300 ppm

1990 NIOSH REL
10-min Ceiling: 10 ppm (15 mg/m³)

1992-93 ACGIH TLVs
TWA: 10 ppm (14 mg/m³)
STEL: 15 ppm (21 mg/m³)

1990 DFG (Germany) MAK
TWA: 10 ppm (15 mg/m³)
Category V: Substances having intense odor
Peak exposure limit 20 ppm, 10 min momentary value, 4/shift

1985-86 Toxicity Data*
Human, inhalation, LC_{Lo}: 600 ppm/30 min; toxic effects not yet reviewed
Man, inhalation, LD_{Lo}: 5700 µg/kg caused coma and pulmonary edema or congestion.
Rat, intravenous, LD_{50}: 270 µg/kg; no toxic effect noted

* See NIOSH, *RTECS* (MX1225000), for additional toxicity data.

Section 3. Physical Data

Boiling Point: -76 °F (-60 °C)
Freezing Point: -122 °F (-86 °C)
Vapor Pressure: 18.5 atm at 68 °F (20 °C)
Vapor Density (Air = 1): 1.175
pH: 4.5 (freshly prepared saturated aqueous solution)
Viscosity: 0.01166 cP at 32 °F/0 °C and 1 atm
Liquid Surface Tension (est): 30 dyne/cm at -77.8 °F/-61 °C

Molecular Weight: 34.1
Density: 1.54 g/L at 32 °F (0 °C)
Water Solubility: Soluble*; 1g/187 mL (50 °F/10 °C), 1g/242 mL (68 °F/20 °C), 1g/ 314 mL (86 °F/30 °C)
Other Solubilities: Soluble in ethyl alcohol, gasoline, kerosine, crude oil, and ethylene glycol.
Odor threshold: 0.06 to 1.0 ppm†

Appearance and Odor: Colorless gas with a rotten-egg smell.

* H_2S solutions are not stable. Absorbed oxygen causes turbidity and precipitation of sulfur. In a 50:50 mixture of water and glycerol, H_2S is stable.
† Sense of smell becomes rapidly fatigued and can not be relied upon to warn of continuous H_2S presence.

Section 4. Fire and Explosion Data

Flash Point: None reported	Autoignition Temperature: 500 °F (260 °C)	LEL: 4.3% v/v	UEL: 46% v/v

Extinguishing Media: Let small fires burn unless leak can be stopped immediately. For large fires, use water spray, fog, or regular foam. **Unusual Fire or Explosion Hazards:** H_2S burns with a blue flame giving off sulfur dioxide. Its burning rate is 2.3 mm/min. Gas may travel to a source of ignition and flash back. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing is not effective for fires involving H_2S. If possible without risk, stop leak. Use unmanned device to cool containers until well after fire is out. Withdraw immediately if you hear a rising sound from venting safety device or notice any tank discoloration due to fire. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: H_2S is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. **Chemical Incompatibilities:** Hydrogen sulfide attacks metals forming sulfides and is incompatible with 1,1-bis(2-azidoethoxy) ethane + ethanol, 4-bromobenzenediazonium chloride, powdered copper + oxygen, metal oxides, finely divided tungsten or copper, nitrogen trichloride, silver fulminate, rust, soda-lime, and all other oxidants. **Conditions to Avoid:** Exposure to heat and contact with incompatibles. **Hazardous Products of Decomposition:** Thermal oxidative decomposition of hydrogen sulfide can produce toxic sulfur dioxide .

Section 6. Health Hazard Data

Carcinogenicity: The IARC,(164) NTP,(169) and OSHA(164) do not list hydrogen sulfide as a carcinogen. **Summary of Risks:** H_2S combines with the alkali present in moist surface tissues to form caustic sodium sulfide, causing irritation of the eyes, nose, and throat at low levels (50 to 100 ppm). Immediate death due to respiratory paralysis occurs at levels greater than 1000 ppm. Heavy exposure has resulted in neurological problems, however recovery is usually complete. H_2S exerts most of it's toxicity on the respiratory system. It inhibits the respiratory enzyme cytochrome oxidase, by binding iron and blocking the necessary oxydo-reduction process. Electrocardiograph changes after over-exposure have suggested direct damage to the cardiac muscle, however some authorities debate this. **Medical Conditions Aggravated by Long-Term Exposure:** Eye and nervous system disorders. **Target Organs:** Eyes, respiratory system and central nervous system. **Primary Entry Routes:** Inhalation, eye and skin contact. **Acute Effects:** Inhalation of low levels can cause headache, dizziness, nausea, cramps, vomiting, diarrhea, sneezing, staggering, excitability, pale

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Section 6. Health Hazard Data, *continued*

complexion, dry cough, muscular weakness, and drowsiness. Prolonged exposure to 50 ppm, can cause rhinitis, bronchitis, pharyngitis, and pneumonia. High level exposure leads to pulmonary edema (after prolonged exposure to 250 ppm), asphyxia, tremors, weakness and numbing of extremeties, convulsions, unconsciousness, and death due to respiratory paralysis. Concentrations near 100 ppm may be odorless due to olfactory fatigue, thus the victim may have no warning. Lactic acidosis may be noted in survivors. The gas does not affect the skin although the liquid (compressed gas) can cause frostbite. The eyes are very susceptible to H_2S keratoconjunctivitis known as 'gas eye' by sewer and sugar workers. This injury is characterized by palpebral edema, bulbar conjunctivitis, mucous-puss secretions, and possible reduction in visible capacity. **Chronic Effects:** Chronic effects are not well established. Some authorities have reported repeated exposure to cause fatigue, headache, inflammation of the conjunctiva and eyelids, digestive disturbances, weight loss, dizziness, a grayish-green gum line, and irritability. Others say these symptoms result from recurring acute exposures. There is a report of encephalopathy in a 20 month old child after low-level chronic exposure. **FIRST AID Eyes:** *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water. Treat with boric acid or isotonic physiological solutions. Serious exposures may require adrenaline drops. Olive oil drops (3 to 4) provides immediate treatment until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing and rinse with flooding amounts of water. For frostbite, rewarm in 107.6°F (42 °C) water until skin temperature is normal. *Do not* use dry heat. **Inhalation:** Remove exposed person to fresh air and administer 100% oxygen. Give hyperbaric oxygen if possible. **Ingestion:** Unlikely since H_2S is a gas above -60 °C. **Note to Physicians:** The efficacy of nitrite therapy is unproven. Normal blood contains < 0.05 mg/L H_2S; reliable tests need to be taken within 2 hr of exposure.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Immediately notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Shut off all ignition sources. Use water spray to cool, dilute, and disperse vapors. Neutralize runoff with crushed limestone, agricultural (slaked) lime, or sodium bicarbonate. If leak can't be stopped in place, remove cylinder to safe, outside area and repair or let empty. Follow applicable OSHA regulations (29 CFR 1910.120). **Ecotoxicity Values:** Bluegill sunfish, TLm = 0.0448 mg/L/96 hr at 71.6 °F/22 °C; fathead minnow, TLm = 0.0071 to 0.55 mg/L/96 hr at 6 to 24 °C. **Environmental Degradation:** In air, hydrogen sulfides residency (1 to 40 days) is affected by temperature, humidity, sunshine, and the presence of other pollutants. It does not undergo photolysis but is oxidated by oxygen containing radicals to sulfur dioxide and sulfates. In water, H_2S converts to elemental sulfur. In soil, due to its low boiling point, much of H_2S evaporates quickly if spilled. Although, if soil is moist or precipitation occurs at time of spill, H_2S becomes slightly mobile due to its water solubility. H_2S does not bioaccumulate but is degraded rapidly by certain soil and water bacteria. **Disposal:** Aerate or oxygenate with compressor. For in situ amelioration, carbon removes some H_2S. Anion exchanges may also be effective. A potential candidate for rotary kiln incineration (1508 to 2912 °F/820 to 1600 °C) or fluidized bed incineration (842 to 1796 °F/450 to 980 °C). Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.33): No. U135
SARA Toxic Chemical (40 CFR 372.65): Not listed
Listed as a SARA Extremely Hazardous Substance (40 CFR 355), TPQ: 500 lb
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 100 lb (45.4 kg) [* per RCRA, Sec. 3001 & CWA, Sec. 311 (b)(4)]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A & Z-2)
Listed as a Process Safety Hazardous Material (29 CFR 1910.119), TQ: 1500 lb

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For < 100 ppm, use a supplied-air respirator (SAR) or SCBA. For < 250 ppm, use a SAR operated in continuous-flow mode. For < 300 ppm, use a SAR or SCBA with a full facepiece. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a respiratory protection program that includes at least: a written program, medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Polycarbonate, butyl rubber, polyvinyl chloride, and neoprene are suitable materials for PPE. **Ventilation:** Provide general & local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes and launder before reuse. Clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Prevent physical damage to containers. Store in steel cylinders in a cool, dry, well-ventilated area away from incompatibles (Sec. 5). Install electrical equipment of Class 1, Group C. Outside or detached storage is preferred. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to keep levels as low as possible. Enclose processes and continuously monitor H_2S levels in the plant air. Keep pipes clear of rust as H_2S can ignite if passed through rusty pipes. Purge and determine H_2S concentration before entering a confined area that may contain H_2S. The worker entering the confined space should have a safety belt and life line and be observed by a worker from the outside. Follow applicable OSHA regulations (1910.146) for confined spaces. H_2S can be trapped in sludge in sewers or process vessels and may be released during agitation. Calcium chloride or ferrous sulfate should be added to neutralize process wash water each time H_2S formation occurs. Control H_2S emissions with a wet flare stack/scrubbing tower. **Administrative Controls:** Consider preplacement and periodic medical exams of exposed workers emphasizing the eyes, nervous and respiratory system.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Hydrogen sulfide, liquefied
DOT Hazard Class: 2.3
ID No.: UN1053
DOT Packaging Group: --
DOT Label: Poison Gas, Flammable Gas
Special Provisions (172.102): 2, B9, B14

Packaging Authorizations
Exceptions: --
Non-bulk Packaging: 304
Bulk Packaging: 314, 315

Vessel Stowage Requirements
Vessel Stowage: D
Other: 40

Quantity Limitations
Passenger, Aircraft, or Railcar: Forbidden
Cargo Aircraft Only: Forbidden

MSDS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 136, 140, 148, 149, 153, 159, 163, 164, 168, 171, 180
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** PA Roy, MPH, CIH; **Medical Review:** AC Darlington, MPH, MD

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Material Safety Data Sheets Collection:

Sheet No. 713
Lead (Inorganic)

Issued: 8/90

Section 1. Material Identification 32

Lead (Inorganic) (Pb) Description: Exists widely throughout the world in a number of ores. Its main commercial source is galena (lead sulphide). Lead mineral is separated from crude ores by blast-furnace smelting, drossing, or electrolytic refining. Lead is used mostly in manufacturing storage batteries. Other uses are in manufacturing tetraethyllead and both organic and inorganic lead compounds in ceramics, plastics, and electronic devices; in producing ammunition, solder, cable covering, sheet lead, and other metal products (brass, pipes, caulking); in metallurgy; in weights and as ballast; as a chemical intermediate for lead alkyls and pigments; as a constuction material for the tank linings, piping, and equipment used to handle the corrosive gases and liquids used in sulfuric acid manufacturing, petroleum refining, halogenation, sulfonation, extraction, and condensation; and for x-ray and atomic radiation protection.
Other Designations: CAS No. 7439-92-1, lead oxide; lead salts, inorganic; metallic lead; plumbum.
Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide*(73) for a suppliers list.

R	0
I	4
S	-
K	0

Genium

HMIS
H 3
F 1
R 0
PPG*

Cautions: *Inorganic lead is a potent systemic poison.* Organic lead (for example, tetraethyl lead) has severe, but different, health effects. * Sec. 8
Occupational lead poisoning is due to inhalation of dust and fumes. Major affected organ systems are the nervous, blood, and reproductive systems, and kidneys. Health impairment or disease may result from a severe acute short- or long-term exposure.

Section 2. Ingredients and Occupational Exposure Limits

Lead (inorganic) fumes and dusts, as Pb, ca 100%

1989 OSHA PELs (Lead, inorganic compounds)
8-hr TWA: 50 µg/m³
Action Level TWA*: 30 µg/m³

29 CFR 1910.1025 Lead Standard
Blood Lead Level: 40 µg/100 g

1989-90 ACGIH TLV (Lead, inorganic, fumes and dusts)
TLV-TWA: 150 µg/m³

1988 NIOSH REL
10-hr TWA: <100 µg/m³

1985-86 Toxicity Data†
Human, inhalation, TC_{Lo}: 10 µg/m³ affects gastrointestinal tract and liver
Human, oral, TD_{Lo}: 450 mg/kg ingested over 6 yr affects peripheral and central nervous systems
Rat, oral, TD_{Lo}: 790 mg/kg affects multigeneration reproduction

* Action level applies to employee exposure without regard to respirator use.
† See NIOSH, *RTECS* (OF7525000), for additional mutative, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 3164 °F (1740 °C)
Melting Point: 621.3 °F (327.4 °C)
Vapor Pressure: 1.77 mm Hg at 1832 °F (1000 °C)
Viscosity: 3.2 cp at 621.3 °F (327.4 °C)
Molecular Weight: 207.20
Specific Gravity (20 °C/4 °C): 11.34
Water Solubility: Relatively insoluble in hot or cold water*

Appearance and Odor: Bluish-white, silvery, gray, very soft metal.

* Lead dissolves more easily at a low pH.

Section 4. Fire and Explosion Data

Flash Point: None reported	**Autoignition Temperature:** None reported	**LEL:** None reported	**UEL:** None reported

Extinguishing Media: Use dry chemical, carbon dioxide, water spray, or foam to extinguish fire.
Unusual Fire or Explosion Hazards: Flammable and moderately explosive in the form of dust when exposed to heat or flame.
Special Fire-fighting Procedures: Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode and full protective equipment. Be aware of runoff from fire control methods. Do not release to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Lead is stable at room temperature in closed containers under normal storage and handling conditions. It tarnishes on exposure to air. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Mixtures of hydrogen peroxide + trioxane explode on contact with lead. Lead is incompatible with sodium azide, zirconium, disodium acetylide, and oxidants. A violent reaction on ignition may occur with concentrated hydrogen peroxide, chlorine trifluoride, sodium acetylide (with powdered lead), ammonium nitrate (below 200 °C with powdered lead). Lead is attacked by pure water and weak organic acids in the presence of oxygen. Lead is resistant to tap water, hydrofluoric acid, brine, and solvents.
Conditions to Avoid: Rubber gloves containing lead may ignite in nitric acid.
Hazardous Products of Decomposition: Thermal oxidative decomposition of lead can produce highly toxic fumes of lead.

Section 6. Health Hazard Data

Carcinogenicity: Although the NTP and OSHA do not list lead as a carcinogen, the IARC lists it as probably carcinogenic to humans, but having (usually) no human evidence. However, the literature reports instances of lead-induced neoplasms, both benign and malignant, of the kidney and other organs in laboratory rodents. Excessive exposure to lead has resulted in neurologic disorders in infants. Experimental studies show lead has reproductive and teratogenic effects in laboratory animals. Human male and female reproductive effects are also documented.
Summary of Risks: Lead is a potent, systemic poison that affect a variety of organ systems, including the nervous system, kidneys, reproductive system, blood formation, and gastrointestinal (GI) system . The most important way lead enters the body is through inhalation, but it can also be ingested when lead dust or unwashed hands contaminate food, drink, or cigarettes. Much of ingested lead passes through feces without absorption into the body. Adults may absorb only 5 to 15% of ingested lead; children may absorb a much larger fraction. Once in the body, lead enters the bloodstream and circulates to various organs. Lead concentrates and remains in bone for many years. The amount of lead the body stores increases as exposure continues, with possibly cumulative effects. Depending on the dose entering the body, lead can be deadly within several days or affect health after many years. Very high doses can cause brain damage (encephalopathy).
Medical Conditions Aggravated by Exposure: Lead may aggravate nervous system disorders (e.g., epilepsy, neuropathies), kidney diseases, high blood pressure (hypertension), infertility, and anemia. Lead-induced anemia and its effect on blood presssure can aggravate cardiovascular disease.

Continue on next page

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Section 6. Health Hazard Data, *continued*

Target Organs: Blood, central and peripheral nervous systems, kidneys, and gastrointestinal (GI) tract.
Primary Entry Routes: Inhalation, ingestion.
Acute Effects: An acute, short-term dose of lead could cause acute encephalopathy with seizures, coma, and death. However, short-term exposures of this magnitude are rare. Reversible kidney damage can occur from acute exposure, as well as anemia.
Chronic Effects: Symptoms of chronic long-term overexposure include appetite loss, nausea, metallic taste in the mouth, lead line on gingival (gum) tissue, constipation, anxiety, anemia, pallor of the face and the eye grounds, excessive tiredness, weakness, insomnia, headache, nervous irritability, fine tremors, numbness, muscle and joint pain, and colic accompanied by severe abdominal pain. Paralysis of wrist and, less often, ankle extensor muscles may occur after years of increased lead absorption. Kidney disease may also result from chronic overexposure, but few, if any, symptoms appear until severe kidney damage has occurred. Reproductive damage is characterized by decreased sex drive, impotence, and sterility in men; and decreased fertility, abnormal menstrual cycles, and miscarriages in women. Unborn children may suffer neurologic damage or developmental problems due to excessive lead exposure in pregnant women. Lead poisoning's severest result is encephalopathy manifested by severe headache, convulsions, coma, delirium, and possibly death.
FIRST AID
Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.
Skin: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Consult a physician if any health complaints develop.
Inhalation: Remove exposed person to fresh air and support breathing as needed. Consult a physician.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. If large amounts of lead were ingested, induce vomiting with Ipecac syrup. Consult a physician immediately.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Physician's Note: For diagnosis, obtain blood pressure, blood lead level (PbB), zinc protoporphyrin (ZPP), complete blood count for microcytic anemia and basophilic stippling, urinalysis, and blood urea nitrogen (BUN) of creatinine. Examine peripheral motor neuropathy, pallor, and gingival lead line. Use Ca-EDTA to treat poison, but *never* chelate prophylactically. Consult an occupational physician or toxicologist.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel and evacuate all unnecessary personnel immediately. Cleanup personnel should protect against inhalation of dusts or fume and contact with skin or eyes. Avoid creating dusty conditions. Water sprays may be used in large quantities to prevent the formation of dust. Cleanup methods such as vacuuming (with an appropriate filter) or wet mopping minimizes dust dispersion. Scoop the spilled material into closed containers for disposal or reclamation. Follow applicable OSHA regulations (29 CFR 1910.120).
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
EPA Designations
Listed as a RCRA Hazardous Waste (40 CFR 261.33, Appendix II—EP Toxicity Test Procedures)
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity (RQ): 1 lb (0.454 kg) [* per Clean Water Act, Sec. 307(a)]
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
Listed as a SARA Toxic Chemical (40 CFR 372.65)
OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).
Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*
Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent skin contact. Protective clothing made of man-made fibers and lacking turn-ups, pleats, or pockets retain less dust from lead.
Ventilation: Provide general and local ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[103]
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Never wear contact lenses in the work area: soft lenses may absorb, and all lenses concentrate, irritants. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially washing hands before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in tightly closed containers in a cool, dry, well-ventilated area away from all incompatible materials, direct sunlight, and heat and ignition sources.
Engineering Controls: Educate worker about lead's hazards. Follow and inform employees of the lead standard (29 CFR 1910.1025). Avoid inhalation of lead dust and fumes and ingestion of lead. Use only with appropriate personal protective gear and adequate ventilation. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Avoid creating dusty conditions. Segregate and launder contaminated clothing. Take precautions to protect laundry personnel. Practice good personal hygiene and housekeeping procedures. For a variety of reasons, the lead concentration in workroom air may not correlate with the blood lead levels in individuals.
Other Precautions: Provide preplacement and periodic medical examinations which emphasize blood, nervous system, gastrointestinal tract, and kidneys, including a complete blood count and urinalysis. Receive a complete history including previous surgeries and hospitalization, allergies, smoking history, alcohol consumption, proprietary drug intake, and occupational and nonoccupational lead exposure. Maintain records for medical surveillance, airborne exposure monitoring, employee complaints, and physician's written opinions for at least 40 years or duration of employment plus 20 years. Measurement of blood lead level (PbB) and zinc protoporphyrin (ZPP) are useful indicators of your body's lead absorption level. Maintain worker PbBs at or below 40 µg/100 g of whole blood. To minimize adverse reproductive health effects to parents and developing fetus, maintain the PbBs of workers intending to have children below 30 µg/100 g. Elevated PbBs increase your risk of disease, and the longer you have elevated PbBs, the greater your chance of substantial permanent damage.

Transportation Data (49 CFR 172.102)
IMO Shipping Name: Lead compounds, soluble, n.o.s.
IMO Hazard Class: 6.1
ID No.: UN2291
IMO Label: St. Andrews Cross (X, Stow away from foodstuffs)
IMDG Packaging Group: III

***MSDS Collection* References:** 26, 38, 73, 84, 85, 88, 89, 90, 100, 101, 103, 109, 124, 126, 132, 133, 134, 136, 138, 139, 142, 143
Prepared by: MJ Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Upfal, MD, MPH; **Edited by:** JR Stuart, MS

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Material Safety Data Sheet Collection

Selenium **MSDS No. 136**

Date of Preparation: 4/88 Revision: A, 3/98

Section 1 - Chemical Product and Company Identification 51

Product/Chemical Name: Selenium
Chemical Formula: Se
CAS Number: 7782-49-2
Synonyms: C.I. 77805; colloidal selenium; elemental selenium; EPA pesticide chemical code 072001; gray selenium; selen (Polish); selenate; selenium alloy; selenium base; selenium (colloidal); selenium dust; selenium elemental; selenium homopolymer; selenium powder; Vandex
Derivation: Recovered by roasting anode muds from electrolytic copper refineries with soda or sulfuric acid, or by smelting them with soda and niter.
General Use: Used as a pigment and decolorizing agent in the glass industry; in toning baths in photography; in making electrodes for arc lights, electrical instruments and apparatus; rectifier in radio and television sets; in semiconductor fusion mixtures, selenium cells, telephotographic apparatus; rubber vulcanizing agent; catalyst in determination of Kjeldahl nitrogen; for dehydrogenation of organic compounds; in steel and copper (degasifier and machineability improver); as a dietary supplement; in the manufacture of pigments, textiles, petroleum, and medical therapeutic agents.
Vendors: Consult the latest *Chemical Week Buyers' Guide.* (73)

Section 2 - Composition / Information on Ingredients

Selenium, > 99% wt (commercial grade)
Trace Impurities (commercial grade): > 0.2% tellurium, 0.1% iron, 0.005% lead and 0.005% copper.

OSHA PEL
8-hr TWA: 0.2 mg/m^3

ACGIH TLV
TWA: 0.2 mg/m^3
Excursion Limit: Provided the TLV-TWA is not exceeded, exposure may exceed 0.6 mg/m^3 for no more than 30 min/day; never exceed 1.0 mg/m^3.

NIOSH REL
10-hr TWA: 0.2 mg/m^3

IDLH Level
1 mg/m^3

DFG (Germany) MAK
TWA*: 0.1 mg/m^3
Category III: Substances with systemic effects (Onset of effect > 2 hr); Half-life > shift length (strongly cumulative)

Peak Exposure Limit:
1.0 mg/m^3, 30 min, average value, 1/shift

*Measured as the inhalable fraction of the aerosol.

Section 3 - Hazards Identification

ANSI Signal Word: Caution

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Selenium exists as an amorphous red or black solid, or red, gray or black crystals; upon heating, it emits an odor of garlic or rotten horseraddish. Selenium fumes or dust are irritating to the eyes, skin, and mucous membranes. Inhalation of fumes may also result in respiratory system impairment, and central nervous system (CNS) and psychological effects. This combustible solid may burn, but does not ignite readily. Heating selenium can produce fumes of toxic selenium oxides (*e.g.*, selenium dioxide (SeO_2)).

Wilson Risk Scale	
R	1
I	3
S	1
K	1

HMIS	
H	1*
F	1
R	1
PPE†	

*Chronic effects
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin and/or eye contact/absorption
Target Organs: Eyes, skin, CNS, cardiovascular system (CVS), respiratory system, blood, liver, kidneys, spleen
Acute Effects
Inhalation: Inhalation of selenium dust or fumes (fumes contain selenium dioxide - see Skin, below) may cause mucous membrane irritation, coughing, sneezing, breathing difficulty, shortness of breath, "metal fume fever" (chills, fever, headaches), hypotension (low blood pressure), psychological effects (depression, irritability, etc.), liver and kidney damage, and in extreme cases, pulmonary edema (accumulation of fluid in the lungs), CNS depression, and coma. Note that toxicity of selenium (elemental) is considerably less than that of selenium compounds. Toxic effects of selenium fume inhalation may largely be due to selenium dioxide content of fumes.
Eye: Exposure to dust or fumes may result in irritation, swelling and redness of the eyelids.
Skin: Exposure to selenium fumes causes irritation, contact dermatitis and burns (fumes contain selenium dioxide which forms selenious acid (irritant) upon contact with moist skin or mucous membranes. Both selenium dioxide and selenious acid can also be absorbed through the skin, and produce systemic toxicity).

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Ingestion: Acute systemic effects (see Inhalation) may result, although intestinal absorption of elemental selenium is minimal. Toxic effects ahve been reported following excessive consumption of dietary supplements.

Carcinogenicity: IARC lists selenium as Group 3 (Not classifiable as to carcinogenicity to humans); NTP, Class 2B (Reasonably anticipated to be a carcinogen, sufficient evidence of carcinogenicity from studies in experimental animals); EPA, Class D (Not classifiable as to human carcinogenicity). OSHA does not list selenium as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Asthma, allergies, known sensitization to selenium, chronic respiratory disease, gastrointestinal disturbances, liver or kidney disorders, dermatitis.

Chronic Effects: Bronchial irritation (through inhalation), inflammation of eye lining and lids, gastrointestinal distress, persistent garlic odor on breath, increased dental carries, mottled teeth, metallic taste, pallor, skin lesions, lowered blood clotting efficiency and hemoglobin levels, irritability, excessive fatigue, anorexia, pain or anesthesia in extremities, and, in extreme cases of "selenosis," skin discoloration (reddish), fingernail and hair discoloration or loss can result. Some individuals may be more sensitive than others to selenium toxicity. Reported daily ingestion of 27 to 2310 mg resulted in nausea, vomiting, nail changes, fatigue, and irritability. Lower selenium intake (700-800 µg/day) has not been found to produce toxic effects. Animal testing suggests spleen, liver and kidney damage, and reproductive effects.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Eye Contact: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water for at least 15 minutes. Consult a physician or ophthalmologist if pain and/or irritation develop.

Skin Contact: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have the *conscious and alert* person drink 1 to 2 glasses of water, then induce vomiting. Consider also administration of charcoal slurry cathartic.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat overexposure symptomatically and supportively. Monitor whole blood selenium levels.

Section 5 - Fire-Fighting Measures

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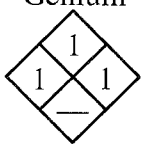

Flash Point: Not applicable; combustible solid.

Autoignition Temperature: None reported.

LEL: None reported.

UEL: None reported.

Flammability Classification: Combustible solid

Extinguishing Media: Use extinguishing agents suitable for surrounding fire.

Unusual Fire or Explosion Hazards: Containers may explode in heat of fire.

Hazardous Combustion Products: Heating selenium can produce toxic selenium oxides (*e.g.*, selenium dioxide (SeO_2)).

Fire-Fighting Instructions: *Do not* release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures: Isolate spill area for at least 80-160 feet (25-50 m). *Do not* touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Cover with plastic sheet to prevent spreading. *Do not* get water inside containers.

Small Spills: Vacuum or carefully scoop up material and deposit in sealed containers.

Large Spills

Containment: Dike far ahead of spill for later disposal. *Do not* release into sewers or waterways.

Cleanup: Spills of selenium in waterways may be remediated by dredging.

Regulatory Requirements: None reported.

Section 7 - Handling and Storage

Handling Precautions: Avoid dust or fume inhalation, and skin and eye contact. Use only with ventilation sufficient to reduce airborne concentrations to non-hazardous levels (see Sec. 2). Wear protective gloves and clothing (see Sec. 8). Keep away from heat and ignition sources.

Storage Requirements: Store in tightly closed container in cool, well-ventilated area, away from heat, ignition sources and incompatibles (see Sec. 10). Periodically inspect stored materials.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

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Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Enclose operations and/or provide local exhaust ventilation at the site of chemical release.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations as low as possible. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Where possible, use a contained transfer method for transferring selenium from drums or other storage containers to process containers. Arrange pre-employment and annual medical examinations emphasizing urinary selenium (should be < 0.1 mg/L), eyes, skin (chronic disorders), respiratory system, liver, kidneys, blood, and medical conditions aggravated by long-term exposure to selenium (see Sec. 3). Give special consideration to women of childbearing age, because of possible reproductive effects. Remove workers from selenium exposure if exposure-related garlic odor of breath is detected.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For concentrations ≤ 1 mg/m^3, use a dust and mist, or dust, mist and fume respirator, or air-purifying full face-piece respirator with high efficiency particulate (HEP) filter, or powered air-purifying respirator with dust and mist filter, or powered air-purifying respirator with dust, mist and fume filter, supplied air respirator, or SCBA with full facepiece; > IDLH/unknown/emergency, SCBA with full facepiece operated in pressure-demand or other positive-pressure mode, or supplied air respirator with full facepiece operated in pressure-demand or other positive-pressure mode in combination with SCBA. For escape, use an air-purifying, full facepiece respirator with HEP filter. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear impervious, chemically protective neoprene or rubber gloves, boots, aprons, gauntlets and body-covering clothing to prevent skin contact. Wear protective eyeglasses, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Amorphous or crystalline solid

Appearance and Odor: Red to bluish black, dark red, gray, or black, crystals odorless

Vapor Pressure: > 0.001 mm Hg at 68 °F (20 °C)

Formula Weight: 78.96 +/- 3

Specific Gravity (H_2O=1, at 4 °C): 4.26 to 4.81

Water Solubility: Insoluble

Other Solubilities: Soluble in sulfuric acid, carbon disulfide, ether, methylene iodide, benzene, quinoline, chloroform, aqueous potassium cyanide solution, potassium sulfite solution, caustic alkali solution. Insoluble in alcohol.

Boiling Point: 1274 °F (690 °C)

Melting Point: 338 °F (170 °C) to 422.6 °F (217 °C) (crystals)

Surface Tension: 92.5 dynes/cm at 423 °F (217 °C)

Ionization Potential (eV): 9.75238

Section 10 - Stability and Reactivity

Stability: Selenium is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Include acids, fluorine, oxygen, cadmium, potassium, sodium, chlorine trifluoride, chromium trioxide, chromic oxide, lithium silicon, nitric acid, nitrogen trichloride, potassium bromate (explosive), silver bromate, bromine pentafluoride, and more materials. Contact with metal amides can be explosive. Metal carbides and chlorates incandesce in selenium vapor upon heating. Freshly precipitated amorphous selenium can react with water, producing selenous acid and hydrogen.

Conditions to Avoid: Unintended contact in storage areas or reactor vessels.

Hazardous Decomposition Products: Thermal oxidative decomposition of selenium can produce selenium dioxide.

Section 11- Toxicological Information

Toxicity Data:*

Genetic Effects:

Human, blood cultures: selenium (more than any tested selenium compounds) induced sister chromatid exchange.

Tumorigenicity:

Mouse, oral: 480 mg/kg/60 days continuous, resulted in tumors of the skin and appendages (equivocal tumorigenic agent by RTECS criteria).

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Section 11- Toxicological Information, *continued*

Reproductive Effects:
Mouse, oral: 134 mg/kg, over multigenerations resulted in fetotoxicity, and fetal death.

Acute Inhalation Effects:
Rat, inhalation, LC_{Lo}: 33 mg/kg/8 hr resulted in hemorrhage, emphysema, and acute pulmonary edema.

Acute Oral Effects:
Rat, oral, LD_{50}: 6700 mg/kg resulted in somnolence (general depressed activity), dyspnea, other changes in nutrition and gross metabolism.
Mouse, oral, LD_{Lo} 134 mg/kg

* See NIOSH, *RTECS* (VS7700000), for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: *Scenedesmus*, TLm96=2.5 ppm; *E. Coli*, TLm96=90 ppm. Selenium toxicity occurs frequently among livestock ("alkali disease") of the Great Plains of the US, Canada and Mexico.
Environmental Fate: Selenium undergoes complex chemical and biological cycling through surface water and bottom sediments. It has been found to concentrate in some plants and fish.
Soil Adsorption/Mobility: Elemental selenium is insoluble in water and will have low mobility in the soil column.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Environmentally hazardous substance, solid, n.o.s.*
Shipping Symbols: –
Hazard Class: 9
ID No.: UN3077
Packing Group: III
Label: Class 9
Special Provisions (172.102): 8, B54

Packaging Authorizations
a) Exceptions: 173.155
b) Non-bulk Packaging: 173.213
c) Bulk Packaging: 173.240

Quantity Limitations
a) Passenger, Aircraft, or Railcar: None
b) Cargo Aircraft Only: None

Vessel Stowage Requirements
a) Vessel Stowage: A
b) Other: –

*Classified as a hazardous substance when this material is one package which equals or exceeds the CERCLA RQ (see Sec. 15).

Section 15 - Regulatory Information

EPA Regulations:
Classified as a RCRA Hazardous Waste (40 CFR 261.24): Characteristic of Toxicity*
RCRA Hazardous Waste Number: D010
Listed as a CERCLA Hazardous Substance (40 CFR 302.4) specific per CWA Section 307(a)†
CERCLA Final Reportable Quantity (RQ), 100 lb. (45.35 kg)
Listed as a SARA Toxic Chemical (40 CFR 372.65 as Selenium compounds)
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed

OSHA Regulations:
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1)

*May or may not be characterized as a hazardous waste when subjected to the Toxicant Extraction Procedure (40 CFR 261.24).
†No reporting of release is required if diameter of solid pieces is equal to or exceeds 0.004 inches (100 μm).

Section 16 - Other Information

References: 1, 73, 103, 124, 136, 149, 176, 190, 209, 216, 222, 223, 224, 227, 230

Prepared By..... HM Spliethoff, MS
Industrial Hygiene Review..... DJ Wilson, CIH
Medical Review..... G Kelafant, MD

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Community Air Monitoring Plan
Williamsburg Works Former MGP
Remedial Investigation
Brooklyn, New York

In accordance with NYSDEC and NYSDOH requirements for a Community Air Monitoring Plan (CAMP), a perimeter air-monitoring plan, will be implemented at the site during each phase of the field activities. The objective of the perimeter air-monitoring plan is to provide a measure of protection for the downwind community (i.e., off-site receptors, including residences and businesses and on-site workers not involved with the site field activities) from potential airborne contaminant releases as a direct result of field activities. The perimeter air-monitoring plan is a stand-alone document and will be available on site. The VOC Monitoring, Response Levels, and Actions are presented as follows.

Air Monitoring Response Levels and Actions

VOCs	
Response Level	**Actions**
>5 ppm above background for 15-minute average	▪ Temporarily halt work activities ▪ Continue monitoring ▪ If VOC levels decrease (per instantaneous readings) below 5 ppm over background, work activities can resume
Persistent levels >5 ppm over background <25 ppm	▪ Halt work activities ▪ Identify source of vapors ▪ Corrective action to abate emissions ▪ Continue monitoring ▪ Resume work activities if VOC levels 200 feet downwind of the property boundary or half the distance to the nearest potential receptor is <5 ppm for a 15-minute average ▪ If VOC levels are >25 ppm at the perimeter of the work area, activities must be shutdown
Particulate	
>100 mcg/m3 above background for 15-minute average or visual dust observed leaving the site	▪ Apply dust suppression ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving site
>150 mcg/m3 above background for 15-minute average	▪ Stop work ▪ Re-evaluate activities ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving site

Sources:

New York State Department of Health Community Air Monitoring Plan, June 20, 2000.

New York State Department of Environmental Conservation Division Technical and Administrative Guidance Memorandum - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 27, 1989.

During excavating and materials handling operations, the air in work areas will also be sampled periodically for the presence of contaminants. A portable photoionization detector (PID) will be utilized to periodically monitor the levels of organic vapors in the ambient air and a Mini RAM^{TM} PM-10 (or equivalent) particle detector will be used to count inhalable particles (0.1-10 micrometer range) of dust during the field work. PID and Mini RAM readings will be taken hourly during excavation or more frequently if air quality measurements approach action levels as defined herein. Measurements will be monitored from the breathing zone (4 to 5 feet above ground level) at worker locations to determine working conditions (and whether there is a need to change levels of worker protection).

In addition to VOCs and particulates, cyanide will be monitored in the work zone. The cyanide monitoring methods will be determined prior to mobilization.

In order to make a conservative assessment of when different levels of respiratory protection are needed during the field work, it will be assumed that the organic vapors detected by the air monitoring instruments consist of the most toxic volatile compounds expected to be found on the site. Preliminary evaluation of the risks expected at the site indicates that the most toxic volatiles that are probably present are VOCs (particularly BTEX). Based on data published by the Occupational Safety and Health Administration (OSHA) and the American Conference of Government Industrial Hygienists (ACGIH), and previous experience with MGP wastes, the following PPE will be employed when the given concentrations of organic vapor are detected in the breathing zone.

Compound of Concern	**Level D**	**Level C**	**Level B**
Chemical Name	M<X	X<M<Y	M>Y
BTEX and other photoionizable VOCs	M <5 ppm	5 ppm <M <50 ppm	M >50 ppm
Where: M = concentration of organic vapor measured in the field X,Y= concentrations at which different levels of respiratory protection are necessary.			

The PPE requirements may be modified based on compound-specific monitoring results information, with the written approval of the Corporate Health and Safety Specialist (CHSS).

Respiratory protection from dusts will be required when inhalable particulate concentrations from potentially contaminated sources exceed 150 µg/m$^{3.}$

Odors or dusts derived from site contaminants may cause nausea in some site workers, even though the contaminants are at levels well below the safety limits as defined above. Workers may use dust masks or respirators to mitigate nuisance odors with the approval of the SSO.

Whenever practical, work areas should be positioned upwind of organic vapor and dust sources to reduce the potential for worker exposure.

Appendix F

Quality Assurance Project Plan (electronic only)

Quality Assurance Project Plan

Williamsburg Works
Former Manufactured Gas Plant Site

Brooklyn, New York
AOC Index No. A2-0552-0606
Site #: 224055

Submitted to:
KeySpan Corporation
1 MetroTech Center
Brooklyn, NY 11201

Submitted by:
GEI Consultants, Inc.
455 Winding Brook Drive
Glastonbury, CT 06033
860-368-5300

May 2008
080090-*-1002

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Appendices

A Laboratory Quality Manual

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Abbreviations and Acronyms

ASP	Analytical Service Protocols
ASTM	American Society for Testing and Materials
CAS	Chemical Abstract Service
CMS	Chip Measurement System
CLP	Contract Laboratory Protocol
COC	Chain Of Custody
DQO	Data Quality Objective
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
GC/MS	Gas Chromatography/Mass Spectroscopy
GEI	GEI Consultants, Inc.
KeySpan	KeySpan Corporation
LCS	Labortory Control Sample
LEL	Lower Explosive Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
PM	Project Manager
PQL	Practical Quantification Limit
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation Recovery Act
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SD	Standard Deviation
SOP	Standard Operating Procedures
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compounds
TOX	Total Organic Halides
TPH	Total Petroleum Hydrocarbons
USDOT	United States Department of Transporation
VOC	Volatile Organic Compound

Quality Assurance Glossary

"Analytical Services Protocol" or "ASP" means the New York State Department of Environmental Conservation (NYSDEC's) compendium of approved EPA and NYSDEC laboratory methods for sample preparation and analysis and data handling procedures.

"Confirmatory Sample" means a sample taken after remedial action is expected to be complete to verify that the cleanup requirements have been met. This term has the same meaning as "post remediation sample."

"Contract laboratory program" or "CLP" means a program of chemical analytical services developed by the United States Environmental Protection Agency (EPA) to support CERCLA.

"Data Usability Summary Report, (DUSR)" is a document that provides a thorough evaluation of the analytical data to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and use.

"Effective solubility" means the theoretical aqueous solubility of an organic constituent in groundwater that is in chemical equilibrium with a separate phase mixed product (product containing several organic chemicals). The effective solubility of a particular organic chemical can be estimated by multiplying its mole fraction in the product mixture by its pure phase solubility.

"Environmental Laboratory Accreditation Program" or "ELAP" means a program conducted by the New York State Department of Health (NYSDOH), which certifies environmental laboratories through on-site inspections and evaluation of principles of credentials and proficiency testing.

"Intermediate Sample" means a sample taken during the investigation process that will be followed by another sampling event to confirm that remediation was successful or to confirm that the extent of contamination has been defined to below a level of concern.

"Method detection limit" or "MDL" means the minimum concentration of a substance that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from the analysis of a sample in a given matrix containing the analyte.

"Non-targeted compound" means a compound detected in a sample using a specific analytical method that is not a targeted compound, a surrogate compound, a system monitoring compound or an internal standard compound.

"Practical quantitation level" or "PQL" means the lowest quantitation level of a given analyte that can be reliably achieved among laboratories within the specified limits of precision and accuracy of a given analytical method during routine laboratory operating conditions.

"PAH" means polycyclic aromatic hydrocarbon as defined by United States Environmental Protection Agency (USEPA) Method 8270.

"Quality assurance" or "QA" means the total integrated program for assuring the reliability of monitoring and measurement data, which includes a system for integrating the quality planning, quality assessment and quality improvement efforts to meet data end-use requirements.

"Quality assurance project plan" or "QAPP" means a document, which presents in specific terms the policies, organization, objectives, functional activities, and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of a specific project or operation.

"Quality control" or "QC" means the routine application of procedures for attaining prescribed standards of performance in the monitoring and measurement process.

"Semi volatile organic compound" or "SVOC" means compounds amenable to analysis by extraction of the sample with an organic solvent. For the purposes of this section, semi volatiles are those target compound list compounds identified in the statement of work in the current version of the EPA Contract Laboratory Program.

"Target analyte list" or "TAL" means the list of inorganic compounds/elements designated for analysis as contained in the version of the EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, and Multi-Concentration in effect as of the date on which the laboratory is performing the analysis. For the purpose of this chapter, a Target Analyte List scan means the analysis of a sample for Target Analyte List compounds/elements.

"Targeted compound," means a hazardous substance, hazardous waste, or pollutant for which a specific analytical method is designed to detect that potential contaminant both qualitatively and quantitatively.

"Target compound list plus 30" or "TCL+30" means the list of organic compounds designated for analysis (TCL) as contained in the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis, and up to 30 non-targeted organic compounds (plus 30) as detected by gas chromatography/mass spectroscopy (GC/MS) analysis. For the purposes of this chapter, a Target Compound List+30 scan means the analysis of a sample for Target Compound List compounds and up to 10 non-targeted volatile organic compounds and up to 20 non-targeted semi volatile organic compounds using GC/MS analytical methods. Non-targeted compound criteria should be pursuant to the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, and Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis.

"Tentatively identified compound" or "TIC" means a non-targeted compound detected in a sample using a GC/MS analytical method, which has been tentatively, identified using a mass spectral library search. An estimated concentration of the TIC is also determined.

"Unknown compound" means a non-targeted compound, which cannot be tentatively identified. Based on the analytical method used, the estimated concentration of the unknown compound may or may not be determined.

"Volatile organics" means organic compounds amenable to analysis by the purge and trap technique. For the purposes of this chapter, analysis of volatile organics means the analysis of a sample for either those priority pollutants listed as amenable for analysis using EPA method 624 or those target compounds identified as volatiles in the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis.

"**Waste oil"** means used and/or reprocessed engine lubricating oil and/or any other used oil, including but not limited to: fuel oil, engine oil, gear oil, cutting oil, transmission fluid, oil storage tank residue, animal oil and vegetable oil, which has not subsequently been refined.

1. Purpose

GEI Consultants, Inc. (GEI) has prepared this Draft Quality Assurance Project Plan (QAPP) to address the investigation of the Williamsburg Works former MGP site located in Brooklyn, New York, New York. The Draft QAPP is a companion document to the *Draft Remedial Investigation Work Plan* Williamsburg Works Former MGP Site dated February 2008 (Work Plan) and the Field Sampling Plan (FSP) dated February 2008. The project location is shown on Figure 1 of the Work Plan. The QAPP presents the project scope and goals, organization, objectives, sample handling procedures and specific QA/QC procedures associated with the Williamsburg Works Former MGP.

Furthermore, this QAPP identifies project responsibilities, prescribes guidance and specifications to make certain that:

- Samples are identified and controlled through sample tracking systems and chain-of-custody (COC) protocols
- Field and laboratory analytical results are valid and usable by adherence to established protocols and procedures
- Laboratory data are validated so they can be applied to developing a conceptual understanding of the nature and extent of contamination of soils, sediment, soil vapor and ground waters at the Williamsburg Works Former MGP site
- All aspects of the investigation, from field to laboratory are documented to provide data that are technically sound and legally defensible

The requirements of this QAPP apply to all contractor activities as appropriate for their respective tasks.

This QAPP was prepared based upon guidance provided by the NYSDEC:

- *Draft DER-10, Technical Guidance for Site Investigation and Remediation.* New York State Department of Environmental Conservation. December 2002.

2. Project Goals and Objectives

KeySpan Corporation (KeySpan) is conducting a Remedial Investigation (RI) at the Williamsburg Works former MGP site (Site) in Brooklyn, New York. This RI was prepared to investigate the extent of impacts potential impacts to the Site from the operation of the Williamsburg Works Former MGP that was used to store manufactured gas from 1850 until prior to 1941.

The scope of the RI is presented in the Draft Williamsburg Works Former Manufactured Gas Plant Work Plan dated February 2008. The RI will include the following tasks:

- Field Investigation Sampling and Analysis
- Qualitative Human Health Exposure Assessment (QHHEA)
- Step 1 Fish and Wildlife Resource Impact Analysis (FWRIA)
- Quality Assurance / Quality Control (QA/QC) and Data Validation
- RI Report Preparation

The RI scope of work described in this work plan is intended to collect sufficient data to evaluate the nature and extent of compounds within soils, sediment, soil vapor and groundwater that may be associated with the Williamsburg Works former MGP site. The RI will assess whether potential pathways exist through which people, flora, or fauna could be exposed to the contaminants.

3. Project Organization and Responsibility

The Consultant is responsible for the implementation of the RI Work Plan scope of work, including the supervision of contractors, field activities, and the evaluation and interpretation of data. The Consultant will direct the sampling activities and coordinate submittal of samples to testing laboratories. The project organization and key personnel for the Consultant are listed below:

Program Manager:
Project Manager:
Field Team Leader:
Quality Assurance Officer:
Corporate Health & Safety Officer:
Data Validator:
Data Manager:

The primary responsibilities of each of these personnel are described in the following table.

Key Project Personnel and Responsibilities		
Position	**Consultant Personnel**	**Areas of Responsibilities**
Program Manager		▪ Overall program oversight ▪ Project management ▪ Project schedule ▪ Client contact regarding project related issues ▪ Personnel and resource management ▪ Review of project submittals ▪ Budgeting
Project Manager		▪ Client contact regarding project related issues ▪ Coordination of contractors ▪ Technical development and implementation of Work Plan and Field Sampling Plan ▪ Personnel and resource management ▪ Preparation and review of project submittals ▪ Preparation of project submittals ▪ Budgeting
Field Team Leader		▪ Client contact regarding project related issues on day to day basis as part of field operations ▪ Coordination of contractors ▪ Implementation of Work Plan and Field Sampling Plan ▪ Personnel and resource management ▪ Preparation of project submittals
Quality Assurance Officer		▪ QA/QC for sampling and laboratory performance

Key Project Personnel and Responsibilities		
Position	**Consultant Personnel**	**Areas of Responsibilities**
Data Validator		▪ Perform data validation activities ▪ Prepare data usability summary reports ▪ Evaluate data with regards to quality objectives
Data Managers		▪ Manage raw data from the laboratory

A New York State Department of Health (NYSDOH) Environmental Laboratory approval Program (ELAP) approved laboratory will be utilized to perform standard analytical chemistry parameters for surface soils, subsurface soil, and groundwater samples including:

- Volatile Organic Compounds (VOCs) according to EPA Method 8260B
- Semi volatile Organic Compounds (SVOCs) according to EPA Method 8270C
- Target Analyte List (TAL) Metals according to EPA Method 6000/7000 series
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082
- Pesticides by EPA Method 8081
- Herbicides by EPA Method 8151A
- Total Cyanide by EPA Method 9012 (groundwater only)
- Free Cyanide [Extraction by EPA Method 9013A/ Analysis by Microdiffusion American Society for Testing and Materials (ASTM) Method D4282-95] (soils only)
- Disposal Parameters (total metals, Toxicity Characteristic Leaching Procedure (TCLP) by EPA 1311, Resource Conservation Recovery Act (RCRA) 8 metals by EPA 6000/ 7000 series, TCLP pesticides EPA 8081A, TCLP herbicides by 8151A, TCLP VOC by EPA 8260B, TCLP SVOC by EPA 8270C, paint filter test, ignitability by EPA 1030 (soils)/EPA 1010 (water), corrosivity by EPA 9040 (water)/ 9045 (soils) , reactivity [cyanide by EPA 7.3.3.2 and sulfide by EPA 7.3.4.2] by , total petroleum hydrocarbons (TPH) by EPA 8015B/ 418.1, total PCBs by EPA 8082, flashpoint, total organic halides (TOX) EPA 450.1, and % solids)

The NYSDOH ELAP's relevant certifications are summarized in the following table.

Table 1 provides a summary of surface soil and subsurface soil analyses, Table 2 provides a summary of groundwater analyses, Table 3 provides a summary of sediment analyses and Table 4 provides a summary of soil vapor and indoor and outdoor air analyses. Table 5 provides a summary of quality assurance samples, holding times and analysis for each media.

Drilling, sediment coring and test pit excavation contractors will be identified once the work plan is approved.

4. Quality Assurance Objectives

This section establishes the QA objectives for measurements that are critical to the project. The QA objectives are developed for relevant data quality indicators. These indicators include the method detection limit, reporting limit, precision, accuracy, completeness, representativeness, and comparability. The data quality objectives (DQOs) are based on project requirements and ensure: (1) that the data generated during the project are of known quality and (2) that the quality is acceptable to achieve the project's technical objectives provided in the Work Plan. All analytical data will be provided by the laboratory using the New York State ASP Category B deliverable format.

Quantitation Limits are laboratory-specific and reflect those values achievable by the laboratory performing the analyses. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy, precision, and completeness. The analytical methods to be used at this site will provide a level of data quality and can be used to evaluate potential impacts to soil and groundwater from the former MGP operation, compared to NYSDEC Part 375 soil cleanup objectives and New York State Ambient Groundwater Standards, Criteria and Guidance values, and for purposes of risk assessment.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs. Specific procedures for sampling, chain of custody, laboratory instruments calibration, laboratory analysis, reporting of data, internal quality control, and corrective action are described in other sections of the QAPP.

The data quality indicators are presented in subsections 4.1 through 4.6. Procedures to assess the data quality indicators are given below in Section 13. Laboratory MDLs and PQLs for soils, groundwater, soil vapor and ambient air are located on Tables 6 through 8, respectively. Soil clean-up objectives and groundwater standards and guidance values are located on Tables 9 and 10.

4.1 Required Quantification Limit

The required quantification limit is the quantitative analytical level for individual analytes needed to make decisions relative to the objectives of the project. Quantitative limits may be expressed as the MDL or some quantitative level defined in terms relative to the program. It should be noted that there is some ambiguity in the definitions and use of terms that define

quantification limits. The MDL presented herein is a well-defined and accepted entity, although attainable only under ideal laboratory conditions.

Method Detection Limit: The MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. MDL is determined from analysis of a sample in a given matrix type containing the analyte.

Practical Quantitation Limit: The PQL [also referred to as the reporting limit (RL)] is the concentration in the sample that corresponds to the lowest concentration standard of the calibration curve.

Laboratory MDLs and PQLs for soils, groundwater, soil vapor and ambient air are located on Tables 6 through 8, respectively.

4.2 Accuracy

Accuracy is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of equipment being used (e.g., sample liners, drilling shoe, or stainless–steel sampling implements).

The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses, or %R of spiked compounds in matrix spikes (MSs), matrix spike duplicates (MSDs) and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. The laboratory accuracy will be evaluated in accordance with laboratory quality assurance plan and standard operating procedures located in Appendix A.

4.3 Precision

Precision is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. In environmental sampling, precision is the result of field sampling and

analytical factors. Precision in the laboratory is easier to measure and control than precision in the field. Replicate laboratory analyses of the same sample provide information on analytical precision; replicate field samples provide data on overall measurement precision. The difference between the overall measurement precision and the analytical precision is attributed to sampling precision. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation. The difference between the overall measurement precision and the analytical precision is attributed to sampling precision.

Precision in the field is assessed through the collection and measurement of field duplicates. Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter, with the exception of the waste characterization parameters. Precision will be measured through the calculation of relative percent differences (RPDs) as described below in subsection 13.2. The resulting information will be used to assess sampling and analytical variability. Field duplicate RPDs must be less than 50% for soil samples and less than 30% for aqueous samples. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are <5x the quantitation limit, the criterion will be doubled. Duplicate samples are described in below in subsection 5.1.5. Table 5 summarizes the number of duplicates per media sampled.

Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic analyses, laboratory precision will be assessed through the analysis of MS/MSD samples and field duplicates. For the inorganic analyses, laboratory precision will be assessed through the analysis of matrix duplicate pairs and field duplicate pairs. MS/MSD samples or matrix duplicate pairs will be performed at a frequency of one per twenty primary samples per matrix. Duplicate samples are described in below in subsection 5.1.5. Table 5 summarizes the number of duplicates per media sampled.

4.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. “Normal conditions” are defined as the conditions expected if the sampling plan was implemented as planned. The objective for completeness is a sufficient amount of valid data to achieve a predetermined statistical level of confidence. Critical samples must be identified and plans must be formulated to secure requisite valid data for these samples.

Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

To ensure that these percentages are met, materials for crucial parameters will be retained if re-sampling is required and strict adherence to holding times will be required.

4.5 Representativeness

Representativeness is a qualitative parameter that expresses the degree to which data accurately and precisely represents either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data.

Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plan and FSP are followed and that proper sampling, sample handling, and sample preservation techniques are used.

Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample-holding times. These are provided in Table 5 and within Appendix A.

4.6 Comparability

Comparability is a qualitative parameter that expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plan and FSP are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

Comparability is dependent on the use of recognized EPA or equivalent analytical methods and the reporting of data in standardized units. To facilitate data comparison, the data-reporting format as presented below will be used:

- Conventions (units reported as): for solids (weight/unit weight [i.e., mg/kg]); for liquids (weight/unit volume [i.e., mg/L]); for air (weight/unit volume [i.e., mg/m3]).
- Use common chemical name with corresponding chemical abstract system (CAS) code.
- Report all data for soils on a dry-weight basis.

5. Sampling Plan

Environmental sampling will include subsurface soil, surface soil, sediment, soil vapor, ambient air, groundwater and waste characterization sampling. Subsurface soil borings and monitoring wells will be installed utilizing drilling methods presented in the FSP. Sediment cores will be installed utilizing methods described in the FSP. Groundwater samples will be collected utilizing low-flow sampling methods, peristaltic pumps, bailers, whale pumps, or bladder pumps. Performing grab or composite sampling by appropriate hand-held sampling equipment will be the preferred method for waste characterization sampling. Analytical samples and analysis methods are described in the Work Plan. Sampling methods and procedures are described in FSP.

5.1 Sample Type, Location, and Frequency

5.1.1 Subsurface Borings Soil Sampling

Thirty-four (4) soil boring locations will be sampled utilizing drilling methods listed in the Field Sampling Plan (FSP). Fifteen of the borings will be completed as permanent monitoring wells. The locations are shown on Plate 1 of the Work Plan. The borings will be drilled to approximately 70 feet below ground surface (bgs) and at least 10 feet below observed visual impacts. The actual number of subsurface soil samples and their location may be modified based upon subsurface utilities and property access. The number and location of samples will vary based upon access and subsurface obstructions. Soils will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Soil samples will be collected and submitted for laboratory analysis in general accordance with the Work Plan and the FSP. Monitoring wells will be installed in accordance with the Work Plan and FSP. A summary of subsurface soil samples and analysis are located on Table 1.

5.1.2 Test Pit Sampling

A total of six test pits are proposed to be excavated at the Williamsburg Works former MGP site utilizing a backhoe or other excavation equipment. Soils will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Soil samples will be collected and submitted for laboratory analysis in general accordance with the Work Plan and the FSP. A summary of subsurface soil samples and analysis are located on Table 1.

5.1.3 Surface Soil Sampling

Nine (9) surface sample locations will be sampled using hand tools. The samples will be collected from 0 to 2 inches below vegetative cover. The actual number of surface soil samples and their location may be modified based upon field conditions. Soils will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Soil samples will be collected and submitted for laboratory analysis in general accordance with the Work Plan and the FSP. A summary of surface soil samples and analysis are located on Table 1.

5.1.4 Groundwater Sampling

The sixteen (16) proposed RI monitoring wells will be gauged and sampled. Groundwater samples will be collected from monitoring wells screened across the water table or targeted intervals at the proposed sample locations. Groundwater samples will be collected and submitted for laboratory analysis in general accordance with the FSP and Work Plan. Water quality parameters including temperature, pH, turbidity, salinity, dissolved oxygen (DO), and specific conductance, will be collected prior to laboratory analysis in general accordance with the Work Plan and the FSP. A summary of groundwater samples and analysis are located on Table 2.

5.1.5 Sediment Sampling

Seven (7) sediment core locations will be sampled from a barge using an electric or pneumatically driven vibracore as described in the FSP. The locations are shown on Plate 1 of the Work Plan. Sediment cores will be advanced to a depth of 20 feet below the sediment water interface or to vibracore refusal. The actual number of sediment samples and their location may be modified based upon field conditions. Sediments will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Sediment samples will be collected and submitted for laboratory analysis in general accordance with the Work Plan and the FSP. A summary of sediment samples and analysis are located on Table 3.

5.1.6 Soil Vapor Sampling

Fourteen (14) soil vapor samples will be installed and samples will be collected in general accordance with the *New York State Department of Health's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York"* and KeySpan's *"Draft Standard Operating Procedure- Soil Vapor Intrusion for MGP Sites in New York.* Within buildings, sub-slab soil vapor points will be installed to evaluate the soil vapor conditions. For exterior soil vapor locations, the soil vapor samples will be collected from temporary soil vapor probes, which will be installed, to a depth of approximately five feet below grade. Soil vapor samples will be collected in certified clean SUMMA canisters and submitted for laboratory analysis in

general accordance with the FSP and Work Plan. A summary of soil vapor samples and analysis are located on Table 4.

5.1.7 Ambient Air Samples

Eight (8) indoor air samples and four (4) outdoor ambient air samples are proposed to be collected as part of the Williamsburg Works RI Work Plan. The ambient air samples will be used to assess the potential for soil vapor intrusion into the buildings. The proposed locations are shown on Plate 1 or the Work Plan. A summary of ambient air samples and analysis are located on Table 4.

The proposed ambient air samples will be collected from the approximate breathing height (approximately 3 to 5 feet aboveground). The indoor air and outdoor air samples will be collected utilizing an individually certified 6-Liter SUMMA® canister with a laboratory-supplied flow controller that is calibrated to an 8-hour period. The regulator flow rate will not exceed 0.2 liters per minute. Each SUMMA® canister will be shipped to an approved-NYSDOH ELAP registered laboratory for analysis. The samples will be analyzed for VOCs and naphthalene by the modified EPA Method TO-15. QA/QC samples will include one blind duplicate ambient air sample (indoor or outdoor air sample) will be collected during each sampling event. The ambient air sampling will target the winter heating season between November 15 and March 30 in accordance with NYSDOH Soil Vapor Guidance.

Property information will also be collected in general accordance with the NYSDOH Center of Environmental Health's Indoor Air Quality Questionnaire and Building Form that is provided as Appendix B of the NYSDOH soil vapor guidance and KeySpan's Draft Standard Operating Procedures for Soil Vapor Intrusion for MGP Sites in New York which is located in the FSP.

5.1.8 Investigation-Derived Waste Sample Collection

Waste classification sampling will be conducted for soil and liquid wastes. The purpose of characterizing a waste is for its proper off-site disposal. Composite samples will be collected from the on-site waste storage vessels (drums or roll-off) for parameters required by the approved disposal facility. Soil samples will be collected utilizing stainless steel sampling tools, shovel, or auger that had been decontaminated. Liquid samples will be collected utilizing disposable bailer, peristaltic pump, a pump with tubing, or other similar methods. These samples will be handled in general accordance with sample handling procedures presented in the FSP. Investigation derived waste samples will be analyzed for parameters listed in Section 3 or other analyses that are required by the KeySpan-approved facility.

5.1.9 Field QC Sample Collection

Field QC samples are used to monitor the reproducibility and representativeness of field sampling activities. The field QC samples are handled transported and analyzed in the same manner as the associated field samples. Field QC samples will include equipment blanks, trip blanks, field duplicates and MS/MSDs. The quantity, field QC sample type and analysis is detailed on Table 5.

Equipment Blank Samples are used to monitor the adequacy of decontamination procedures and possible sources of contamination such as potential laboratory methodologies. Equipment blanks will consist of laboratory-supplied, distilled or de-ionized water and will be used to check for potential contamination of the equipment, which may cause sample contamination. Equipment blanks will be collected by routing the distilled water through decontaminated piece of sampling equipment or disposable sampling equipment into laboratory supplied bottles. Non-dedicated field equipment will be decontaminated as specified below in subsection 4.3. Equipment blanks will be submitted to the laboratory at a frequency of one per 20 samples per matrix per type of equipment being used per parameter. Equipment blanks will not be completed for waste characterization sampling activities.

Trip Blank Samples will consist of analyte free water and will be prepared by the laboratory. (Trip blanks are used to assess the potential for VOC contamination of samples due to contaminant migration during sample shipment and storage. Trip blanks will be transported to the project location unopened, stored with the site characterization samples, and kept closed until analyzed by the laboratory. Trip blanks will be submitted to the laboratory at a frequency of one per cooler, which contains samples submitted for VOC analysis.

Field Duplicate Samples, also referred as blind duplicate samples, are two samples that are submitted form the same interval using the same sample procedures. Field duplicates will be used to assess the sampling and analytical reproducibility. Both samples are collected utilizing the same methods and are submitted for the same laboratory analysis however different sample identification numbers are used. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters. Field duplicates will not be completed for waste characterization sampling activities.

MS/MSD Samples are two additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology. MS/MSDs will be submitted at a frequency of one per 20 investigative samples per matrix for organic and inorganic parameters. MS/MSDs will not be completed for waste characterization sampling activities.

Refer to Table 5 for a summary of QC sample preservation and container requirements.

5.2 Sample Preservation and Containerization

The analytical laboratory will supply the sample containers for the chemical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest United States EPA's Specifications and Guidance for Contaminant-Free Sample Containers. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to United States EPA specifications. The containers will be pre-preserved, where appropriate (Table 5).

5.3 Equipment Decontamination

All non-dedicated sampling equipment shall be cleaned between each use in the following manner:

- Wash/scrub with a biodegradable degreaser ("Simple Green") if there is oily residue on equipment surface
- Tap water rinse
- Wash and scrub with Alconox (or non-phosphate soap) and water mixture
- Tap water rinse
- All equipment used to collect samples for VOCs and SVOC analysis will then receive a methanol rinse followed by a de-ionized water rinse.
- All equipment used to collect samples for metals analysis will then receive a 10% nitric acid solution rinse followed by a de-ionized water rinse.
- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location, where appropriate.

The drilling and excavation equipment will be decontaminated in general accordance with methods described in the FSP.

Groundwater sampling pumps will be cleaned by washing and scrubbing with an Alconox/water solution, rinsing with tap water and irrigating with de-ionized water.

Decontamination fluids will be containerized into United States Department of Transportation (USDOT)/UN-approved 55-gallon drums or containment vessels and will be characterized and disposed of by KeySpan at an approved disposal facility.

6. Documentation and COC

6.1 Sample Collection Documentation

6.1.1 Field Notes

Field notes documenting field activities will be maintained in a field notebook in general accordance with subsection 2.2 of the FSP. Field logbooks will provide the means of recording the chronology of data collection activities performed during the investigation. The logbook will be a bound notebook with water-resistant pages. Logbook entries will be dated, legible, and contain accurate and inclusive documentation of the activity. Each page of the logbook will be signed in permanent ink and dated. No erasures or obliterations of field notes will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark, which is signed and dated by the sampler. The correction shall be written adjacent to the error.

Field logbooks will be reviewed at regular intervals by the field team leader, site manager and project manager for completeness and representativeness. Logbooks will be supported by daily activity reports as described in subsection 2.3 of the FSP.

6.1.2 COC Records

Sample custody is discussed in detail below in subsection 6.2. COC records are initiated by the samplers in the field. The field portion of the custody documentation should include:

- The project name
- Signature(s) of sampler (s) responsible for sample custody
- Sample ID number
- Date and time of collection
- Whether the sample is grab or composite
- Names of individuals involved in sampling
- Air bill or other shipping number (if applicable)

On a regular basis (daily or on such a basis that all holding times will be met), samples will be transferred to the custody of the respective laboratories, via third-party commercial carriers or via laboratory courier service. Sample packaging and shipping procedures, and field COC procedures are described below in subsection 6.2.1 of this Plan. Sample receipt and log-in procedures at the laboratory are described below in subsection 6.2.2 of this Plan.

6.1.3 Sample Labeling

Each sample will be labeled with a pre-printed adhesive label using indelible ink. The label should include the date and time of collection, sampler's initials, tests to be performed, preservative (if applicable), and a unique identification. The following identification scheme will be used:

PRIMARY SAMPLES TYPES	QA/QC SAMPLE TYPES
SOIL SAMPLES	**FIELD BLANKS**
Surface Soil-ID (SAMPLE DEPTH-FEET)	SAMPLE-ID – [DATE]
WW-SS-01 (0-0.2)	WW-SS-FB-033107
Boring -ID (SAMPLE DEPTH-FEET)	WW-SB-FB-033107
WW -SB-01 (10-15)	WW-SED-FB-033107
SEDIMENT SAMPLES	WW-MW-FB-033107
Sediment Core-ID (SAMPLE DEPTH-FEET)	**MATRIX SPIKE/DUP**
WW-SED-01 (0-0.5)	SAMPLE [ID] [DEPTH] [EITHER MS OR MSD]
GROUNDWATER SAMPLES	WW-SS-01 (0-0.2) MS/MSD
Monitoring Well-ID	WW-SB-01 (10-15) MS/MSD
WW-MW-01	WW-SED-01 (0-0.5) MS/MSD
SOIL VAPOR SAMPLES	WW-MW-01 (10-15) MS/MSD
Soil Vapor Point-ID	**TRIP BLANKS**
WW -SV-01	SAMPLE- ID [DATE]
AMBIENT AIR SAMPLES	WW-TB-063007
Indoor Air	**BLIND DUPLICATES**
WW -IA-01	SAMPLE -ID[XX][DATE]
Outdoor Air	WW-SS-XX-063007
WW-OA-01	WW-SB-XX-063007
	WW-SED-XX-063007
	WW-MW-XX-063007
	WW-IA-01-063007
	WW-OA-01-063007

This sample label contains the authoritative information for the sample. Inconsistencies with other documents will be settled in favor of the vial or container label unless otherwise corrected in writing from the field personnel collecting samples or the Data Manager and/or the Project QA Officer.

6.1.4 Sample Handling

Samples will be handled in general accordance with Section 12 of the FSP.

6.2 Sample Custody

The COC provides a record of the custody of any environmental field sample from the time of collection to the delivery to the laboratory. Custody is one of several factors that are necessary for the admissibility of environmental data as evidence in a court of law. Custody

procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files.

A sample is considered to be under a person's custody if:

- The item is in the actual possession of a person
- The item is in the view of the person after being in actual possession of the person
- The item was in the actual physical possession of the person but is locked up to prevent tampering
- The item is in a designated and identified secure area

6.2.1 Field Custody Procedures

Samples will be collected following the sampling procedures indicated in the Work Plan and the FSP. A summary of samples and collection methods are provided above in Section 5 of this QAPP. Documentation of sample collection is described above in subsection 6.1. Sample COC and packaging procedures are summarized below. These procedures will ensure that the samples will arrive at the laboratory with the COC intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.
- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of collection, and type of analysis. The sample numbering system is presented above in subsection 6.1.3.
- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions.
- Samples will be accompanied by a completed COC form. The sample numbers and locations will be listed on the COC form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, and to the laboratory facility.
- All shipments will be accompanied by the COC record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.
- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be secured with strapping tape and custody seals for shipment to the laboratory. The custody seals will be attached to the cooler and covered with clear plastic tape after being signed by field personnel.
- If the samples are sent by common carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not

required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian, and signature of the laboratory sample custodian on COC document as receiving the samples and signature of sampler as relinquishing samples.

6.2.2 Laboratory Custody Procedures

After accepting custody of the shipping containers, the laboratory will document the receipt of the shipping containers by signing the COC record. The laboratory will:

- Examine the shipping containers to verify that the custody tape is intact
- Examine all sample containers for damage
- Determine if the temperature required for the requested testing program has been maintained during shipment and document the temperature on the COC records
- Compare samples received against those listed on the COC
- Verify that sample holding times have not been exceeded
- Examine all shipping records for accuracy and completeness
- Determine sample pH (if applicable) and record on COC forms
- Sign and date the COC immediately (if shipment is accepted) and attach the air bill
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the laboratory project manager, who will be responsible for contacting the data manager
- Attach laboratory sample container labels with unique laboratory identification and test
- Place the samples in the proper laboratory storage.

Following receipt, samples will be logged in according to the following procedure:

- The samples will be entered into the laboratory tracking system. At a minimum, the following information will be entered: project name or identification, unique sample numbers (both client and internal laboratory), type of sample, required tests, date and time of laboratory receipt of samples, and field ID provided by field personnel.
- The completed COC, air bills, and any additional documentation will be placed in the final evidence file.

7. Calibration Procedure

7.1 Field Instruments

Field instruments will be calibrated according to the manufacturer's specifications. Air monitoring instruments will be calibrated to a known reference gas standard and ambient air outside the work zone. Calibration will be completed daily. If concentrations of VOCs are encountered above the reference gas standard, the soil screening photoionization detector (PIDs) may be calibrated or re-checked against the reference gas standard. Water quality meters will be calibrated with known reference solutions. All calibration procedures performed will be documented in the field logbook and will include the date/time of calibration, name of person performing the calibration, reference standard used, and the readings. The following equipment has been identified for use to implement the Work Plan.

Subsurface Soil Sampling Activities:

- RAE Systems MultiRAE Plus equipped with VOC (10.6 eV lamp), lower explosive limit (LEL), percent oxygen, hydrogen sulfide and hydrogen cyanide
- RAE Systems MiniRAE 2000 (PID) with 10.6 eV lamp
- Drager Chip Measurement System (CMS) and compound specific chips (including benzene, hydrogen sulfide, hydrogen cyanide, etc.)
- MIE pDR 1200 with cyclone and pump [particulate monitor]
- MSA LC Pump or SKC 224-PCXR4 [air pump for dust monitoring]
- BIOS Dry Cal DC Lite Primary Flow Meter Model ML [air pump calibration]

Groundwater Sampling Activities

- In-Situ Multi-Parameter Troll 9000
- YSI 6280 XLM water quality meter

Similar field equipment can be substituted that perform the same functions can be substituted if selected equipment is not available from equipment supplier.

7.2 Laboratory Instruments

Calibration procedures for a specific laboratory instrument will consist of initial calibrations, initial calibration verifications, and/or continuing calibration verification. Detailed descriptions of the calibration procedures for a specific laboratory instrument are included in the laboratory's quality assurance plan, which describe the calibration procedures, their frequency, acceptance criteria, and the conditions that will require recalibration. These

procedures are as required in the respective analytical methodologies summarized in Tables 1 through 4 of this QAPP.

8. Sample Preparation and Analytical Procedures

Analytical samples will be collected in general accordance with the FSP and as specified in the Work Plan. Tables 1 through 4 provide a sample collection matrix that is separated by media. Analytical samples will be collected into laboratory-preserved sample containers and will be preserved as indicated in Table 5.

9. Data Reduction, Validation, and Reporting

Appropriate QC measures will be used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in this project. Complete data packages suitable for data validation to support the generation of a DUSR according to NYSDEC requirements will be provided by the analytical laboratory.

9.1 Field Data Evaluation

Measurements and sample collection information will be transcribed directly into the field logbook or onto standardized forms. If errors are made, results will be legibly crossed out, initialed and dated by the person recording the data, and corrected in a space adjacent to the original (erroneous) entry. Reviews of the field records by the field team leader, site manager, and project manager will ensure that:

- Logbooks and standardized forms have been filled out completely and that the information recorded accurately reflects the activities that were performed.
- Records are legible and in accordance with good record keeping procedures, i.e., entries are signed and dated, data are not obliterated, changes are initialed, dated, and explained.
- Sample collection, handling, preservation, and storage procedures were conducted in accordance with the protocols described in the FSP and Work Plan, and that any deviations were documented and approved by the appropriate personnel.

9.2 Analytical Data Validation

The consultant will be responsible for performing an independent validation of the analytical data. Project-specific procedures will be used to validate analytical laboratory data. The basis for the validation will be the USEPA CLP National Functional Guidelines for Organic Data Review (February 2005) and the USEPA CLP National Functional Guidelines for Inorganic Data Review (October 2004), modified to accommodate the criteria in the analytical methods used in this program, and Region II Standard Operating Procedures (SOPs) for CLP Organic Data review (Revision 11, June 1996) and Evaluation of Metals for the CLP Program (Revision 11, February 1992). Critical functions for determining the validity of generated data are: (1) strict adherence to the analytical methods, (2) assurance that the instrumentation employed was operated in accordance with defined operating procedures, (3) assurance that quality parameters built into the analytical procedures have been adhered to, and (4) confirmation that the DQOs have been met.

Table 5 highlights the QC criteria and holding time requirements for all analyses conducted under this program. These criteria will be used to evaluate and qualify the data during validation.

The consultant or qualified contracted personnel will validate all analytical samples collected as part of the Williamsburg Works Former MGP RI. Samples collected for waste classification will not be validated. Validation will include all technical holding times, as well as QC sample results (blanks, surrogate spikes, laboratory duplicates, MS/MSDs, and LCSs), tunes, internal standards, calibrations, target compound identification, and results calculations.

For all analyses, the laboratory will report results, which are below the laboratory's reporting limit; these results will be qualified as estimated (J) by the laboratory. The laboratory may be required to report TICs for the VOC and SVOC analyses; this will be requested by the consultant on an as-needed basis

The overall completeness of the data package will also be evaluated by the data validator. Completeness checks will be administered on all data to determine whether full data deliverables were provided. The reviewer will determine whether all required items are present and request copies of missing deliverables.

Upon completion of the validation, a report will be prepared. This report will summarize the samples reviewed, elements reviewed, any nonconformance with the established criteria, and validation actions. Data qualifiers will be consistent with EPA National Functional Guidelines. This report will be in a format consistent with NYSDEC's DUSR.

9.3 Analytical Data Validation

Laboratory deliverables will consist of an original hard copy data package that is in general accordance with NYSDEC ASP Category B data deliverable requirements.

10. Internal Quality Control

Laboratory and field quality internal control checks will be used to ensure the data quality objectives. At a minimum, this will include:

- Matrix spike and/or matrix spike duplicate samples
- Matrix duplicate analyses
- Laboratory control spike samples
- Instrument calibrations
- Instrument tunes for VOC 8260B and SVOC 8270C analyses
- Method and/or instrument blanks
- Surrogate spikes for organic analyses
- Internal standard spikes for VOC 8260B and SVOC 8270C analyses
- Detection limit determination and confirmation by analysis of low-level calibration standard

The laboratory quality plan for the selected ELAP is located in Appendix A.

Field quality control samples will include:

- Equipment blanks as outlined in Table 5
- Field duplicate samples as outlined in Table 5
- Trip blanks as outlined in Table 5
- MS/MSDs as outlined in Table 5

11. Performance and System Audits

Audits are an independent means of: 1) evaluating the operation or capability of a measurement system, and 2) documenting the use of QC procedures designed to generate data of know and acceptable quality.

Field audits may be completed to assess sample collection protocols, determine the integrity of COC procedures, and evaluate sample documentation and data handling procedures. Field audits may be scheduled by the QA officer, Project Manager (PM), site manager or in-house consultant, at their discretion. Written records of audits and any recommendations for corrective action will be submitted to the PM.

The QA officer is the interface between management and project activities in matters of project quality. The QA officer will review the implementation of the QAPP. Reviews will be conducted at the completion of field activities and will include the results of any audits and an evaluation of the data quality.

12. Preventative Maintenance

Preventative maintenance will be performed on field equipment in accordance with the manufacturer's recommendations. Preventative maintenance to field will be provided by the equipment vendor. The following equipment has been identified for use to implement the Work Plan.

Subsurface Soil Sampling Activities:

- RAE Systems MultiRAE Plus equipped with VOC (10.6 eV lamp), LEL, percent oxygen, hydrogen sulfide and hydrogen cyanide
- RAE Systems MiniRAE 2000 PID with 10.6 eV lamp.
- RAE Systems VRAE Surveying Monitor with LEL, hydrogen cyanide, hydrogen sulfide, carbon monoxide, and percent oxygen.
- Drager CMS and compound specific chips.
- MIE pDR 1200 with cyclone and pump
- MSA LC Pump
- BIOS DCL-5k pump calibrator

Groundwater Sampling Activities

- In-Situ Troll 9000
- YSI 600 XLM

Similar equipment will be substituted that perform the same functions can be substituted if selected equipment is not available from equipment supplier.

Laboratory equipment calibration and maintenance procedures are specified in the ELAP laboratory quality manual located in Appendix A.

13. Specific Procedures to Assess Data Quality Indicators

QC analyses conducted as a part of the testing program will provide a quantitative quality assessment of the data generated and their adherence to the data quality indicators. The data quality indicators ensure that the quality assurance objectives for the project are met.

13.1 Detection Limits

13.1.1 Method Detection Limit

The MDL is defined as follows for all measurements:

$$MDL = (t[n-1,1-a=0.99]) \times (s)$$

where: s = standard deviation of the replicate analysis,
t(n-1, 1-a=0.99) = student's t-value for a one-sided, 99 percent confidence level and a standard deviation estimate with n-1 degrees of freedom

The MDLs calculated by the laboratory are determined under ideal conditions. MDLs for environmental samples are dependent on the sample aliquot, the matrix, the concentration of analyte, and interference present in the matrix, the percent of moisture, dilution factor, etc. The MDL for each sample analysis will be adjusted accordingly.

13.1.2 *Reporting Limit*

The RL is the concentration of an analyte in the sample that corresponds to the lowest concentration standard of the calibration curve. As with the MDLs, the RLs are dependent on the sample aliquot, the final sample volume, the percent of moisture, dilution factor, etc.

The RL is determined as follows:

$$RL = \frac{Lowest\ conc.\ std\ (ng)}{Volume\ injected\ (uL)} \ x \ \frac{Sample\ aliquot\ (mL\ or\ g)}{Final\ volume\ (mL)} \ x\ DF\ x \ \frac{100}{(100 - \%M)}$$

where: DF = dilution factor, including all dilutions or lost samples not accounted for in a sample aliquot/final volume ratio
%M = percent moisture for solid samples.

13.2 Precision

Variability will be expressed in terms of the RPD when only two data points exist. The RPD is calculated as:

$$RPD = \frac{(Larger\ Value - Smaller\ Value)}{[(Larger\ Value + Smaller\ Value)/2]} \ x\ 100\%$$

For data sets greater than two points, the percent relative standard deviation (percent RSD) is used as the precision measurement. It is defined by the equation:

$$Percent\ RSD = \frac{Standard\ Deviation}{Mean} \ x\ 100\%$$

Standard deviation (SD) is calculated as follows:

$$SD = \sqrt{\sum_{i=1}^{n} \frac{(y_i - y)^2}{n - 1}}$$

where: SD = standard deviation
yi = measured value of the ith replicate
y = mean of replicate measurements
n = number of replicates

For measurements such as pH, where the absolute variation is more appropriate, precision is usually reported as the absolute range (D) of duplicate measurements:

D = | first measurement - second measurement |

or as the absolute standard deviation previously given. RPD, %RSD, and D are independent of the error of the analyses and reflect only the degree to which the measurements agree with each other, not the degree to which they agree with the true value for the parameter measured.

13.3 Accuracy

Accuracy is related to the bias in a measurement system. Accuracy describes the degree of agreement of a measurement with a true value. Accuracy will be expressed as percent recovery for each matrix spike analyte by using the following equation:

$$\%\ Recovery = \frac{Css - Cus}{Csa}\ X\ 100\%$$

where: Css = measured concentration in spiked sample
Cus = measured concentration in unspiked sample
Csa = known concentration added to the sample

Accuracy for a measurement such as pH is expressed as bias in the analysis of a standard reference sample according to the equation:

$$Bias = pH_m - pH_t$$

where: pH_m = measured pH
pH_t = the true pH of the standard reference sample

13.4 Completeness

Data completeness is a measure of the amount of usable data resulting from a measurement effort. For this program, completeness will be defined as the percentage of valid data obtained compared to the total number of measurements necessary to achieve our required statistical level of confidence for each test. The confidence level is based on the total number of samples proposed in the Work Plan.

Data completeness is calculated as:

$$Completeness = \frac{Number\ of\ valid\ data\ points}{Number\ of\ data\ points\ necessary\ for\ confidence\ level} \ x\ 100\%$$

The completeness goal is to generate a sufficient amount of valid data. It is anticipated that 95 percent of the data will be complete. Data validation criteria discussed in the work plan and Section 10 of this QAPP will be used to determine data completeness. Any data deficiencies and their effect on project goals will be evaluated in the DUSR.

13.5 Representativeness

Representativeness is a qualitative statement that expresses the extent to which the sample accurately and precisely represents the characteristics of interest of the study. Representativeness is primarily concerned with the proper design of the sampling program and is best ensured by proper selection of sampling locations and the taking of a sufficient number of samples. It is addressed by describing the sampling techniques, the matrices sampled, and the rationale for the selection of sampling locations, which are discussed in the field sampling plan and Work Plan

13.6 Comparability

Comparability is a qualitative parameter expressing the confidence that one set of data can be compared to another. Comparability is possible only when standardized sampling and analytical procedures are used.

14. Corrective Action

If unacceptable conditions are identified as a result of audits or are observed during field sampling and analysis, the PM, Field Team Leader, and QA officer will document the condition and initiate corrective procedures. The specific condition or problem will be identified, its cause will be determined, and appropriate action will be implemented.

The entire sampling program will be under the direction of the PM and QA officer. The emphasis in this program is on preventing problems by identifying potential errors, discrepancies, and gaps in the data collection, laboratory analysis, and interpretation process. Any problems identified will be promptly resolved. Likewise, follow-up corrective action is always an option in the event that preventative corrective actions are not effective.

The acceptance limits for the sampling and analyses to be conducted in this program will be those stated in the method or defined by other means in the Work Plan and FSP. Corrective actions are likely to be immediate in nature and most often will be implemented by the contracted laboratory analyst or the PM. The corrective action will usually involve recalculation, reanalysis, or repeating a sample run.

14.1 Immediate Corrective Action

Corrective action in the field may be needed when the sample requirements are changed (i.e., more/less samples, sampling locations other than those specified in the Work Plan), or when sampling procedures and/or field analytical procedures require modification, etc. due to unexpected conditions. The field team may identify the need for corrective action. The Field Team Leader, Site Manager, and PM will approve the corrective action and notify the QA officer. The PM and QA officer will approve the corrective measure. The Field Team Leader and Site Manager will ensure that the corrective measure is implemented by the field team.

Corrective actions will be implemented and documented in the field record book. Documentation will include:

- A description of the circumstances that initiated the corrective action
- The action taken in response
- The final resolution
- Any necessary approvals

No staff member will initiate corrective action without prior communication of findings through the proper channels.

Corrective action in the laboratory will be completed in accordance with the quality assurance procedures located in the Appendix A. Any corrective actions completed by the laboratory will be documented in both the laboratory's corrective action files, and the narrative data report sent from the laboratory to the PM. If the corrective action does not rectify the situation, the laboratory will contact the PM, who will determine the action to be taken and inform the appropriate personnel.

If potential problems are not solved as an immediate corrective action, the contractor will apply formalized long-term corrective action if necessary.

Tables

Table 1
Soil Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow soils within observed impacts (0 to 5' bgs); 2. Subsubface soils within heaviest observed impacts below 5 feet (if present); 3. Subsurface soils below depest observed viual impacts. IF NO IMPACTS ARE OBSERVED: 1. Shallow soils (0 to 5' bgs); 2. Water table interface; 3. Completion depth of boring.								Analysis (Method[1])						
		Sample Number			Sample Zone Depths											
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below depest observed viual impacts	Completion depth of boring	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/7000	Free Cyanide (EPA 9013A/ Micro-diffusion ASTM D4282-02)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
Surface Soils																
WW-SS-01	North 12th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-02	North 11th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-03	North 12th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-04	North 11th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-05	North 12th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-06	North 11th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-07	North 12th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-08	North 11th Street, adjacent to the site	1								X	X	X	X	X	X	X
WW-SS-09	North 12th Street, adjacent to the site	1								X	X	X	X	X	X	X
Subsurface Soils																
WW-TP-01	Block 2287, Lot 1, within the gas holder footprint	1								X	X	X	X	X	X	X
WW-TP-02	Block 2287, Lot 1, within the gas holder footprint	1								X	X	X	X	X	X	X
WW-TP-03	Block 2287, Lot 1, within the gas holder footprint	1								X	X	X	X	X	X	X

Table 1
Soil Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow soils within observed impacts (0 to 5' bgs); 2. Subsubface soils within heaviest observed impacts below 5 feet (if present); 3. Subsurface soils below depest observed viual impacts. IF NO IMPACTS ARE OBSERVED: 1. Shallow soils (0 to 5' bgs); 2. Water table interface; 3. Completion depth of boring.								Analysis (Method[1])						
		Sample Number			Sample Zone Depths											
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below depest observed viual impacts	Completion depth of boring	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/7000	Free Cyanide (EPA 9013A/ Micro-diffusion ASTM D4282-02)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-TP-04	Block 2287, Lot 1, within the gas holder footprint	1								X	X	X	X	X	X	X
WW-TP-05	Block 2287, Lot 1, within the gas holder footprint	1								X	X	X	X	X	X	X
WW-TP-06	Block 2287, Lot 1, within the gas holder footprint	1								X	X	X	X	X	X	X
WW-SB-01	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-02	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-03	Block 2287, Lot 1, within the gas holder footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-04	Block 2287, Lot 1, within the gas holder footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-05	Block 2287, Lot 1, within the gas holder footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-06	Block 2287, Lot 1, within the gas holder footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-07	Block 2287, Lot 1, within the gas holder footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-08	Block 2287, Lot 1, within the gas holder footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-09	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-10	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]

Table 1
Soil Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow soils within observed impacts (0 to 5' bgs); 2. Subsubface soils within heaviest observed impacts below 5 feet (if present); 3. Subsurface soils below depest observed viual impacts. IF NO IMPACTS ARE OBSERVED: 1. Shallow soils (0 to 5' bgs); 2. Water table interface; 3. Completion depth of boring.								Analysis (Method[1])						
		Sample Number			Sample Zone Depths											
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below depest observed viual impacts	Completion depth of boring	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/7000	Free Cyanide (EPA 9013A/ Micro-diffusion ASTM D4282-02)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-SB-11	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-12	Block 2287, Lot 16, within the purifying house footprint	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-13	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-14	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-15	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-16	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-17	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-SB-18	Kent Avenue, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-01	Wythe Avenue, east and upgradient of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-02	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-03	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-04	Block 2287, Lot 1, downgradient of the gas holder	3								X	X	X	X	X[2]	X[2]	X[2]

Table 1
Soil Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow soils within observed impacts (0 to 5' bgs); 2. Subsubface soils within heaviest observed impacts below 5 feet (if present); 3. Subsurface soils below depest observed viual impacts. IF NO IMPACTS ARE OBSERVED: 1. Shallow soils (0 to 5' bgs); 2. Water table interface; 3. Completion depth of boring.								Analysis (Method[1])						
		Sample Number			Sample Zone Depths											
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below depest observed viual impacts	Completion depth of boring	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/700	Free Cyanide (EPA 9013A/ Micro-diffusion ASTM D4282-02)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-MW-05	Block 2287, Lot 1, adjacent to the gas holders	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-06	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-07	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-08	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-09	Block 2287, Lot 16, downgradient of the gas holders, condensers and purifying house	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-10	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-11	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-12	North 11th Street, south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-13	North 12th Street, north of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-14	North 11th Street, downgradient of and south of the site	3								X	X	X	X	X[2]	X[2]	X[2]
WW-MW-15	North 12th Street, downgradient of and north of the site	3								X	X	X	X	X[2]	X[2]	X[2]

Table 1
Soil Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow soils within observed impacts (0 to 5' bgs); 2. Subsubface soils within heaviest observed impacts below 5 feet (if present); 3. Subsurface soils below depest observed viual impacts. IF NO IMPACTS ARE OBSERVED: 1. Shallow soils (0 to 5' bgs); 2. Water table interface; 3. Completion depth of boring.								Analysis (Method[1])						
		Sample Number			Sample Zone Depths											
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below depest observed viual impacts	Completion depth of boring	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/700	Free Cyanide (EPA 9013A/ Micro-diffusion ASTM D4282-02)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-MW-16	Kent Avenue, north of the site	3								X	X	X	X	X [2]	X [2]	X [2]

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenols
ASTM - American Society for Testing and Materials
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.
2. One sample from within the fill in each soil boring

Table 2
Groundwater Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: Collect one groundwater sample at the water table or installed monitoring well depth.				Water Quality Measurements						Analysis (Method[1])						
		Sample Number			Sample Zone													
		Number Samples Proposed	Number Samples Collected	Date Collected	Water Table	pH	Specific Conductance	Temperature	Oxidation Reduction Potential (ORP)	Turbidity	Dissolved Oxygen	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/7000)	Total Cyanide (9012)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-SB-03	Block 2287, Lot 1, within the gas holder footprint	1										X	X	X	X	X	X	X
WW-SB-05	Block 2287, Lot 1, within the gas holder footprint	1										X	X	X	X	X	X	X
WW-SB-07	Block 2287, Lot 1, within the gas holder footprint	1										X	X	X	X	X	X	X
WW-MW-01	Wythe Avenue, east and upgradient of the site	1										X	X	X	X	X	X	X
WW-MW-02	North 11th Street, south of the site	1										X	X	X	X	X	X	X
WW-MW-03	North 12th Street, north of the site	1										X	X	X	X	X	X	X
WW-MW-04	Block 2287, Lot 1, downgradient of the gas holder	1										X	X	X	X	X	X	X
WW-MW-05	Block 2287, Lot 1, adjacent to the gas holders	1										X	X	X	X	X	X	X
WW-MW-06	North 11th Street, south of the site	1										X	X	X	X	X	X	X
WW-MW-07	North 12th Street, north of the site	1										X	X	X	X	X	X	X
WW-MW-08	North 11th Street, south of the site	1										X	X	X	X	X	X	X
WW-MW-09	Block 2287, Lot 16, downgradient of the gas holders, condensers and purifying house	1										X	X	X	X	X	X	X
WW-MW-10	North 12th Street, north of the site	1										X	X	X	X	X	X	X
WW-MW-11	North 11th Street, south of the site	1										X	X	X	X	X	X	X
WW-MW-12	North 12th Street, north of the site	1										X	X	X	X	X	X	X
WW-MW-13	North 12th Street, north of the site	1										X	X	X	X	X	X	X

Table 2
Groundwater Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: Collect one groundwater sample at the water table or installed monitoring well depth.				Water Quality Measurements						Analysis (Method[1])						
		Sample Number			Sample Zone													
		Number Samples Proposed	Number Samples Collected	Date Collected	Water Table	pH	Specific Conductance	Temperature	Oxidation Reduction Potential (ORP)	Turbidity	Dissolved Oxygen	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/7000)	Total Cyanide (9012)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-MW-14	North 11th Street, downgradient of and south of the site	1										X	X	X	X	X	X	X
WW-MW-15	North 12th Street, downgradient of and north of the site	1										X	X	X	X	X	X	X
WW-MW-16	Kent Avenue, north of the site	1										X	X	X	X	X	X	X

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenols
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.

Table 3
Sediment Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow sediment (0 to 6" below sediemnt/water interface); 2. Sediment within heaviest observed impacts (if present); 3. Sediment below depest observed viual impacts or at the completion depth of the core. IF NO IMPACTS ARE OBSERVED: 1. Shallow sediment (0 to 6" below sediemnt/water interface); 2. Sediment/water interface;							Analysis (Method[1])						
		Sample Number			Sample Zone Depths									
		Number Samples Proposed	Number Samples Collected	Date Collected	Shallow sediment (0 to 6" below sediemnt/ water interface)	Sediment within heaviest observed impacts (if present)	Sediment/ water interface	Sediment below depest observed viual impacts or at the completion depth of the core	VOCs (8260B)	SVOCs (8270C)	TAL Metals (6000/7000	Free Cyanide (EPA 9013A/ Micro-diffusion ASTM D4282-02)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-SED-01	East River, adjacent to the site	3							X	X	X	X	X	X	X
WW-SED-02	East River, adjacent to the site	3							X	X	X	X	X	X	X
WW-SED-03	East River, adjacent to the site	3							X	X	X	X	X	X	X
WW-SED-04	East River, adjacent to the site	3							X	X	X	X	X	X	X
WW-SED-05	East River	3							X	X	X	X	X	X	X
WW-SED-06	East River	3							X	X	X	X	X	X	X
WW-SED-07	East River	3							X	X	X	X	X	X	X

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenols
ASTM - American Society for Testing and Materials
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.

Table 4
Soil Vapor and Ambient Air Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	**SAMPLE SELECTION PROTOCOL:** **1. Collect one soil vapor sample at the installed soil vapor point depth.** **2. Collect indoor air and outdoor air samples from the height of the breathing zone, approximately 3-5 feet above the ground surface.**			Analysis (Method)
		Sample Number			VOCs (expanded) (modified TO-15)
		Number Samples Proposed	Number Samples Collected	Date Collected	
WW-SV-01	Block 2288, Lot 1, within the footprint of the former gas holder	1			X
WW-SV-02	Block 2288, Lot 1, within the footprint of the former gas holder	1			X
WW-SV-03	Block 2287, Lot 1, within the footprint of the former gas holder	1			X
WW-SV-04	Block 2287, Lot 1, within the footprint of the former gas holder	1			X
WW-SV-05	Block 2287, Lot 1, within the footprint of the former gas holder	1			X
WW-SV-06	Block 2287, Lot 1, within the footprint of the former condenser house	1			X
WW-SV-07	Block 2287, Lot 1, within the footprint of the former purifyer house	1			X
WW-SV-08	Block 2287, Lot 1, within the footprint of the former purifyer	1			X
WW-SV-09	Block 2287, Lot 16, within the footprint of the former gas tank	1			X
WW-SV-10	Block 2287, Lot 16, within the footprint of the former condenser house	1			X

Table 4
Soil Vapor and Ambient Air Field Sampling Matrix
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Sample I.D.	Sample Location	**SAMPLE SELECTION PROTOCOL:** **1. Collect one soil vapor sample at the installed soil vapor point depth.** **2. Collect indoor air and outdoor air samples from the height of the breathing zone, approximately 3-5 feet above the ground surface.**			Analysis (Method)
		Sample Number			VOCs (expanded) (modified TO-15)
		Number Samples Proposed	Number Samples Collected	Date Collected	
WW-SV-11	Block 2287, Lot 16, within the footprint of the former retort house and generator house	1			X
WW-SV-12	Block 2287, Lot 30, within the footprint of the former oil seperators	1			X
WW-SV-13	Block 2287, Lot 30, within the footprint of the former tar tank	1			X
WW-SV-14	Block 2287, Lot 30, within the footprint of the former tar tank	1			X
WW-IA-01	Block 2288, Lot 1	1			X
WW-IA-02	Block 2288, Lot 1	1			X
WW-IA-03	Block 2287, Lot 1	1			X
WW-IA-04	Block 2287, Lot 1	1			X
WW-IA-05	Block 2287, Lot 16	1			X
WW-IA-06	Block 2287, Lot 16	1			X
WW-IA-07	Block 2287, Lot 30	1			X
WW-IA-08	Block 2287, Lot 30	1			X
WW-OA-01	North 12th Street, adjacent to Block 2288, Lot 1	1			X
WW-OA-02	North 12th Street, adjacent to Block 2287, Lot 1	1			X
WW-OA-03	North 11th Street, adjacent to Block 2287, Lot 16.	1			X
WW-OA-04	North 12th Street, adjacent to Block 2287, Lot 30	1			X

Notes:
VOCs - volatile organic compounds

Table 5
Analytical Methods/Quality Assurance Summary Table
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Media	Number of Primary Samples	QA/QC Samples				Total Number of Samples	Analytical Parameters	Method	Preservative	Holding Time	Container
		TB	FB[2]	DUP	MS/MSD						
Surface Soil	9	1	1	1	1	13	VOCs	8260B	Cool to 4°C	14 days to analysis	Wide mouth 2-oz. VOA, clear glass jar
	9	0	1	1	1	12	SVOCs	8270C	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	9	0	1	1	1	12	TAL Metals	6000/7000	Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	9	0	1	1	1	12	Free Cyanide	9013A/ ASTM Method D4282-02	Cool to 4° C	14 days	Wide-mouth amber 8-oz.
	9	0	1	1	1	12	Herbicides	8151A	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	9	0	1	1	1	12	PCBs	8082	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	9	0	1	1	1	12	Pesticides	8081A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
Subsurface Soil	108	22	6	6	6	148	VOCs	8260B	Cool to 4°C	14 days to analysis	Wide mouth 2-oz. VOA, clear glass jar
	108	0	6	6	6	126	SVOCs	8270C	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	108	0	6	6	6	126	TAL Metals	6000/7000	Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	Wide mouth 8-oz. and 4oz. clear glass jars1
	108	0	6	6	6	126	Free Cyanide	9013A/ ASTM Method D4282-02	Cool to 4° C	14 days	Wide-mouth amber 8-oz.
	40	0	2	2	2	46	Herbicides	8151A	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	40	0	2	2	2	46	PCBs	8082	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	40	0	2	2	2	46	Pesticides	8081A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
Soil Vapor	14	0	0	2	0	16	VOCs (including naphthalene)	TO-15	None	14 Days to analysis	2.7-Liter Summa Canister
Indoor Air	8	0	0	1	0	9	VOCs (including naphthalene)	TO-15	None	14 Days to analysis	6-Liter Summa Canister
Outdoor Air	4	0	0	1	0	5	VOCs (including naphthalene)	TO-15	None	14 Days to analysis	6-Liter Summa Canister

Table 5
Analytical Methods/Quality Assurance Summary Table
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Media	Number of Primary Samples	QA/QC Samples				Total Number of Samples	Analytical Parameters	Method	Preservative	Holding Time	Container
		TB	FB[2]	DUP	MS/MSD						
Ground Water	18	5	2	2	2	29	VOCs	8260B	pH<2 with HCl, Cool to 4°C	14 days to analysis	(2) 40 mL VOA vials
	18	0	2	2	2	24	SVOCs	8270C	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(2) 1 L amber glass jar
	18	0	2	2	2	24	TAL Metals	6000/7000	pH<2 with HNO_3; Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	(1) 500 mL polyethylene container
	18	0	2	2	2	24	Total Cyanide	9012	NaOH to pH>12/Cool to 4°C	14 days to analysis	(1) 500 mL polyethylene container
	18	0	2	2	2	24	Herbicides	8151A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(1)-1 L amber glass jar
	18	0	2	2	2	24	PCBs	8082	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(1)-1 L amber glass jar
	18	0	2	2	2	24	Pesticides	8081A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	1)-1 L amber glass jar
Sediment	21	2	2	2	2	29	VOCs	8260B	pH<2 with HCl, Cool to 4°C	14 days to analysis	Wide mouth 2-oz. VOA, clear glass jar
	21	0	2	2	2	27	SVOCs	8270C	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	21	0	2	2	2	27	TAL Metals	6000/7000	pH<2 with HNO_3; Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	21	0	2	2	2	27	Free Cyanide	9013A/ ASTM Method	Cool to 4° C	14 days	Wide-mouth amber 8-oz.
	21	0	2	2	2	27	Herbicides	8151A	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	21	0	2	2	2	27	PCBs	8082	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	21	0	2	2	2	27	Pesticides	8081A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]

[1]: SVOC, TAL metals, herbicides, pesticides and PCBs will be collected from the (1)- 8 oz jar and the (1)- 4 oz jar
[2]: Soil field blanks will include bottles listed in groundwater section of the table.
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenols
ASTM - American Society for Testing and Materials
°C- Degrees Celsius
L - Liter
oz. - ounce
mL - Milliliter
HNO3 - Nitric acid
HCl - Hydrochloric Acid
NAOH-Sodium Hydroxide

Table 6
Quantification Limits for Soils
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Metals by EPA Method 6000/7000 series			
Aluminum	258	20	mg/Kg
Antimony	11.7	1.14	mg/Kg
Arsenic	8	1.22	mg/Kg
Barium	2	0.18	mg/Kg
Beryllium	2	0.5	mg/Kg
Cadmium	3	1	mg/Kg
Calcium	85	11.6	mg/Kg
Chromium	3	0.34	mg/Kg
Cobalt	2	0.42	mg/Kg
Copper	5	0.8	mg/Kg
Iron	145	10.2	mg/Kg
Lead	9	0.76	mg/Kg
Magnesium	35	9.2	mg/Kg
Manganese	2.5	0.64	mg/Kg
Mercury	0.05	0.02	mg/Kg
Nickel	6.25	0.44	mg/Kg
Potassium	200	40	mg/Kg
Selenium	16	1.6	mg/Kg
Silver	3	0.32	mg/Kg
Sodium	94	20	mg/Kg
Thallium	20	4.17	mg/Kg
Vanadium	4	0.36	mg/Kg
Zinc	20	3.8	mg/Kg
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C			
1,2,4-Trichlorobenzene	333	55.96	ug/Kg
1,2-Dichlorobenzene	333	56.43	ug/Kg
1,2-Diphenylhydrazine	333	32.86	ug/Kg
1,3-Dichlorobenzene	333	50.49	ug/Kg
1,4-Dichlorobenzene	333	52.75	ug/Kg
2,2-oxybis (1-chloropropane)	333	47.18	ug/Kg
2,4,5-Trichlorophenol	1667	120.96	ug/Kg
2,4,6-Trichlorophenol	333	85.18	ug/Kg
2,4-Dichlorophenol	333	108.95	ug/Kg
2,4-Dimethylphenol	333	172.3	ug/Kg
2,4-Dinitrophenol	1667	114.87	ug/Kg
2,4-Dinitrotoluene	333	60.09	ug/Kg
2,6-Dinitrotoluene	333	60.57	ug/Kg
2-Chloronaphthalene	333	48.46	ug/Kg
2-Chlorophenol	333	86.27	ug/Kg
2-Methylnaphthalene	333	52.92	ug/Kg
2-Methylphenol	333	89.03	ug/Kg
2-Nitroaniline	1667	42.32	ug/Kg
2-Nitrophenol	333	115.71	ug/Kg
3,3-Dichlorobenzidine	667	88.96	ug/Kg
3-Nitroaniline	1667	68.54	ug/Kg
4,6-Dinitro-2-methylphenol	1667	239.28	ug/Kg
4-Bromophenyl phenyl ether	333	51.16	ug/Kg
4-Chloro-3-methylphenol	333	112.76	ug/Kg

Table 6
Quantification Limits for Soils
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C (Continued)			
4-Chloroaniline	333	107.34	ug/Kg
4-Chlorophenyl phenyl ether	333	45.74	ug/Kg
4-Methylphenol	333	179.39	ug/Kg
4-Nitroaniline	667	48.17	ug/Kg
4-Nitrophenol	1667	141.69	ug/Kg
Acenaphthene	333	55.32	ug/Kg
Acenaphthylene	333	40.59	ug/Kg
Aniline	333	73.83	ug/Kg
Anthracene	333	54.55	ug/Kg
Benzidine	3333	1134.9	ug/Kg
Benzo(a)anthracene	333	45.31	ug/Kg
Benzo(a)pyrene	333	41.16	ug/Kg
Benzo(b)fluoranthene	333	93.11	ug/Kg
Benzo(ghi)perylene	333	36.99	ug/Kg
Benzo(k)fluoranthene	333	37.12	ug/Kg
Benzoic acid	1667	90.33	ug/Kg
Benzyl alcohol	333	62.93	ug/Kg
Bis(2-chloroethoxy)methane	333	57.03	ug/Kg
Bis(2-chloroethyl)ether	333	44.86	ug/Kg
Bis(2-ethylhexyl)phthalate	333	44.37	ug/Kg
Butyl benzyl phthalate	333	43.04	ug/Kg
Carbazole	333	48.63	ug/Kg
Chrysene	333	41.6	ug/Kg
Dibenzo(a,h)anthracene	333	36.71	ug/Kg
Dibenzofuran	333	52.67	ug/Kg
Diethyl phthalate	333	48.88	ug/Kg
Dimethyl phthalate	333	51.27	ug/Kg
Di-n-butyl phthalate	333	43.98	ug/Kg
Di-n-octyl phthalate	333	34.97	ug/Kg
Fluoranthene	333	41.87	ug/Kg
Fluorene	333	43.39	ug/Kg
Hexachlorobenzene	333	48.52	ug/Kg
Hexachlorobutadiene	333	67.85	ug/Kg
Hexachlorocyclopentadiene	333	247.96	ug/Kg
Hexachloroethane	333	59.22	ug/Kg
Indeno(1,2,3-cd)pyrene	333	33.74	ug/Kg
Isophorone	333	60.02	ug/Kg
Naphthalene	333	56.66	ug/Kg
Nitrobenzene	333	40.4	ug/Kg
n-Nitrosodimethylamine	333	48.87	ug/Kg
n-Nitroso-di-n-propylamine	333	44.63	ug/Kg
n-Nitrosodiphenylamine	333	49.76	ug/Kg
Pentachlorophenol	1667	287.85	ug/Kg
Phenanthrene	333	38.58	ug/Kg
Phenol	333	96.98	ug/Kg
Pyrene	333	45.56	ug/Kg
Pyridine	667	39.9	ug/Kg

Table 6
Quantification Limits for Soils
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Volatile Organic Compounds (VOCs) by EPA Method 8260B			
1,1,1-Trichloroethane	5	0.84	ug/Kg
1,1,2,2-Tetrachloroethane	5	1.21	ug/Kg
1,1,2-Trichloroethane	5	1.04	ug/Kg
1,1-Dichloroethane	5	0.81	ug/Kg
1,1-Dichloroethene	5	1.09	ug/Kg
1,2,3-Trichloropropane	5	1.62	ug/Kg
1,2,4-Trichlorobenzene	5	0.61	ug/Kg
1,2-Dichloroethane	5	0.99	ug/Kg
1,2-Dichloropropane	5	1.06	ug/Kg
2-Butanone (MEK)	10	1.78	ug/Kg
2-Chloroethylvinylether	5	1.37	ug/Kg
2-Hexanone	10	2.53	ug/Kg
4-Methyl-2-pentanone (MIBK)	5	1.18	ug/Kg
Acetone	20	3.15	ug/Kg
Acrolein	20	3.1	ug/Kg
Acrylonitrile	5	1.19	ug/Kg
Benzene	5	0.86	ug/Kg
Bromodichloromethane	5	0.84	ug/Kg
Bromoform	5	0.99	ug/Kg
Bromomethane	5	0.82	ug/Kg
Carbon disulfide	5	0.61	ug/Kg
Carbon tetrachloride	5	0.78	ug/Kg
Chlorobenzene	5	0.79	ug/Kg
Chloroethane	5	1.89	ug/Kg
Chloroform	5	0.53	ug/Kg
Chloromethane	5	0.9	ug/Kg
cis-1,2-Dichloroethene	5	1.04	ug/Kg
cis-1,3-Dichloropropene	5	0.78	ug/Kg
Dibromochloromethane	5	0.41	ug/Kg
Dichlorodifluoromethane	5	1.25	ug/Kg
Ethylbenzene	5	0.79	ug/Kg
Isopropyl ether	5	0.44	ug/Kg
Methylene chloride	20	2.21	ug/Kg
Methyl-tert-butyl-ether (MTBE)	5	0.93	ug/Kg
Styrene	5	1.06	ug/Kg
tert-Butyl alcohol	20	4.69	ug/Kg
Tetrachloroethene	5	0.7	ug/Kg
Toluene	5	0.84	ug/Kg
trans-1,2-Dichloroethene	5	0.58	ug/Kg
trans-1,3-Dichloropropene	5	0.92	ug/Kg
Trichloroethene	5	0.68	ug/Kg
Trichlorofluoromethane	5	0.6	ug/Kg
Trichlorotrifluoroethane	5	0.63	ug/Kg
Vinyl acetate	10	2.7	ug/Kg
Vinyl chloride	5	0.87	ug/Kg
Xylenes (total)	5	1.96	ug/Kg

Table 6
Quantification Limits for Soils
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Free Cyanide by EPA Method 9013/ ASTM D4282-02			
Cyanide	TBD	TBD	ug/Kg

Notes:
mg/kg - miligrams per killogram
ug/Kg - micrograms per killogram
TBD - To Be Determined
EPA - Environmental Protection Agency
ASTM - American Standard for Testing and Materials

Table 7
Quantification Limits for Groundwater
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Cyanide by EPA Method 9012			
Cyanide, Total	10	1	ug/L
Metals by EPA Method 6000/7000 series			
Aluminum	500	92	ug/L
Antimony	20	5.4	ug/L
Arsenic	40	3.9	ug/L
Barium	5	0.74	ug/L
Beryllium	5	0.54	ug/L
Cadmium	10	1.1	ug/L
Calcium	300	56	ug/L
Chromium	10	1.3	ug/L
Cobalt	10	1.8	ug/L
Copper	10	4.3	ug/L
Iron	100	54	ug/L
Lead	10	3	ug/L
Magnesium	100	26	ug/L
Manganese	15	6.9	ug/L
Mercury	0.4	0.07	ug/L
Nickel	10	1.9	ug/L
Potassium	400	191	ug/L
Selenium	30	5	ug/L
Silver	6	1.1	ug/L
Sodium	400	98	ug/L
Thallium	40	10	ug/L
Vanadium	6	1.5	ug/L
Zinc	50	11	ug/L
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C			
1,2,4-Trichlorobenzene	10	0.68	ug/L
1,2-Dichlorobenzene	10	0.74	ug/L
1,2-Diphenylhydrazine	10	0.84	ug/L
1,3-Dichlorobenzene	10	0.68	ug/L
1,4-Dichlorobenzene	10	0.46	ug/L
2,2-oxybis (1-chloropropane)	10	0.62	ug/L
2,4,5-Trichlorophenol	50	0.78	ug/L
2,4,6-Trichlorophenol	10	0.79	ug/L
2,4-Dichlorophenol	10	0.84	ug/L
2,4-Dimethylphenol	10	0.73	ug/L
2,4-Dinitrophenol	50	5.13	ug/L
2,4-Dinitrotoluene	10	0.8	ug/L
2,6-Dinitrotoluene	10	0.59	ug/L
2-Chloronaphthalene	10	0.73	ug/L
2-Chlorophenol	10	0.6	ug/L
2-Methylnaphthalene	10	0.64	ug/L
2-Methylphenol	10	0.59	ug/L
2-Nitroaniline	50	1.12	ug/L
2-Nitrophenol	10	0.75	ug/L
3,3-Dichlorobenzidine	10	0.98	ug/L

Table 7
Quantification Limits for Groundwater
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C (Continued)			
3-Nitroaniline	50	0.67	ug/L
4,6-Dinitro-2-methylphenol	50	4.24	ug/L
4-Bromophenyl phenyl ether	10	0.91	ug/L
4-Chloro-3-methylphenol	10	0.51	ug/L
4-Chloroaniline	10	0.43	ug/L
4-Chlorophenyl phenyl ether	10	0.82	ug/L
4-Methylphenol	10	0.33	ug/L
4-Nitroaniline	20	1.05	ug/L
4-Nitrophenol	50	1.85	ug/L
Acenaphthene	10	0.8	ug/L
Acenaphthylene	10	0.75	ug/L
Aniline	10	0.63	ug/L
Anthracene	10	0.99	ug/L
Benzidine	100	2.15	ug/L
Benzo(a)anthracene	10	1.19	ug/L
Benzo(a)pyrene	10	1.08	ug/L
Benzo(b)fluoranthene	10	1.54	ug/L
Benzo(ghi)perylene	10	1.04	ug/L
Benzo(k)fluoranthene	10	0.91	ug/L
Benzoic acid	50	5.88	ug/L
Benzyl alcohol	10	0.99	ug/L
Bis(2-chloroethoxy)methane	10	0.87	ug/L
Bis(2-chloroethyl)ether	10	0.87	ug/L
Bis(2-ethylhexyl)phthalate	10	1.31	ug/L
Butyl benzyl phthalate	10	0.96	ug/L
Carbazole	10	1.11	ug/L
Chrysene	10	0.97	ug/L
Dibenzo(a,h)anthracene	10	1.34	ug/L
Dibenzofuran	10	0.82	ug/L
Diethyl phthalate	10	0.82	ug/L
Dimethyl phthalate	10	0.63	ug/L
Di-n-butyl phthalate	10	1.14	ug/L
Di-n-octyl phthalate	10	1.3	ug/L
Fluoranthene	10	1.08	ug/L
Fluorene	10	0.77	ug/L
Hexachlorobenzene	10	1.07	ug/L
Hexachlorobutadiene	10	0.84	ug/L
Hexachlorocyclopentadiene	10	2.21	ug/L
Hexachloroethane	10	1.06	ug/L
Indeno(1,2,3-cd)pyrene	10	1.17	ug/L
Isophorone	10	0.66	ug/L
Naphthalene	10	0.66	ug/L
Nitrobenzene	10	0.79	ug/L
n-Nitroso-di-n-propylamine	10	0.7	ug/L
n-Nitrosodiphenylamine	10	1.08	ug/L
n-Nitrosomethylethylamine	10	0.5	ug/L

Table 7
Quantification Limits for Groundwater
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C (Continued)			
Pentachlorophenol	50	5.04	ug/L
Phenanthrene	10	0.66	ug/L
Phenol	10	0.35	ug/L
Pyrene	10	1.01	ug/L
Pyridine	20	2.31	ug/L
Volatile Orangic Compounds (VOCs) by EPA Method 8260B			
1,1,1-Trichloroethane	5	0.4	ug/L
1,1,2,2-Tetrachloroethane	5	0.4	ug/L
1,1,2-Trichloroethane	5	0.6	ug/L
1,1-Dichloroethane	5	0.6	ug/L
1,1-Dichloroethene	5	0.7	ug/L
1,2,3-Trichloropropane	5	1.1	ug/L
1,2,4-Trichlorobenzene	5	0.9	ug/L
1,2-Dichloroethane	5	0.6	ug/L
1,2-Dichloropropane	5	0.9	ug/L
1,3-Dichloropropane	5	0.4	ug/L
2-Butanone (MEK)	5	1.2	ug/L
2-Chloroethylvinylether	5	0.6	ug/L
2-Hexanone	5	0.8	ug/L
4-Methyl-2-pentanone (MIBK)	5	0.7	ug/L
Acetone	5	1.4	ug/L
Acrolein	10	7.8	ug/L
Acrylonitrile	5	1.6	ug/L
Benzene	5	0.4	ug/L
Bromodichloromethane	5	0.4	ug/L
Bromoform	5	0.8	ug/L
Bromomethane	5	1.2	ug/L
Carbon disulfide	5	0.9	ug/L
Carbon tetrachloride	5	1	ug/L
Chlorobenzene	5	0.4	ug/L
Chloroethane	5	0.8	ug/L
Chloroform	5	0.7	ug/L
Chloromethane	5	0.5	ug/L
cis-1,2-Dichloroethene	5	0.6	ug/L
cis-1,3-Dichloropropene	5	0.5	ug/L
Dibromochloromethane	5	0.5	ug/L
Dichlorodifluoromethane	5	0.6	ug/L
Ethylbenzene	5	1	ug/L
Isopropyl ether	5	N/A	ug/L
Methylene chloride	5	0.4	ug/L
Methyl-tert-butyl-ether (MTBE)	5	0.3	ug/L
Styrene	5	0.5	ug/L
Tetrachloroethene	5	0.5	ug/L
Toluene	5	0.3	ug/L
trans-1,2-Dichloroethene	5	0.5	ug/L
trans-1,3-Dichloropropene	5	0.3	ug/L

Table 7
Quantification Limits for Groundwater
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Volatile Orangic Compounds (VOCs) by EPA Method 8260B (continued)			
Trichloroethene	5	0.7	ug/L
Trichlorofluoromethane	5	0.6	ug/L
Trichlorotrifluoroethane	5	0.5	ug/L
Vinyl acetate	5	0.2	ug/L
Vinyl chloride	5	0.8	ug/L
Xylenes (total)	5	1	ug/L

Notes:
ug/L - micrograms per liter
EPA - Environmental Protection Agency

Table 8
Quantification Limits for Soil Vapor and Ambient Air
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Analyte	CAS Number	Molecular Weight	Reporting Limit (ppbv)	Reporting Limit (µg/m3)
NYSDEC DER TO-15 TCL				
Benzene	71-43-2	78.11	0.20	0.64
Benzyl chloride	100-44-7	140.57	0.40	2.3
Bromodichloromethane	75-27-4	163.83	0.20	1.3
Bromoform	75-25-2	252.75	0.20	2.1
Bromomethane (Methyl bromide)	74-83-9	94.95	0.20	0.78
2-Butanone (Methyl ethyl ketone)	78-93-3	72.11	1.0	2.9
Carbon Tetrachloride	56-23-5	153.84	0.20	1.3
Chlorobenzene	108-90-7	112.56	0.20	0.92
Chloroethane	75-00-3	64.52	0.20	0.53
Chloroform	67-66-3	119.39	0.20	0.98
Chloromethane (Methyl chloride)	74-87-3	50.49	0.50	1
Cyclohexane	110-82-7	84.16	0.50	1.7
Dibromochloromethane	124-48-1	208.29	0.20	1.7
1,2-Dibromoethane	106-93-4	187.88	0.20	1.5
1,2-Dichlorobenzene	95-50-1	147.01	0.20	1.2
1,3-Dichlorobenzene	541-73-1	147.01	0.20	1.2
1,4-Dichlorobenzene	106-46-7	147.01	0.20	1.2
Dichlorodifluoromethane (Freon 12)	75-71-8	120.92	0.20	0.99
1,1-Dichloroethane	75-34-3	98.97	0.20	0.81
1,2-Dichloroethane	107-06-2	98.96	0.20	0.81
1,1-Dichloroethene	75-35-4	96.95	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2	96.95	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5	96.95	0.20	0.79
1,2-Dichloropropane	78-87-5	112.99	0.20	0.92
cis-1,3-Dichloropropene	10061-01-5	110.98	0.20	0.91
trans-1,3-Dichloropropene	10061-02-6	110.98	0.20	0.91
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	170.93	0.20	1.4
1,4-Dioxane	123-91-1	88.11	0.50	1.8
Ethanol *	64-17-5	46.07	0.20	0.38
Ethylbenzene	100-41-4	106.16	0.20	0.87
Hexachlorobutadiene	87-68-3	260.76	1.0	10.7
n-Hexane	110-54-3	86.18	0.50	1.8
Methylene Chloride	75-09-2	84.94	0.50	1.7
4-Methyl-2-pentanone (MIBK)	108-10-1	100.16	0.50	2
MTBE (Methyl tert-butyl ether)	1634-04-4	88.15	1.0	3.6
Styrene	100-42-5	104.14	0.20	0.85
Tertiary Butyl Alcohol (TBA)	76-65-0	74.12	2.00	6.1
1,1,2,2-Tetrachloroethane	79-34-5	167.86	0.20	1.4

Table 8
Quantification Limits for Soil Vapor and Ambient Air
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Analyte	CAS Number	Molecular Weight	Reporting Limit (ppbv)	Reporting Limit (µg/m3)
Tetrachloroethene (PCE)	127-18-4	165.85	0.20	1.4
Toluene	108-88-3	92.13	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1	181.46	1.0	7.4
1,1,1-Trichloroethane	71-55-6	133.42	0.20	1.1
1,1,2-Trichloroethane	79-00-5	133.42	0.20	1.1
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	187.38	0.20	1.5
Trichloroethene (TCE)	79-01-6	131.4	0.20	1.1
Trichlorofluoromethane (Freon 11)	75-69-4	137.38	0.20	1.1
1,2,4-Trimethylbenzene	95-63-6	120.19	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8	120.19	0.20	0.98
2,2,4-Trimethylpentane	540-84-1	114.23	0.50	2.3
Vinyl Chloride	75-01-4	62.5	0.20	0.51

Notes:

a. Actual reporting limits of field samples may be higher due to sample dilution by the laboratory to quantify compounds at elevated concentrations. (see note b)

b. The laboratory must notify KeySpan prior to sample dilution.

c. ppbv = part per billion by volume

d. ug/m 3 = microgram per cubic meter

Table 9
Soil Cleanup Objectives
Williamsburg Works Former MGP Site
Remedial Investigation
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Volatile Organic Compounds							
Acetone	0.05	100	100	500	1,000	0.05	2.2
Benzene	0.06	2.9	4.8	44	89	0.06	70
Butanone, 2-	0.12	100	100	500	1,000	0.12	100
Butylbenzene, n-	12	100	100	500	1,000	12	NE
Butylbenzene, tert-	5.9	100	100	500	1,000	5.9	NE
Butylbenzene,sec-	11	100	100	500	1,000	11	NE
Carbon tetrachloride	0.76	1.4	2.4	22	44	0.76	NE
Chlorobenzene	1.1	100	100	500	1,000	1.1	40
Chloroform	0.37	10	49	350	700	0.37	12
Dichlorobenzene,1,2-	1.1	100	100	500	1,000	1.1	NE
Dichlorobenzene,1,3-	2.4	17	49	280	560	2.4	NE
Dichlorobenzene,1,4-	1.8	9.8	13	130	250	1.8	20
Dichloroethane,1,1-	0.27	19	26	240	480	0.27	NE
Dichloroethane,1,2-	0.02	2.3	3.1	30	60	0.02	10
Dichloroethene, cis-1,2-	0.25	59	100	500	1,000	0.25	NE
Dichloroethene,1,1-	0.33	100	100	500	1,000	0.33	NE
Dioxane,1,4-	0.1	9.8	13	130	250	0.1	0.1
Ethylbenzene	1	30	41	390	780	1	NE
Methyl tert-butyl ether	0.93	62	100	500	1,000	0.93	NE
Methylene chloride	0.05	51	100	500	1,000	0.05	12
Naphthalene	12	100	100	500	1,000	12	NE
Propylbenzene, n-	3.9	100	100	500	1,000	3.9	NE
Tetrachloroethene	1.3	5.5	19	150	300	1.3	2
Toluene	0.7	100	100	500	1,000	0.7	36
Trans-1,2-dichloroethene	0.19	100	100	500	1,000	0.19	NE
Trichloroethane, 1,1,1-	0.68	100	100	500	1,000	0.68	NE
Trichloroethene	0.47	10	21	200	400	0.47	2
Trimethylbenzene, 1,2,4-	3.6	47	52	190	380	3.6	NE
Trimethylbenzene, 1,3,5-	8.4	47	52	190	380	8.4	NE
Vinyl chloride	0.02	0.21	0.9	13	27	0.02	NE
Xylene, total	0.26	100	100	500	1,000	1.6	0.26

Table 9
Soil Cleanup Objectives
Williamsburg Works Former MGP Site
Remedial Investigation
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Semivolatile Organic Compounds							
Acenaphthene	20	100	100	500	1,000	98	20
Acenaphthylene	100	100	100	500	1,000	107	NE
Anthracene	100	100	100	500	1,000	1,000	NE
Benz[a]anthracene	1	1	1	5.6	11	1	NE
Benzo[a]pyrene	1	1	1	1	1.1	22	2.6
Benzo[b]fluoranthene	1	1	1	5.6	11	1.7	NE
Benzo[g,h,i]perylene	100	100	100	500	1,000	1,000	NE
Benzo[k]fluoranthene	0.8	1	3.9	56	110	1.7	NE
Chrysene	1	1	3.9	56	110	1	NE
Dibenz[a,h]anthracene	0.33	0.33	0.33	0.56	1.1	1,000	NE
Dibenzofuran	7	14	59	350	1,000	210	NE
Fluoranthene	100	100	100	500	1,000	1,000	NE
Fluorene	30	100	100	500	1,000	386	30
Hexachlorobenzene	0.33	0.33	1.2	6	12	3.2	NE
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.5	5.6	11	8.2	NE
Methylphenol, 4-	0.33	34	100	500	1,000	0.33	NE
Cresol, m (methylphenol, 3-)	0.33	100	100	500	1,000	0.33	NE
Methylphenol,2-	0.33	100	100	500	1,000	0.33	NE
Pentachlorophenol	0.8	2.4	6.7	6.7	55	0.8	0.8
Phenanthrene	100	100	100	500	1,000	1,000	NE
Phenol	0.33	100	100	500	1,000	0.33	30
Pyrene	100	100	100	500	1,000	1,000	NE
Pesticides							
Aldrin	0.005	0.019	0.097	0.68	1.4	0.19	0.14
Alpha-bhc	0.02	0.097	0.48	3.4	6.8	0.02	0.04
Alpha-chlordane	0.094	0.91	4.2	24	47	2.9	1.3
Beta-BHC	0.036	0.072	0.36	3	14	0.09	0.6
DDD,4,4-	0.0033	2.6	13	92	180	14	0.0033
DDE,4,4-	0.0033	1.8	8.9	62	120	17	0.0033
DDT,4,4-	0.0033	1.7	7.9	47	94	136	0.0033
Delta-BHC	0.04	100	100	500	1,000	0.25	0.04
Dieldrin	0.005	0.039	0.2	1.4	2.8	0.1	0.006
Endosulfan I	2.4	4.8	24	200	920	102	NE
Endosulfan II	2.4	4.8	24	200	920	102	NE
Endosulfan sulfate	2.4	4.8	24	200	920	1,000	NE

Table 9
Soil Cleanup Objectives
Williamsburg Works Former MGP Site
Remedial Investigation
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Endrin	0.014	2.2	11	89	410	0.06	0.014
Gamma-BHC	0.1	0.28	1.3	9.2	23	0.1	6
Heptachlor	0.042	0.42	2.1	15	29	0.38	0.14
Silvex	3.8	58	100	500	1,000	3.8	NE
Polychlorinated Biphenyls (PCBs)							
Total PCBs	0.1	1	1	1	25	3.2	1
Metals							
Arsenic	13	16	16	16	16	16	13
Barium	350	350	400	400	10,000	820	433
Beryllium	7.2	14	72	590	2700	47	10
Cadmium	2.5	2.5	4.3	9.3	60	7.5	4
Chromium (VI)	1	22	110	400	800	19	1
Chromium (III)	30	36	180	1500	6800		41
Copper	50	270	270	270	10,000	1720	50
Lead	63	400	400	1000	3900	450	63
Manganese	1600	2000	2,000	10,000	10,000	2,000	1600
Mercury	0.18	0.81	0.81	2.8	5.7	0.73	0.18
Nickel	30	140	310	310	10,000	130	30
Selenium	3.9	36	180	1500	6800	4	3.9
Silver	2	36	180	1500	6800	8.3	2
Zinc	109	2200	10,000	10,000	10,000	2480	109
Cyanide							
Cyanide, Total	27	27	27	27	10,000	40	NE

Notes:
ppm - parts per million

Table 10
Groundwater Standards /Guidance Values
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Parameter	DQL[1]
Volatile Organic Compounds	
Acetone	50
Benzene	1
2-Butanone	50
Carbon Disulfide	NE
Carbon Tetrachloride	5
Chlorobenzene	5
Chloroethane	5
Chloroform	7
Dibromochloromethane	50
1,2-Dichlorobenzene	3
1,3-Dichlorobenzene	3
1,4-Dichlorobenzene	3
1,1-Dichloroethane	5
1,2-Dichloroethane	**0.6**
1,1-Dichloroethene	5
trans-1,2-Dichloroethene	5
1,3-Dichloropropane	5
Ethylbenzene	5
Freon 113	5
Methylene chloride	5
4-Methyl-2-pentanone	503
Tetrachloroethene	5
1,1,1-Trichloroethane	5
1,1,2,2-Tetrachloroethane	5
1,2,3-Trichloropropane	**0.04**
1,2,4-Trichlorobenzene	5
Toluene	5
Trichloroethene	5
Vinyl chloride	2
Xylenes	5
Isopropylbenzene	5
n-Propylbenzene	5
p-Isopropyltoluene	5
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
n-Butylbenzene	5
sec-Butylbenzene	5
t-Butylbenzene	5
MTBE	10

Table 10
Groundwater Standards /Guidance Values
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Parameter	DQL[1]
Pesticides	
Aldrin	ND
alpha-BHC	**0.01**
beta-BHC	0.04
delta-BHC	0.04
Chlordane	**0.05**
4,4'-DDD	0.3
4,4'-DDE	0.2
4,4'-DDT	0.2
Dieldrin	**0.004**
Endosulfan I	NE
Endosulfan II	NE
Endosulfan sulfate	NE
Endrin	ND
Endrin ketone	5
gamma-BHC (Lindane)	0.05
gamma-Chlordane	NE
Heptachlor	0.04
Heptachlor epoxide	0.03
Methoxychlor	35
2,4'-DDD	NE
Aniline	5
Semivolatile Organic Compounds	
Acenaphthene	20
Acenaphthylene	NS
Anthracene	50
Benzo(a)anthracene	**0.002**
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	**0.002**
Benzo(g,h,i)perylene	NE
Benzo(k)fluoranthene	**0.002**
Bis(2-ethylhexyl)phthalate	5
Butylbenzylphthalate	50
Chrysene	**0.002**
4-Chloroaniline	5
4-Chloro-3-methylphenol	**1**
2-Chlorophenol	**1**
Dibenzofuran	NE
Dibenz(a,h)anthracene	NE
3,3'-Dichlorobenzidine	5
2,4-Dichlorophenol	5

Table 10
Groundwater Standards /Guidance Values
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Parameter	DQL[1]
2,4-Dinitrophenol	**10**
2,6-Dinitrotoluene	5
Diethylphthalate	50
Dimethylphthalate	50
Di-n-butylphthalate	50
Di-n-octylphthalate	50
Fluoranthene	50
Fluorene	50
Hexachlorobenzene	**0.04**
Indeno(1,2,3-cd)pyrene	**0.002**
Isophorone	50
2-Methylnaphthalene	NE
2-Methylphenol	**1**
4-Methylphenol	**1**
Naphthalene	10
Nitrobenzene	**0.4**
2-Nitroaniline	5
2-Nitrophenol	**1**
4-Nitrophenol	**1**
3-Nitroaniline	5
Pentachlorophenol	**1**
Phenanthrene	50
Phenol	**1**
Pyrene	50
2,4,5-Trichlorophenol	**1**
Total Metals	
Aluminum	NE
Antimony	**3**
Arsenic	25
Barium	1000
Beryllium	3
Cadmium	5
Calcium	NE
Chromium	50
Cobalt	NE
Copper	200
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Mercury	0.7

Table 10
Groundwater Standards /Guidance Values
Williamsburg Works MGP Site
Remedial Investigation
Brooklyn, New York

Parameter	DQL[1]
Nickel	100
Potassium	NE
Selenium	10
Silver	50
Sodium	20,000
Thallium	**0.5**
Vanadium	NE
Zinc	2000
Polychlorinated Biphenyls (PCBs)	
Aroclor 1016	**0.09**
Aroclor 1221	**0.09**
Aroclor 1232	**0.09**
Aroclor 1242	**0.09**
Aroclor 1248	**0.09**
Aroclor 1254	**0.09**
Aroclor 1260	**0.09**
Cyanide	
Cyanide	200

[1] DQL based on TOGS Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June, 1998)
[2] DQL listed is for total PCBs
DQL = Data Quality Level
NE = None established
ND = Not detected when analyzed by method listed in Table 7
Compounds which will not achieve the DQL are highlighted

Appendix A

Laboratory Quality Manual (electronic only)

SEVERN TRENT LABORATORIES - CONNECTICUT
LABORATORY QUALITY MANUAL
Revision: 6

128 Long Hill Cross Road
Shelton, Connecticut 06484
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Approved by:

Peter Frick, Laboratory Director — Date: March 22, 2005

Marsha K. Culik, Quality Assurance Manager — Date: March 22, 2005

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1. Introduction, Purpose, and Scope

1.1. Severn Trent Laboratories (STL) Overview

Severn Trent Plc is a leading environmental services group providing water, waste and utility services. The businesses include Severn Trent Water, Biffa, Severn Trent Laboratories (STL) and Severn Trent Services.

The corporate vision is to be at the forefront of the environmental services industry. The corporate values of environmental leadership, service and quality define the business culture and strategic direction.

STL offers a broad range of environmental testing services provided by over two thousand professionals in the US. STL's testing capabilities include chemical, physical, and biological analyses of a variety of matrices, including aqueous, solid, drinking water, waste, tissue, air and saline/estuarine samples. Specialty capabilities include air toxics, radiological testing, tissue preparation and analysis, aquatic toxicology, microbiology, Mycology, asbestos, microscopy services, and on-site technologies including mobile laboratory services.

This plan is intended to describe the quality assurance program of the STL-Connecticut facility located at 128 Long Hill Cross Roads, Shelton, Connecticut. STL operates a corporate wide quality assurance program and this facility QA program complies with the requirements set forth in the corporate program.

1.2. Quality Assurance Policy

It is STL's policy to:

- Provide high quality, consistent, and objective environmental testing services that meet all federal, state, and municipal regulatory requirements.
- Generate data that are scientifically sound, legally defensible, meet project objective, and are appropriate for their intended use.
- Provide STL clients with the highest level of professionalism and the best service practices in the industry.
- Build continuous improvement mechanisms into all laboratory, administrative and managerial activities.
- Maintain a working environment that fosters open communication with both clients and staff and ensures data integrity.

1.3. Management Commitment to Quality Assurance

STL management is committed to providing the highest quality data and the best overall service in the environmental testing industry. To ensure that the data produced and reported by STL meet the requirements of its clients and comply with the letter and spirit of municipal, state and federal regulations, STL maintains a Quality System that is clear, effective, well communicated, and supported at all levels in the company.

STL Vision and Mission Statement

Vision

STL will be the recognized industry leader for environmental analysis.

Mission

Through the innovation and dedication of our people, together with the quality of our systems, we will deliver levels of performance that delight our clients, retain the confidence of our stakeholders and enable the profitable growth of our business.

1.4. Purpose

The purpose of this Laboratory Quality Manual (LQM) is to describe the STL-Connecticut Quality System and to outline how that system enables all employees of STL-Connecticut to meet the Quality Assurance (QA) policy. The LQM also describes specific QA activities and requirements and prescribes their frequencies. Roles and responsibilities of management and laboratory staff in support of the Quality System are also defined in the LQM. In some cases, the requirements in the facility QA program may be more stringent than the corporate program, but in no case can they be less stringent.

1.5. Scope

The requirements set forth in this document are applicable to the STL-Connecticut quality systems and laboratory operations.

STL operates under the regulations and guidelines of the following federal programs:

US Army Corp of Engineers, Hazardous, Toxic and Radioactive Waste (USACE HTRW)
Clean Air Act (CAA)
Clean Water Act (CWA)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
New York State Department of Environmental Conservation (NYSDEC)
National Pollution, Discharge, and Elimination System (NPDES, NJPDES)
Resource Conservation and Recovery Act (RCRA)
Safe Drinking Water Act (SDWA)
US Army Corps of Engineers, Hazardous, Toxic and Radioactive Waste (USACE HTRW)

STL also provides services under various state and local municipal guidelines. A current list of Analytical Services and certifications can be provided by the laboratory or viewed on the MySTL webpage at www.MySTL-inc.com.

This QMP was written to comply with the National Environmental Laboratory Accreditation Conference (NELAC) standards and the STL corporate Quality Management Plan, M-Q-001.

1.6 **Servicing**

Project Managers are the direct client contact and they ensure resources are available to meet project requirements. Although Project Managers do not have direct reports or staff in production, they coordinate opportunities and work with laboratory management and supervisory staff to ensure available resources are sufficient to perform work for the client's project. Project Managers provide a link between the client and laboratory resources.

The laboratory has established procedures for performing and verifying that client servicing meets requirements. Typical services provided are:

- Sample Containers/Supplies – *Container Management: Process Operation* (VCM-001)
- Project QAP preparation – *Project Planning Process* (VPM-002)
- Regulatory advisory functions – *Project Planning Process* (VPM-002)
- Consulting -- *Project Planning Process* (VPM-002)

Regulatory and advisory functions are addressed under the same procedures used for project planning.

2. *References*

The following references were used in preparation of this document and as the basis of the STL Quality System:

EPA Requirements For Quality Management Plans, EPA QA/R-2, United States Environmental Protection Agency Management Staff, Washington, DC, Draft Interim Final, March 2001.

EPA Quality Manual for Environmental Programs, 5360, US EPA Office of Research and Development, National Center for Environmental Research and Quality Assurance, Quality Assurance Division, July 1998.

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Shell for Analytical Chemistry Requirements, US Army Corps of Engineers, 2001.

DOD Quality Systems manual (QSM) for Environmental Laboratories, Version 2

3. *Terms and Definitions*

Accuracy: the degree of agreement between an observed value and an accepted reference value.

Audit: a systematic evaluation to determine the conformance to specifications of an operational function or activity.

Batch: environmental samples, which are prepared and/or analyzed together with the same process, using the same lot(s) of reagents. A preparation batch is composed of one to 20 environmental samples of the same matrix, meeting the above mentioned criteria. Where no preparation method exists (example, volatile organics, water) the batch is defined as environmental samples that are analyzed together with the same process and personnel, using the same lots of reagents, not to exceed 20 environmental samples. An analytical batch is composed of prepared environmental samples, extracts, digestates or concentrates that are analyzed together as a group. An analytical batch can include prepared samples originating from various environmental matrices and can exceed 20 samples.

Chain of Custody (COC): an unbroken trail of accountability that ensures the physical security of samples, data and records.

Clean Air Act: legislation in 42 U.S.C. 7401 et seq., Public Law 91-604, 84 Stat. 1676 Pub. L. 95-95, 91 Stat., 685 and Pub. L. 95-190, 91 Stat., 1399, as amended.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA/Superfund): legislation (42 U.S.C. 9601-9675 et seq., as amended by the Superfund Amendments and reauthorization Act of 1986 (SARA), 42 U.S.C. 9601et seq.

Compromised Sample: a sample received in a condition that jeopardizes the integrity of the results. See Section 4.7.1 for a description of these conditions.

Confidential Business Information (CBI): information that an organization designates as having the potential of providing a competitor with inappropriate insight into its management, operation or products.

Confirmation: verification of the presence of a component using an additional analytical technique. These may include second column confirmation, alternate wavelength, derivatization, mass spectral interpretation, alternative detectors, or additional cleanup procedures.

Corrective Action: action taken to eliminate the causes of an existing non-conformance, defect or other undesirable situation in order to prevent recurrence.

Data Audit: a qualitative and quantitative evaluation of the documentation and procedures associated with environmental measurements to verify that the resulting data are of acceptable quality.

Demonstration of Capability (DOC): procedure to establish the ability to generate acceptable accuracy and precision.

Equipment Blank: a portion of the final rinse water used after decontamination of field equipment; also referred to as Rinsate Blank and Equipment Rinsate.

Document Control: the act of ensuring that documents (and revisions thereto) are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed properly and controlled to ensure use of the correct version at the location where the prescribed activity is performed.

Federal Water Pollution Control Act (Clean Water Act, CWA): legislation under 33 U.S.C. 1251 et seq., Public Law 92-50086 Stat. 816.

Field Blank: a blank matrix brought to the field and exposed to field environmental conditions.

Field of Testing (FOT): a field of testing is based on NELAC's categorization of accreditation based on program, matrix, analyte.

Good Laboratory Practices (GLP): formal regulations for performing basic laboratory operations outlined in 40 CFR Part 160 and 40 CFR Part 729 and required for activities performed under FIFRA and TSCA.

Holding Time: the maximum time that a sample may be held before preparation and/or analysis and still be considered valid as promulgated in the method.

Initial Demonstration of Capability (IDC): procedure to establish the ability to generate acceptable accuracy and precision. Also referred to as Initial Demonstration of Proficiency.

Internal Chain of Custody: an unbroken trail of accountability that ensures the physical security of samples, data and records. Internal Chain of Custody refers to additional documentation procedures implemented within the laboratory that includes special sample storage requirements, and documentation of all signatures and/or initials, dates, and times of personnel handling specific samples or sample aliquots.

Instrument Detection Limit (IDL): the minimum amount of a substance that can be measured on specific instrument, with a specified degree of confidence that the amount is greater than zero. The IDL is associated with the instrumental portion of a specific method only, and specific sample preparation steps are not considered in its derivation.

A calculated IDL, by definition, has an uncertainty of +100% with 99% confidence, and is the point at which the possibility of detection of false negatives is 50 % and false positives is 1%. The IDL thus represents a range where qualitative detection occurs on a specific instrument. Quantitative results are not produced in this range.

Instrument Blank: a blank matrix that is the same reagents as the processed sample matrix (i.e. extract, digestate, condensate) and introduced onto the instrument for analysis.

Laboratory Control Sample (LCS): a blank matrix spiked with a known amount of analyte(s), processed simultaneously with, and under the same conditions as, samples through all steps of the analytical procedure.

Laboratory Quality Manual (LQM): a document stating the quality policy, quality system and quality practices of the laboratory. The LQM may include by reference other documentation relating to the laboratory's quality system.

Limit of Detection (LOD): the minimum amount of a substance that an analytical process can reliably detect. (see MDL)

Matrix: The substrate of a test sample. For purposes of batch and QC requirements determination, the matrix descriptions in Table 1 are used.

Table 1 Matrix Descriptions

Matrix	Description
Air	Air samples as analyzed directly or as adsorbed into a solution or absorption matrix and desorbed.
Aqueous	Aqueous sample excluded from the definition of Drinking Water or Saline/Estuarine source. Includes surface water, groundwater and effluents.
Drinking Water	Aqueous sample that has been designated a potable water source.
Saline	Aqueous sample from an ocean or estuary, or other salt-water source such as the Great Salt Lake.
Liquid	Liquid with <15% settleable solids.
Solid	Soil, sediment, sludge or other matrices with ≥15% settleable solids.
Waste	A product or by-product of an industrial process that results in a matrix not previously defined.
Tissue	Sample of a biological origin such as fish tissue, shellfish, or plant material. Such samples shall be grouped according to origin.

Matrix Duplicate (MD): duplicate aliquot of a sample processed and analyzed independently; under the same laboratory conditions; also referred to as Sample Duplicate.

Matrix Spike (MS): field sample to which a known amount of target analyte(s) is added.

Matrix Spike Duplicate (MSD): a replicate matrix spike.

Method Blank: a blank matrix processed simultaneously with, and under the same conditions as, samples through all steps of the analytical procedure.

Method Detection Limit (MDL): the minimum amount of a substance that can be measured with a specified degree of confidence that the amount is greater than zero using a specific method. An MDL, by definition, has an uncertainty of +100% with 99% confidence, and is the point as which the possibly of detection of false negative is 50% and false positive is 1%. The MDL thus represents a range where qualitative detection occurs using a specific method. Quantitative results are not produced in this range. Also referred to as Limit of Detection.

Non-conformance: an indication, judgment, or state of not having met the requirements of the relevant specifications, contract, or regulation.

Precision: the degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator.

Preservation: refrigeration and or reagents added at the time of sample collection to maintain the chemical and or biological integrity of the sample.

Proficiency Testing: determination of the laboratory calibration or testing performance by means of inter-laboratory comparisons.

Proficiency Test (PT) Sample: a sample, the composition of which is unknown to the analyst, that is provided to test whether the analyst/laboratory can produce analytical results within specified performance limits. Also referred to as Performance Evaluation (PE) sample.

Proprietary: belonging to a private person or company.

Quality Assurance (QA): an integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that a product or service meets defined standards of quality with a stated level of confidence.

Quality Assurance (Project) Plan (QAPP): a formal document describing the detailed quality control procedures by which the quality requirements defined for the data and decisions pertaining to a specific project are to be achieved.

Quality Control (QC): the overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users.

Quality Control Sample: an uncontaminated sample matrix spiked with a known amount(s) of an analyte(s) from a source independent from the calibration standards. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

Quality Management Plan (QMP): a formal document describing the management policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an agency, organization or laboratory to ensure the quality of its product and the utility of the product to its users.

Quality System: a structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA/QC.

Quantitation Limit (QL): the lowest point at which a substance can be quantitatively measured with a specified degree of confidence using a specific method. The QL can be based on the MDL, and is generally calculated as 3-5 times the MDL, however, there are analytical techniques and methods where this relationship is not applicable. Also referred to a Practical Quantitation Level (PQL), Estimated Quantitation Level (EQL), or Limit of Quantitation (LOQ).

Raw Data: any original information from a measurement activity or study recorded in a laboratory notebook, worksheets, records, memoranda, notes, or exact copies thereof and that are necessary for the reconstruction and evaluation of the report of the activity or study. Raw data may include photography, microfilm or microfiche copies, computer printouts, magnetic media, including dictated observations, and recorded data from automated instruments. Reports specifying inclusion of "raw data" do not need all of the above included, but sufficient information to create the report data.

Record Retention: the systematic collection, indexing and storing of documented information under secure conditions.

Reference Standard: a standard, generally of the highest metrological quality available at a given location, from which measurements made at that location are derived.

Reporting Limit (RL): The level to which data is reported for a specific test method and /or sample. The RL is generally related to the QL. The RL must be minimally at or above the MDL.

Resource Conservation and Recovery Act (RCRA): legislation under 42 USC 321 et seq. (1976).

Safe Drinking Water Act (SDWA): legislation under 42 USC 300f et seq. (1974), (Public Law 93-523).

Sampling and Analysis Plan (SAP): A formal document describing the detailed sampling and analysis procedures for a specific project.

Selectivity: The capability of a method or instrument to respond to a target substance or constituent in the presence of non-target substances.

Sensitivity: the capability of a method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest.

Spike: a known amount of an analyte added to a blank, sample or sub-sample.

Standard Operating Procedure (SOP): a written document which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed and which is accepted as the method for performing certain routine or repetitive tasks.

Systems Audit: a thorough, systematic, on-site, qualitative review of the facilities, equipment, personnel, training, procedures, record keeping, data validation, data management, and reporting aspects of a total measurement system.

Storage Blank: a blank matrix stored with field samples of a similar matrix.

Trip Blank: a blank matrix placed in a sealed container at the laboratory that is shipped and held unopened in the field and returned to the laboratory in the shipping container with the field samples.

Test Method: defined technical procedure for performing a test.

Toxic Substances Control Act (TSCA): legislation under 15 USC 2601 et seq., (1976).

Traceability: the property of a result of a measurement that can be related to appropriate international or national standards through an unbroken chain of comparisons.

Verification: confirmation by examination and provision of evidence that specified requirements have been met.

4. Management Requirements

4.1. Organization and Management

4.1.1. Organization

The STL-Connecticut organizational structure is presented on the organizational chart as outlined in the appendix. A QA Manager is designated at the STL facility and reports to the Laboratory Director. The facility QA Manager has an indirect reporting relationship to the Corporate QA Director.

4.1.2. Roles and Responsibilities

President

The President of STL, Inc. has overall management responsibility and authority for Severn Trent's laboratory division, including responsibility for budgeting, resource allocation, long term planning, sales, marketing, and final approval on all management and administrative policies and management plans. The President authorizes the STL Corporate LQM and as such, sets the standards for the Quality System.

Chief Operating Officer (COO)
The COO is responsible for daily management of all STL facilities. The COO's responsibilities include allocation of personnel and resources, long term planning, and development of technical policies and management plans. The COO authorizes the STL Corporate LQM and is responsible for ensuring that business operations are conducted in accordance with its requirements.

Vice President Client and Operations Services (VP COS)
The VP of Operations Services is responsible for all essential elements of offerings to clients, including risk management, legal compliance and contract administration, quality assurance, information technology, and environmental health and safety. The VP COS authorizes the QMP and responsibilities include authorization of Manuals, Policies and Procedures, providing support and direction to the Managers of these areas, and supporting the COO in decisions regarding long term planning, resource allocation, and capital expenditures.

QA Director
The QA Director is responsible for establishing, implementing and communicating STL's quality system. The QA Director monitors compliance with the QMP, provides regulatory and technical updates to the STL facilities, assists in development of management plans and technical policies to be approved by the COO, and coordinates training within STL. The QA Director is available to any employee in STL to resolve data quality or ethical issues. The QA Director is independent of operational functions.

Director of Technical Services
The Director of Technical Services is responsible for establishing, implementing and communicating STL's Technical Policies, Standard Operating Procedures, and Manuals. Other responsibilities include conducting technical assessments as required, acting as a technical resource in national contracts review, coordinating new technologies, establishing best practices throughout STL, advising STL staff on technology advances, innovations, and applications, and organizing and running STL's technical committee.

Chief Information Officer (CIO)
The CIO is responsible for establishing, implementing and communicating STL's IT Policies, Standard Operating Procedures, and Manuals. Other responsibilities include coordinating new technologies, development of electronic communication tools such as STL's intranet and internet sites, ensuring data security and documentation of software, ensuring compliance with Good Automated Laboratory Practices (GALP), and assistance in establishing, updating, and maintaining Laboratory Information Management Systems (LIMS) at the various STL facilities.

Environmental Health and Safety (EH&S) Director
The Health and Safety Coordinator is responsible for the safety and well-being of all employees while at the laboratory. This includes, but is not limited to, administering the Corporate Safety Manual that complies with federal regulations, MSDS training and review, conducting laboratory safety orientation and tours for all new employees, providing instructions on safety equipment, cleaning up laboratory spills, and instructing personnel of laboratory procedures for emergency situations. The Health and Safety Coordinator is on-call 24-hours a day, 7-days a week for all laboratory situations.

The Health and Safety Coordinator responsibilities additionally include waste management of laboratory generated hazardous waste in accordance with appropriate regulations. This includes maintenance of required documentation, such as waste manifests, segregation of waste in accordance with requirements, and training of personnel in proper segregation of waste and preparation of Safety related SOPs.

General Manager (GM)
The GM is directly responsible for the daily operations of one or more operating facilities within STL. The GM's responsibilities include allocation of personnel and resources, long term planning, setting goals, and achieving the financial, business, and quality objectives of STL. The GM ensures timely compliance with corporate management directives, policies, and management systems reviews.

Laboratory Director
The Laboratory Director oversees the daily operations of the laboratory. The Laboratory Director's responsibilities include supervision of staff, setting goals for the employees, and achieving the financial, business, and quality objectives of the facility. The Laboratory Director is to maintain technical understanding of analytical methodology for

the laboratory operations, development of procedural improvements and investigation of non-conformances.

QA Manager

The Quality Assurance Manager (QAM) has the full-time responsibility to evaluate the adherence to policies and to assure that systems are in place to produce the level of quality defined in this LQM. The QAM is responsible for:

- Ensures IDL/MDL studies are completed and documented
- Ensures method validation studies are completed and documented
- Periodically performs data package inspections
- Performs data authenticity audits on 100% of analysts and instruments
- Assist in the preparation, compilation, and submittal of quality assurance project plans
- Reviews program plans for consistency with organizational and contractual requirements and advises appropriate personnel of deficiencies
- Maintains QA records
- Maintains certifications and accreditations
- Initiates and oversees both internal and external audits; documents root cause investigations for all noted deficiencies; and ensures timely audit closure
- Maintains a corrective action process for internally identified issues and ensures timely closure
- Manages the laboratory's PT Program and performs/documents root cause investigations for all failures
- Monitors to ensure the documentation of training and method demonstration are current
- Facilitates SOP development and document control

The QA Manager shall have the final authority to accept or reject data, and to stop work in progress in the event that procedures or practices compromise the validity and integrity of analytical data. The QAM is available to any employee at the facility to resolve data quality or ethical issues. The QA Manager shall be independent of laboratory operations and has an indirect reporting relationship to the QA Director.

Project Managers

The laboratory recognizes the importance of efficient project management. The laboratory Project Managers (PM) are responsible for preparing the project technical profile which summarizes QA/QC requirements for the project, maintaining the laboratory schedule, communicating technical requirements to the laboratory, and advising the Laboratory, QA and Technical Managers of all variances. The laboratory Project Manager will provide technical guidance and the necessary laboratory-related information to the preparer of project-specific QAPPs and provide peer review of the final document to ensure accuracy of the laboratory information.

Technical Managers (Laboratory Departmental Group Leader/Supervisor)

The Laboratory Supervisor oversees the daily operations of their particular laboratory department. The supervisor's responsibilities include supervision of staff, setting goals and objectives for their employees, and achieving the business and quality objectives of the facility.

4.2. Quality System

4.2.1. Objectives of STL-Connecticut Quality System

The goal of the STL-Connecticut Quality System is to ensure that business operations are conducted with the highest standards of professionalism in the industry.

To achieve this goal, it is necessary to provide our clients with scientifically sound, well documented, regulatory compliant data, and to ensure that we provide the highest quality service available in the industry with uncompromising data integrity. A well-structured, organized and communicated quality system is essential in meeting this goal. The laboratory's quality system is designed to minimize systematic error, encourage constructive, documented problem solving, and provides a framework for continuous improvement.

This LQM, Work Instructions and the SOPs are the basis and outline for our quality and data integrity system and contain requirements and general guidelines under which the laboratory conducts operations. In addition, other documents may be used by the laboratory to clarify compliance with quality system or other client requirements. Within the LQM, SOP or Work Instruction numbers are noted in parenthetic text. These numbers refer to the laboratory procedure(s) associated with the subject item. A table listing these quality system policies and procedures is appended to this document.

The QA Manager is responsible for implementing and monitoring the Quality System. The QA Manager reports to the Laboratory Director on the performance of the quality system for review and continuous improvement. The QA Manager has sufficient authority, access to work areas, and organizational freedom (including sufficient independence from cost and schedule considerations) to:

- Initiate action to prevent the occurrence of any nonconformities related to product, process and quality system,
- Identify and record any problems affecting the product, process and quality system,
- Initiate, recommend, or provide solutions to problems through designated channels,
- Verify implementation of solutions, and
- Assure that further work is stopped or controlled until proper resolution of a non-conformance, deficiency, or unsatisfactory condition has occurred and the deficiency or unsatisfactory condition has been corrected.

The QA Manager identifies opportunities for continual improvement. When a situation arises where acceptable resolution of identified issues cannot be agreed upon at the laboratory, direct access to STL's Corporate Quality Director is available. This provides laboratory QA personnel independence, where needed, to ensure that QA policies and procedures are enforced.

The Laboratory Quality Manual is the basis and outline for the STL-Connecticut Quality System and contains guidelines under which the STL-Connecticut facility conducts operations in accordance with the STL Corporate Quality Management Plan (QMP).

4.2.2. Laboratory Quality Manual (LQM)

The following elements are addressed in the STL-Connecticut facility's LQM:

1. Table of Contents, lists of references and glossaries, and appendices.
2. Quality policy statement, including objectives and commitments, by facility management.
3. Organization and management structure of the laboratory, its place in the STL organization and relevant organizational charts.
4. Relationship between management, technical operations, support services and the quality system.
5. Record retention procedure.
6. Document control procedure.
7. Job descriptions of essential staff and reference to job descriptions of other staff.
8. Identification of the laboratory's approved signatories.
9. Procedure for achieving traceability of measurements.
10. List of test methods under which the laboratory performs its testing.
11. Procedure for reviewing new work.
12. Reference to the calibration and/or verification test procedures used.
13. Sample handling procedure.
14. Reference to the major equipment, reference standards, facilities and services used by the laboratory in conducting tests.
15. Reference to procedures for calibration, verification and maintenance of equipment.
16. Reference to verification practices including inter-laboratory comparisons, proficiency testing programs, use of reference materials and internal QC practices.
17. Procedures for feedback and corrective action when testing discrepancies are detected, or departures from policies and procedures occur.
18. Procedure for exceptionally permitting departures from documented policies and procedures or from standard specifications.
19. Procedure for dealing with client complaints.
20. Procedure for protecting client confidentiality and proprietary rights.
21. Procedure for audits and data review.

22. Procedure for establishing that personnel are adequately experienced and trained.
23. Reference to procedures for reporting analytical results.

4.3. Document Control

A system of document control is essential to provide the framework necessary to ensure that methods and procedures are followed in a consistent manner.

The STL-Connecticut laboratory has developed a centralized document control system and is administered by the QA department. The document control system provides for the following:

- A unique document control number for each document
- A central location for all documents
- A systematic method for distribution of approved documents
- A tracking system for existing documents
- Identification of document revisions
- A mechanism for periodic review of documents
- Archival of outdated material
- A focal point for information exchange
- Facilitates the establishment of standardized methods and procedures

4.3.1. Document Control Procedure

Security and control of documents is necessary to ensure that confidential information is not distributed and that all current copies of a given document are from the latest applicable revision. Unambiguous identification of a controlled document is maintained by identification of the following items in the document header: Document Name, Document Number, Effective Date, Number of Pages. Controlled documents are authorized by Management and/or the QA Department. Controlled documents are marked as such and records of their distribution are kept by the QA Department. Controlled documents, such as SOPs will be stamped in red with "Controlled Document #". If this writing is not in red, then that copy will not be considered a controlled document.

4.3.2. Document Revision

Changes to documents occur when a procedural change warrants a revision of the document. When an approved revision of a controlled document is ready for distribution, obsolete copies of the document are replaced with the current version of the document. The previous revision of the controlled document is archived by the QA Department. Laboratory SOPs and quality documents are required to be reviewed annually and updated as needed.

A detailed description of the document control system is contained in STL-Connecticut SOP for Document Control. This document is available for inspection and review during a site visit. The Quality Assurance Manager is responsible for ensuring that the document control system is properly managed. Any new or revised document must be submitted to the QA Manager for review and distribution.

4.4. Request, Tender, and Contract Review

4.4.1. Contract Review

For many environmental sampling and analysis programs, testing design is site or program specific and does not necessarily "fit" into a standard laboratory service or product. It is STL's intent to provide both standard and customized environmental laboratory services to our clients. To ensure project success, technical staff perform a thorough review of technical and QC requirements contained in contracts. Contracts are reviewed for adequately defined requirements and STL's capability to meet those requirements.

Contract review shall include a review of the client's requirements in terms of compound lists, test methodology requested, sensitivity, accuracy, and precision requirements. The STL representative ensures that the laboratory's test methods are suitable to achieve these requirements and must ensure that the laboratory holds the appropriate certifications and approvals to perform the work. The review also includes the laboratory's capabilities in terms of turnaround time, capacity, and resources to provide the services requested, as well the laboratory's ability to provide the documentation, whether hardcopy or electronic. If the laboratory cannot provide all services but intends to subcontract such services, whether to another STL facility or to an outside firm, this must be documented and discussed with the client prior to contract approval.

All contracts entered into by STL are reviewed and approved by the appropriate personnel at the facility or facilities performing the work. Any contract requirement or amendment to a contract communicated to STL verbally is documented and confirmed with the client in writing. Any discrepancy between the client's requirements and STL's capability to meet those requirements is resolved in writing before acceptance of the contract. Contract amendments, initiated by the client and/or STL, are documented in writing for the benefit of both the client and STL.

All contracts, Quality Assurance Project Plans (LQMPs), Sampling and Analysis Plans (SAPs), contract amendments, and documented communications become part of the permanent project record as defined in Section 4.12.1.

4.4.2. Project Specific Quality Planning

Communication of contract specific technical and QC criteria is an essential activity in ensuring the success of site specific testing programs. To achieve this goal, STL assigns a Project Manager (PM) to each client. The PM is the first point of contact for the client. It is the PM's responsibility to ensure that project specific technical and QC requirements are effectively communicated to the laboratory personnel before and during the project. The labnet LIMS system used at STL-CT requires that project information be entered prior to samples being logged into the laboratory.

The STL - Connecticut facility has established many procedures in order to ensure that communication is inclusive and effective. These include project memos, designation and meetings of project teams, and meetings between the laboratory staff and the client. STL has found it very effective to invite the client into this process. STL strongly encourages our clients to visit the laboratories and hold formal or informal sessions with employees in order to effectively communicate client needs on an ongoing basis, as well as project specific details for customized testing programs.

4.4.3. Data Quality Objectives

Data Quality Objectives (DQO) are qualitative and quantitative statements used to ensure the generation of the type, quantity, and quality of environmental data that will be appropriate for the intended application. Typically, DQOs are identified before project initiation, during the development of QAPPs and SAPs. The analytical DQOs addressed in this section are precision, accuracy, representativeness, completeness, and comparability.

The components of analytical variability (uncertainty) can be estimated when QC samples of the right types and at the appropriate frequency are incorporated into measurement process at the analytical laboratory. STL incorporates numerous QC samples to obtain data for comparison with the analytical DQOs and to ensure that the measurement system is functioning properly. The QC samples and their applications, described in Section 5.8.2, are selected based on regulatory, method- or client-specific requirements. Analytical laboratory QC samples for inorganic, and organic analyses may include calibration blanks, instrument blanks, method blanks, LCS, calibration standards, MS, MSD, and surrogate spikes.

The DQOs discussed below ensure that data are gathered and presented in accordance with procedures appropriate for its intended use, that the data is of known and documented quality, and are able to withstand scientific and legal scrutiny.

Precision is an estimate of variability. It is an estimate of agreement among individual measurements of the same physical or chemical property, under prescribed similar conditions. Precision is expressed either as Relative Standard Deviation (RSD) for greater than two measurements or as Relative Percent Difference (RPD) for two

measurements. Precision is determined, in part, by analyzing data from aggregate LCS results, MS, MSD, and MD.

Precision also refers to the measurement of the variability associated with the entire process, from sampling to analysis. Total precision of the process can be determined by analysis of duplicate or replicate field samples and measures variability introduced by both the laboratory and field operations.

Accuracy is the degree of agreement between a measurement and the true or expected value, or between the average of a number of measurements and the true or expected value. It reflects the total error associated with a measurement.

Both random and systematic errors can affect accuracy. For chemical properties, accuracy is expressed either as a percent recovery (R) or as a percent bias (R - 100). Accuracy is determined, in part, by analyzing data from LCS, MS, and MSD.

Representativeness is the degree to which data accurately and precisely represent a characteristic of a population, a variation in a physical or chemical property at a sampling point, or an environmental condition. Data representativeness is primarily a function of sampling strategy; therefore, the sampling scheme must be designed to maximize representativeness. Representativeness also relates to ensuring that, through sample homogeneity, the sample analysis result is representative of the constituent concentration in the sample matrix. STL makes every effort to analyze an aliquot that is representative of the original sample, and to ensure the homogeneity of the sample before sub-sampling.

Completeness is defined as the percentage of measurements that are judged valid or useable. Factors negatively affecting completeness include the following: sample leakage or breakage in transit or during handling, loss of sample during laboratory analysis through accident or improper handling, improper documentation such that traceability is compromised, or sample result is rejected due to failure to conform to QC specifications. A completeness objective of 95% of the data specified by the statement of work is the goal established for most projects.

Comparability is a measure of the confidence with which one data set can be compared to another. Only data of known quality such as precision and bias be readily compared. To ensure comparability, all laboratory analysts are required to use uniform procedures (e.g., SOPs) and a uniform set of units and calculations for analyzing and reporting environmental data.

4.5. Subcontracting

STL Connecticut may find the need to send selected analyses to a subcontract laboratory either within the STL network or outside of the STL organization. The most common reason for utilization of a subcontract facility is that the procedure is not routinely

performed by the STL Connecticut laboratory and the subcontractor has greater experience in day-to-day execution of the method. All subcontract laboratories utilized by STL on a continuing basis require approval of the QA department prior to use, either on a corporate level or locally.

Subcontracting is arranged with the documented consent of the client, in a timely response which shall not be unreasonably refused. All QC guidelines specific to the client's analytical program are transmitted to the subcontractor and agreed upon before sending the samples to the subcontract facility. Proof of required certifications from the subcontract facility are maintained in STL project records. Where applicable, specific QC guidelines, LQMPs, and/or SAPs are transmitted to the subcontract laboratory. Samples are subcontracted under formal Chain of Custody (COC).

Subcontract laboratories may receive an on-site audit by a representative of the STL network's QA staff if it is deemed appropriate by the QA Manager. The audit involves a measure of compliance with the required test method, QC requirements, as well as any special client requirements.

Project reports from external subcontract laboratories are not altered and are included in original form in the final project report provided by STL.

Subcontracting may also occur between STL facilities. Subcontracting within STL is subject to the same requirements as detailed above.

4.6. Purchasing Services and Supplies

Evaluation and selection of suppliers and vendors is done, in part, on the basis of the quality of their products, their ability to meet the demand for their products on a continuous and short term basis, the overall quality of their services, their past history, and competitive pricing. This is achieved through evaluation of objective evidence of quality furnished by the supplier, which can include certificates of analysis, recommendations, and proof of historical compliance with similar programs for other clients. To ensure that quality critical consumables and equipment conform to specified requirements, all purchases from specific vendors are approved by a member of the supervisory or management staff. A list of current vendors used by the lab is on file with the QA dept along with any documented quality issues.

Chemical reagents, solvents, glassware, and general supplies are ordered as needed to maintain sufficient quantities on hand. Purchasing guidelines for equipment and reagents meet with the requirements of the specific method and testing procedures for which they are being purchased. Solvents and Acids are pretested in accordance with the SOP, S-T-001, Testing Solvents and Acids, at a predefined STL laboratory. Documentation of lot certification is communicated to the QAMs and posted on the STL intranet.

4.6.1 Solvent and Acid Lot Verification

Pre-purchase approval is performed for solvents and acids purchased in large quantities unless a certificate of conformance has been furnished. These may include acetone, ethyl ether, hexane, methylene chloride, nitric acid, hydrochloric acid, sulfuric acid, and hydrogen peroxide. Each lot of incoming supplies requiring pre-approval is checked against the previously approved lot number. If the lot number is not approved, the lot is refused. If the lot number is an approved lot number, it is accepted and documented. Solvents and acids are pre-tested in accordance with STLs Corporate *Testing Solvents and Acids* procedure (S-T-001) for all of the STL laboratories. A Certificate of Analysis is requested for all standards and reagents as applicable and kept on file at the laboratory.

4.7. Service to the Client

Each client is assigned a Project Manager . The PM is the focal point for setting up projects, placing bottle orders, reviewing sample receipts, monitoring jobs within the lab, communicating any analytical issues and reviewing the final report.

4.7.1. Sample Acceptance Policy

Samples are considered "compromised" if the following conditions are observed upon sample receipt:

- Cooler and/or samples are received outside of temperature specification.
- Samples are received broken or leaking.
- Samples are received beyond holding time.
- Samples are received without appropriate preservative.
- Samples are received in inappropriate containers.
- COC does not match samples received.
- COC is not properly completed or not received.
- Breakage of any Custody Seal.
- Apparent tampering with cooler and/or samples.
- Headspace in volatiles samples.
- Seepage of extraneous water or materials into samples.
- Inadequate sample volume.
- Illegible, impermanent, or non-unique sample labeling.

When "compromised" samples are received, it is documented in the project records and the client is contacted for instructions. If the client decides to proceed with analysis, the project report will clearly indicate any of the above conditions and the resolution.

4.7.2. Client Confidentiality and Proprietary Rights

Data and sample materials provided by the client or at the client's request, and the results obtained by STL, shall be held in confidence (unless such information is generally available to the public or is in the public domain or client has failed to pay STL for all services rendered or is otherwise in breach of the terms and conditions set forth in the STL and client contract) subject to any disclosure required by law or legal process. STL's reports, and the data and information provided therein, are for the exclusive use and benefit of client, and are not released to a third party without written consent from the client.

4.8. Complaints

STL believes that effective client complaint handling processes have important business and strategic value. Listening to and documenting client's concerns captures 'client knowledge' that helps to continually improve processes and outpace the competition. Implementing a client complaint handling process also provides assurance to the data user that the laboratory will stand behind its data, service obligations and products.

Client complaints or noted discrepancies are documented, communicated to management, and addressed promptly and thoroughly. Client complaints are documented by the employee receiving the complaint. The documentation can take the form of a corrective action report (as described in Section 4.10) or in a format specifically designed for that purpose. The Laboratory Director, PM, Customer Service Manager, and QA Manager are informed of all client complaints, and assist in resolving the complaint.

The nature of the complaint is identified, documented, and investigated, and an appropriate action is determined and taken. In cases where a client complaint indicates that an established policy or procedure was not followed, the QA department is required to conduct a special audit to assist in resolving the issue. A written confirmation, or letter to the client, outlining the issue and response taken is strongly recommended as part of the overall action taken.

The number and nature of client complaints is reported to the Corporate QA Manager in the QA Monthly report submitted by each facility. The overall number of complaints received per facility is tracked and the appropriateness of the response to client complaints is assessed. Monitoring and addressing the overall level and nature of client complaints and the effectiveness of the solutions is part of the Management Systems Review.

4.9. Control of Non-conformances

Non-conformances include any out of control occurrence. Non-conformances may relate to client specific requirements, procedural requirements, or equipment issues. All non-conformances in the laboratory are documented at the time of their occurrence.

All non-conformances that affect a sample and/or sample data become part of the affected project's permanent record. When appropriate, reanalysis is performed where QC data falls outside of specifications, or where data appears anomalous. If the reanalysis comes back within established tolerances, the results are approved. If the reanalysis is still outside tolerances, further reanalysis or consultation with the Supervisor, Manager, PM, Laboratory Director, or QA Manager for direction may be required. All records of reanalysis are kept with the project files.

Where non-conformances specifically affect a client's sample and/or data, the client is informed and action must be taken. Action can take the form of reporting and flagging the data, and including the non-conformance in the project narrative or cover letter.

4.10. Corrective Action

4.10.1. General

The STL-Connecticut facility has an established, documented corrective action process. Each corrective action is thoroughly investigated, and the investigation, outcome of the investigation, action taken, and follow-up is documented. Corrective action reports are reviewed, approved, and maintained by the QA department.

All corrective actions, whether immediate or long-term, will comprise the following steps to ensure a closed-loop corrective action process:

- Define the problem.
- Assign responsibility for investigating the problem.
- Determine a corrective action to eliminate the problem.
- Assign, and obtain commitment to, responsibility for implementing the corrective action.
- Implement the correction.
- Assess the effectiveness of the corrective action and verify that the corrective action has eliminated the problem.

4.10.1.1 Immediate Corrective Action

Immediate corrective actions to correct or repair non-conforming equipment and systems are generally initiated in response to adverse conditions identified through QC procedures. The analyst has relatively quick feedback that a problem exists, e.g., calibration does not meet or QC check samples exceed allowable criteria, and can take immediate action to repair the system.

The initial responsibility to monitor the quality of a function or analytical system lies with the individual performing the task or procedure. DQOs are evaluated against laboratory-established or against method or client specified QA/QC requirements. If the assessment reveals that any of the QC acceptance criteria are not met, the analyst must immediately assess the analytical system to correct the problem. When the appropriate corrective action

measures have been defined and the analytical system is determined to be "in-control" or the measures required to put the system "in-control" have been identified and scheduled, the problem and resolution or planned action is documented in the appropriate logbook or NCM. Data generated by an analytical system that is determined to be out-of-control must never be released without approval of the Section Manager, QA Manager, Laboratory Director and client notification.

4.10.1.2 Long-term Corrective Action

Long-term corrective action is generally initiated due to QA issues, which are most often identified during internal and external audits. Typically, a deeper investigation into the root cause of the nonconformance is warranted, and the problem may take much longer to identify and resolve. Staff training, method revision, replacement of equipment, and LIMS reprogramming are examples of long-term corrective action.

4.10.2. Initiation

Any employee in STL is authorized to initiate a corrective action. The initial source of corrective action can also be external to STL (i.e. corrective action because of client complaint, regulatory audit, or proficiency test). When a problem that requires corrective action is identified, the following items are identified by the initiator on the corrective action report: the nature of the problem, the name of the initiator, and the date. If the problem affects a specific client project, the name of the client and laboratory project number is recorded, and the PM is informed immediately.

4.10.3. Cause analysis

The corrective action process must be embarked upon as a joint, problem solving and constructive effort. Identification of systematic errors, or errors that are likely to occur repetitively due to a defect or weakness in a system, is particularly valuable in maintaining an environment of continuous improvement in laboratory operations.

When a corrective action report is initiated, the initiator works with the affected employee(s) and/or department(s) to identify the root cause of the problem. An essential part of the corrective action process is to identify whether the problem occurred due to a systematic or isolated error.

If the initiator of the corrective action report is uncertain as to what would constitute appropriate corrective action or is unable to resolve the situation, the problem is identified to the Supervisor, Manager, Laboratory Director or the QA Manager who provides assistance in the corrective action process.

The root cause of the problem and associated cause analysis is documented on the corrective action form.

4.10.4. Corrective Action

Once the root cause of a problem is identified, the initiator and affected employee(s) and/or department(s) examine potential actions that will rectify the present problem to the extent possible, and prevent recurrence of future, similar occurrences. An appropriate corrective action is then recommended. The corrective action must be appropriate for the size, and nature of the issue.

Implementation of the corrective action and the date of implementation are documented on the corrective action report.

Copies of the corrective action form are given to the appropriate department(s) and, if related to a specific project report, included in the project file. An essential part of the corrective action process is communication and awareness of the problem, the cause, and the action taken to prevent future occurrences and/or rectify the immediate problem.

4.10.5. Monitoring Corrective Action

All corrective action reports are forwarded to the QA Department. The QA department reviews all corrective actions and selects one or more of the more significant corrective actions for inclusion in the annual systems audit. The QA Department also may implement a special audit. The purpose of inclusion of the corrective action process in both routine and special audits is to monitor the implementation of the corrective action and to determine whether the action taken has been effective in overcoming the issue identified.

4.11. Preventative Action

Preventative action is defined as noting and correcting a problem before it happens, because of a weakness in a system, method, or procedure. Preventative action includes analysis of the Quality System to detect, analyze, and eliminate potential causes of non-conformances. When potential problems are identified, preventative action is initiated to effectively address the problem to eliminate or reduce the risk identified. The preventative action process takes the same format as the corrective action process.

4.12. Records

It is the responsibility of all members of the laboratory to maintain complete records of all operations performed. All records shall be neat and organized. All laboratory records are the property of the laboratory and shall not be removed from the premises without permission from supervisors. All records are considered confidential and must be safeguarded. Unauthorized changes, loss or destruction of records can be grounds for dismissal from the laboratory. Consult the Severn Trent Laboratories Ethics Policy regarding integrity of data and employee conduct.

Measurement records must be recorded in pre-printed electronic record logs or pre-printed measurement logs. This policy will facilitate the organization and archival of all laboratory data for future reference. In some departments records maybe kept electronically using the labnet LIMS system. This may include standard prep, reagent prep or sample prep. Electronic records are backed up and safeguarded as per STL's IT policies.

All injection forms, instrumentation forms, sample prep forms, QC forms, etc. which are used to process samples and measurement results are described and attached to each analytical SOP. The SOP specifies where these records and forms are cataloged and stored.

All measurement data is recorded in pre-numbered, bound, logbooks in permanent ink. Transcriptions will be avoided whenever possible. The record will reflect the measurement performed and all appropriate details for conclusions related to the measurement. The record must be initialed and dated by the individual performing the measurement on the day the measurement is performed. Corrections shall be made by drawing a single line through the error, initialing and dating the error. All forms will be reviewed by the QA Manager annually. If it is found that the document does not meet the requirements of the SOP, the discrepancy is forwarded to the group/section leader through the corrective action process (reference SOP on Corrective Action Reports). Further detail on laboratory document control is found in the SOP on Document Control.

4.12.1. Record Types

Record types are described in Table 2.

Table 2 STL Record Types

Raw Data	Controlled Documents	QC Records	Project Records	Administrative Records
Calibration	LQM	Audits/ Responses	COC Documentation	Accounting
Computer Tapes/Disks	LQM	Certifications	Contracts and Amendments	EH&S, Manual, Permits, Disposal Records
QC Samples	SOPs	Corrective Action	Correspondence	Employee Handbook
Sample data		Logbooks*	QAPP	OSHA 29 CFR Part 1910
Software (Version control)		Method & Software Validation, Verification	SAP	Personnel files, Employee Signature & Initials, Training Records
		Standards Certificates	Telephone Logbooks	Technical and Administrative Policies

*Examples of Logbooks: Maintenance, Instrument Run, Preparation (standard and samples), Standard and Reagent Receipt, Archiving, Balance Calibration, Temperature,

4.12.2. Record Retention

Table 3 outlines STL's standard record retention time. For raw data and project records, record retention is calculated from the date the project report is issued. For other records, such as Controlled Documents, QC, or Administrative Records, the retention time is calculated from the date the document is formally retired. Drinking Water records are required to be stored for 10 years.

Table 3 STL Record Retention

Record Type	Department	Archival Requirement
Raw Data	All	5 Years from project completion
Controlled Documents	All	5 Years from document retirement date
QC	All	5 Years from archival
Project	All	5 Years from project completion
Administrative	Personnel/Training	7 years
	Accounting	See Accounting and Control Procedures Manual

4.12.3. Programs with Longer Retention Requirements

Specific client projects and regulatory programs have longer record retention requirements than the STL standard record retention length. In these cases, the longer retention requirement is noted in the archive. If special instructions exist such that client data cannot be destroyed prior to notification of the client, the container or box containing that data is marked as to who to contact for authorization prior to destroying the data.

4.12.4. Archives and Record Transfer

Archives are indexed such that records are accessible on either a project or temporal basis. Archives are protected against fire, theft, loss, deterioration, and vermin. Electronic records are protected from deterioration caused by magnetic fields and/or electronic deterioration. Access to archives is controlled and documented.

STL ensures that all records are maintained as required by the regulatory guidelines and per the LQM upon facility location change or ownership transfer.

Stored information may consist of hardcopy or electronic data stored on a magnetic media.

All hardcopy information is stored at the laboratory that generated the data or off-site at a commercial document storage facility equipped with a professional security system.

All electronic data is stored on-site at the laboratory that generated the data or off-site at a commercial document storage facility equipped with a professional security system and a controlled environment suitable for storage of magnetic media.

Access to archived information is controlled by the appropriate data management custodian or facility manager.

At STL-Connecticut, reports for the current year are filed by the data management department. The report files along with any data package are then stored in numbered boxes. The number of the box is recorded into the cross reference logs and then stored in the designated storage area. The previous year's data is stored off-site at a secure storage facility. All jobs must be signed out in a logbook if being removed from the data management area.

STL ensures that all records are maintained as required by the regulatory guidelines and per the LQM upon facility location change or ownership transfer. Upon STL facility location change, all archives are retained by STL in accordance with the LQM. Upon ownership transfer, record retention requirements are addressed in the ownership transfer agreement and the responsibility for maintaining archives is clearly established without disclosing client confidentiality. Clients shall be notified in the case of ownership transfer.

In the event that the laboratory is closed, all final test reports generated by the laboratory will be submitted to the clients if not previously provided. All records will then be transferred to STL's corporate record storage location. All boxes and contents will be appropriately labeled with the dates of destruction (Refer to Tables 5 and 6) and managed in accordance their policies.

4.13. Internal Audits

4.13.1. Audit Types and Frequency

A number of types of audits are performed at STL. Audit type and frequency are categorized in Table 4.

Table 4. Audit Types and Frequency

Audit Type	Performed by	Frequency
Systems	QA Department or Designee	Annual

Audit Type	Performed by	Frequency
Data	QA Department or Designee	**Data Report Review:** As necessary to ensure an effective secondary review process
		Analyst Data Audits: 100% of all analysts annually
		Electronic Data Audits: 100% of all organic instruments
Special	QA Department or Designee	As Needed

4.13.2. Systems Audits

Facility systems audits are technical in nature and are conducted on an ongoing basis by the QA Manager or his/her designee at each facility. Systems audits cover all departments of the facility, both operational and support.

The audit report is issued by the Internal Auditor of the facility within 30 calendar days of the audit. The audit report includes the following elements: Introduction, Scope of Audit, Type of Audit, Improvements and Innovations, Deficiencies, and a timeframe within which the audit must be addressed. The audit report is addressed to the Laboratory Director and copied to the General Manger. If the internal audit is performed by someone other than the facility QA Manager, the report must also be addressed to that QA Manger.

Written audit responses are required within 30 calendar days of audit report issue. The audit response follows the format of the audit report, and corrective actions and time frames for their implementation are included for each deficiency. The audit response is directed to all individuals copied on the audit report. Where a corrective action requires longer than 30 days to complete, the target date for the corrective action implementation is stated and evidence of the corrective action is submitted to the QA Department in the agreed upon time frame.

4.13.3. Data Audits

Data audits are focused to assess the level of customer service, method compliance, regulatory compliance, accuracy and completeness of test results and reports, documentation, and adherence to established QC criteria, laboratory SOPs, technical policy, and project specific QC criteria. Data audits may be accomplished through electronic instrument data audits, analyst data authenticity audits or final project report review.

A data auditing frequency target of 5% has been established. The QA Department provides feedback and/or corrections and revisions to project reports where necessary.

Data audits include spot-checking of manual integrations by QA personnel in order to determine that the manual integration is appropriate and documented according to Section 5.3.6.

Records of the data audits are kept, and the frequency of data audits is included in the monthly QA report. In performing data audits, it is essential that data be assessed in terms of differentiating between systematic and isolated errors. Upon noting anomalous data or occurrences in the data audits, the QA Department is responsible for seeking clarification from the appropriate personnel, ascertaining whether the error is systematic or an isolated error, and overseeing correction and/or revision of the project report if necessary. Errors found in client project reports are revised and the revision sent to the client. The QA Department is also responsible for assisting in the corrective action process where a data audit leads to identification of the need for process evaluation and change.

Where specific clients and regulatory programs require more frequent data auditing, the individual facility meets the data auditing frequency for that program. For projects falling under the DOD QSM, a 10% data audit frequency shall be followed.

4.13.3.1 Data Authenticity Audits

Data authenticity audits shall be performed on 100% of all analysts by the QA department or a designee independent from the operations. Performing data authenticity checks will typically include verifying raw data, evaluating calculation tools and independently reproducing the final results and comparing it to the hardcopy on randomly selected batches of data. The QA manager will report the percentage of analysts reviewed (for the year) in the monthly QA report and should average about 8% per month.

4.13.3.2 Electronic Data Audits

Electronic data audits are performed on 100% of all organic instruments by the QA department or a designee independent from the operations. This may include Mint Miner® scanning of randomly selected batches of electronic data followed by a chromatography system review. The QA manager will report the percentage of instruments reviewed (for the year) in the monthly QA report and should average about 8% of instruments per month. Electronic data audits include spot-checking of manual integrations by QA personnel in order to determine that the manual integration is appropriate and documented.

4.13.3.3 Final Reports Reviews

The frequency of auditing final reports depends on the effectiveness of the laboratory's secondary review process. If the laboratory infrequently finds report errors or there is a low percentage of revised reports due to analytical error, audits may be less frequent.

4.13.4. Special Audits

Special audits are conducted on an as needed basis, generally as a follow up to specific issues such as client complaints, corrective actions, proficiency testing results, data audits, systems audits, validation comments, or regulatory audits. Special audits are focused on a specific issue, and report format, distribution, and timeframes are designed to address the nature of the issue.

4.13.5. External Audits

STL facilities are routinely audited by clients and external regulatory authorities. STL is available for these audits and makes every effort to provide the auditors with the personnel, documentation, and assistance required by the auditors. STL recommends that the audits be scheduled with the QA Department so that all necessary personnel are available on the day of the audit.

4.14. Management Reviews

4.14.1. QA Reports to Management

A monthly QA report is prepared by QA Manager and forwarded to the Laboratory Director, the GM, and the Corporate QA Manager. The reports include statistical results that are used to assess the effectiveness of the Quality System. The format of the monthly report is shown in Figure 1.

4.14.2. Management Systems Review

A Quality Management Systems review of the facility is performed at least annually by either the Laboratory Director, QAM or his/her designee. The management systems review ensures that the laboratory's quality system is adequate to satisfy the laboratory's policies and practices, government requirements, certification, accreditation, approval requirements, and client expectations. Management systems reviews are accomplished through monthly quality assurance reporting, goal setting and an annual LQM review and revision.

4.14.3 Monthly QA Report and Metrics

By the 3rd day of the month, the QA manager prepares a monthly QA report. The report is sent to the Laboratory Director, General Manager and Corporate Quality Director. The report contains a narrative summary and metrics spreadsheet . At a minimum, the report content contains the items listed below (Figure 1). During the course of the year, the Laboratory Director, General Manager or Corporate Quality Director may request that additional information be added to the report.

Figure 1. Monthly QA Report Format

1	Audits
	Internal System Audits External System Audits
2	Revised Reports / Client Feedback
	Revised Reports Client Complaints Client Compliments
3	Certification Changes
	Changes Losses / Revocations
4	Proficiency Testing
	Study participation and scores Combined PT scores Repeat failures
5	SOP Status
	Report the percentage of SOPs that have been revised or reviewed within the last 24 months.
6	Miscellaneous QA and Operational Issues
	Narrative outlining improvements, regulatory compliance issues and general concerns.
Appended	Metrics Spreadsheet
	Summarize metrics in template provided by the Corporate Quality Director

5. *Technical Requirements*

5.1. Personnel

5.1.1. General

The STL-Connecticut management believes that its highly qualified and professional staff is the single most important aspect in assuring the highest level of data quality service in the industry.

STL-Connecticut staff consists of over forty professionals and support personnel that include:

- Laboratory Director
- Senior Management
- Quality Assurance Manager
- Information Systems Analyst
- Analytical Chemists
- Laboratory Technicians
- Sample Custodian
- Health and Safety/Waste Management Coordinators
- Customer Service Staff
- Account Executives

In order to ensure that employees have sufficient education and experience to perform a particular task, job descriptions are defined for each laboratory position. Job descriptions are located on the STL Intranet HR web page.

The personnel who are responsible for operations of sample analyses and data validation are outlined in Section 5 of the Appendix. Section 1 of the appendix presents professional profiles of key personnel within the STL-Connecticut organization. Profiles of additional STL staff members are available for review during a facility visit or are available upon special request.

5.1.2. Training

STL is committed to furthering the professional and technical development of employees at all levels. The QA Manager and the Laboratory Management may periodically review the training needs of the staff and make recommendations for any additional training. Each department within the laboratory is responsible for personnel training. Each training session, whether it be individual or group training must be documented utilizing the forms attached to the SOP for Employee Training. The completed forms must be submitted to the Human Resource department for placement into the employee training files.

Orientation to the laboratory's policies and procedures, in-house method training, and employee attendance at outside training courses and conferences all contribute toward employee proficiency. The QA section, in conjunction with the Human Resources section are responsible for maintaining documentation of these activities.

Project specific training may also take place. Prior to work on a new project, the dissemination of project information and/or project opening meetings may occur to discuss schedules and unique aspects of the project by the Project Manager. Items to be discussed may include the project technical profile, turnaround times, holding times, methods, analyte lists, reporting limits, deliverables, sample hazards, or other special requirements. Group Leader will then hold departmental meeting to discuss upcoming projects. These meetings provide direction to the laboratory staff in order to maximize production and client satisfaction, while maintaining quality.

The following evidence items are maintained in the employees technical training file for each technical employee:

- Initial Demonstration of Capability (IDOC)
- The employee has read and understood the latest version of the laboratory's quality documentation.
- The employee has read and understood the latest, approved version of all test methods and/or SOPs for which the employee is responsible.
- Annual evidence of continued DOC that may include successful analysis of a blind sample on the specific test method; a similar test method; an annual DOC; or four successive and acceptable LCSs.
- An ethic Agreement signed by each staff member (renewed each year)
- A confidentiality agreement signed by each staff member (renewed each year)
- Documentation of external training courses attended
- All training regarding QA policies and procedures

Human Resources maintains documentation and attestation forms on employment status & records; benefit programs; timekeeping/payroll; and employee conduct (e.g., ethics). This information is maintained in the employee's secured personnel file. This includes:

- An Ethics Agreement signed by each staff member (renewed each year).
- A Confidentiality Agreement signed by each staff member (renewed each year).

Minimum training requirements for STL-Connecticut employees are outlined in Table 5.

Table 5 STL Employee Minimum Training Requirements

Required Training	Time Frame [1]	Employee Type
Environmental Health & Safety	Month 1	All
Ethics	Two Weeks	All
Data Integrity	Two Weeks	Technical and PMs
Ethics Refresher	Annually	All
Quality Assurance	Quarter 1	All
Initial Demonstration of Capability (IDOC)	Prior to unsupervised method Performance	Technical

[1] From the date of initial employment unless otherwise indicated.

Technical training is accomplished within each laboratory by management to ensure method comprehension. All new personnel are required to demonstrate competency in performing a particular method by successfully completing an Demonstration of Capability (DoC) before conducting analysis independently on client samples.

DoCs are performed by analysis of four replicate QC check samples. Results of successive LCS analyses can be used to fulfill the DoC requirement. The accuracy and precision, measured as average recovery and standard deviation (using n-1 as the population), of the 4 replicate results are calculated and compared to those in the test method (where available). If the test method does not include accuracy and precision requirements, the results are compared to target criteria set by the laboratory. The laboratory sets the target criteria such that they reflect the data quality objectives of the specific test method or project data quality objectives. An DoC Certification Statement is recorded and maintained in the employee's training or personnel file. Figure 2 shows an example of a DoC Certification Statement.

Continuing DoCs certification is required annually and must be documented in the same manner as the DoC.

Figure 2 Demonstration of Capability Certification Statement

Demonstration of Capability
Certification Statement

Laboratory Name: Date:
Laboratory Address:

Method:_____
Matrix: _____

Analyst Name:

We the undersigned certify that:

1. The analyst identified above, using the cited test method, which is in use at this facility for the analysis of samples under the National Environmental Laboratory Accreditation Program, have met the Initial Demonstration of Capability.
2. The test method was performed by the analyst identified on this certification.
3. Copies of the test method and SOP are available for all personnel on site.
4. The data associated with the DoC are true, complete and representative.
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and that the associated information is available for review by authorized inspectors.

Laboratory Manager/Supervisor	Signature	Date
Quality Assurance Manager	Signature	Date

5.1.3. Ethics Policy

Establishing and maintaining a high ethical standard is an important element of a quality system. In order to ensure that all personnel understand the importance the company places on maintaining high ethical standards at all times, STL has established an Ethics Policy P-L-006 and an Ethics Agreement (Figure 4). Each employee shall sign the Ethics Agreement, signifying agreed compliance with its stated purpose.

Violations of this Ethics Policy will not be tolerated. Employees who violate this policy will be subject to disciplinary actions up to and including termination. Criminal violations may also be referred to the Government for prosecution. In addition, such actions could jeopardize the Company's ability to do work on Government contracts, and for that reason, the Company has a Zero Tolerance approach to such violations.

Ethics is also a major component of the STL training program. Each employee must be trained in ethics within three months of hire in a training program that includes an overview of regulatory programs and program goals, a review of the ethics statement, and group discussions about data integrity and data misrepresentation. Employees must be trained as to the legal and environmental repercussions that result from data misrepresentation. A data integrity hotline is maintained by STL and administered by the QA Director. An annual refresher in ethics will be held for each employee.

Figure 3 STL Ethics Agreement

Severn Trent Laboratories, Inc.

I understand that STL is committed to ensuring the highest standard of quality and integrity of the data and services provided to our clients. I have read the Ethics Policy of the Company.

With regard to the duties I perform and the data I report in connection with my employment at the Company, I agree that:

- I will not intentionally report data values that are not the actual values obtained;
- I will not intentionally report the dates, times, sample or QC identifications, or method citations of data analyses that are not the actual dates, times, sample or QC identifications, or method citations;
- I will not intentionally misrepresent another individual's work;
- I will not intentionally misrepresent any data where data does not meet Method or QC requirements. If it is to be reported, I will report it with all appropriate notes and/or qualifiers;
- I agree to inform my Supervisor of any accidental reporting of non-authentic data by me in a timely manner; and I agree to inform my Supervisor of any accidental or intentional reporting of non-authentic data by other employees; and
- If a supervisor or a member of STL management requests me to engage in or perform an activity that I feel is compromising data validity or quality, I will not comply with the request and report this action immediately to a member of senior management, up to and including the President of STL.

As a STL employee, I understand that I have the responsibility to conduct myself with integrity in accordance with the ethical standards described in the Ethics Policy. I will also report any information relating to possible kickbacks or violations of the Procurement Integrity Act, or other questionable conduct in the course of sales or purchasing activities. I will not knowingly participate in any such activity and will report any actual or suspected violation of this policy to management.

The Ethics Policy has been explained to me by my supervisor or at a training session, and I have had the opportunity to ask questions if I did not understand any part of it. I understand that any violation of this policy subjects me to disciplinary action, which can include termination. In addition, I understand that any violation of this policy which relates to work under a government contract or subcontract could also subject me to the potential for prosecution under federal law.

EMPLOYEE SIGNATURE _____ Date _____

Supervisor/Trainer: _____ Date _____

5.2. Facilities

The laboratory is a secured facility with controlled and documented access. Access is controlled by various measures including locked doors (key access), and a staffed reception area. All visitors sign in and are escorted by STL Connecticut personnel while at the facility. The laboratory is locked at all times, unless a receptionist is present to monitor building access (e.g., between the hours of 8:30 a.m. and 5:00 p.m. Monday through Friday).

The laboratory currently maintains a staff of approximately 40 environmental professionals and occupies a facility of approximately 14,000 sq. ft. Separate laboratory areas are dedicated to GC instrumentation, GC/MS instrumentation, extractions for organic parameters, sample preparation for metals analysis, metals analysis and wet chemistries. The floor plan of the analytical laboratory is included in Section 4 of the Appendix.

The volatiles analysis laboratory containing GC/MS instrumentation has a separate air handling system which is maintained at a positive pressure at all times. The organic sample preparation laboratory has a separate HVAC system that creates negative pressure in the area. This design results in a contaminant-free environment for trace-level volatiles analysis.

Critical instrumentation such as GC/MS units, ICP's, AA's, data systems, gas chromatographs and LIMS are tied into an uninterruptible power supply system (UPS) to minimize instrument downtime and damage for short duration power interruptions.

The sample receipt and storage area is under the responsibility of the sample custodian. A locked walk-in refrigeration unit and 10 locked commercial refrigerator units are used to house samples waiting for analysis. Samples for volatile analysis are stored in separate units. Locked laboratory refrigerators, located throughout the laboratory, are used to maintain sample extracts or laboratory reagents. Each laboratory refrigerator is dedicated to sample, sample extract, or reagent storage.

All STL facilities are equipped with structural safety features. Each employee is familiar with the location, use, and capabilities of general and specialized safety features associated with their workplace. STL also provides and requires the use of protective equipment including safety glasses, protective clothing, gloves, respirators, etc.

5.3. Test Methods

5.3.1. Method Selection

Most of the test methods performed at STL-Connecticut originate from test methods published by a regulatory agency such as the US EPA and other state and federal

regulatory agencies. These include, but are not limited to, the following published compendiums of test methods:

Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, US EPA, January, 1996.

Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, and Appendix A-C; 40 CFR Part 136, USEPA Office of Water.

Methods for Chemical Analysis of Water and Wastes, EPA 600 (4-79-020), 1983.

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600/R-93/100, August 1993.

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Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846), Third Edition, September 1986, Final Update I, July 1992, Final Update IIA, August 1993, Final Update II, September 1994; Final Update IIB, January 1995; Final Update III, December 1996.

Annual Book of ASTM Standards, American Society for Testing & Materials (ASTM), Philadelphia, PA.

5.3.2. SOPs

Each STL facility maintains an SOP Index for all standard, non-standard, and laboratory developed methods. SOPs are also maintained for describing processes that are not related to a specific method. Method SOPs are maintained to describe a specific test method. Process SOPs are maintained to describe function and processes not related to a specific test method.

Method SOPs contain the following information:

Title Page with Document Name, Document Number, Revision Number, Effective Date, Page Numbers and Total # of Pages, Authorized Signatures, Dates and Proprietary Information Statement (Figure 4).

1. Identification of Test Method
2. Applicable Matrix
3. Reporting Limit
4. Scope and Application, including test analytes
5. Summary of the Test Method
6. Definitions
7. Interferences
8. Safety
9. Equipment and Supplies
10. Reagents and Standards
11. Sample Collection, Preservation, Shipment and Storage
12. Quality control
13. Calibration and Standardization
14. Procedure
15. Calculations
16. Method Performance
17. Pollution Prevention
18. Data Assessment and Acceptance Criteria for Quality Control Measures
19. Corrective Actions for Out-of-Control Data
20. Contingencies for Handling Out-of-Control or Unacceptable Data
21. Waste Management
22. References
23. Tables, Diagrams, Flowcharts and Validation Data

Process SOPs contain the following information:

Title Page with Document Name, Document Number, Revision Number, Effective Date, Page Numbers and Total # of Pages, Authorized Signatures, Dates and Proprietary Information Statement (Figure 4).

1. Scope
2. Summary
3. Definitions
4. Responsibilities
5. Safety
6. Procedure
7. References
8. Tables, Diagrams, and Flowcharts

Reference the STL-Connecticut SOP on SOPs for the exact format.

The QA Department is responsible for maintenance of SOPs, archival of SOP historical revisions, and maintenance of an SOP index. SOPs, at a minimum, undergo annual review. Where an SOP is based on a published method, the laboratory maintains a copy of the reference method.

Figure 4 Proprietary Information Statement

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SOP Appendix
In some cases, a standard laboratory procedure is modified slightly for a specific client or project at the client or regulatory agency's request. In these cases, an Appendix to the SOP may be attached that indicates the modifications to the SOP which are specific to that project. SOP appendices shall not be used to alter test methods required by regulation such that the modifications would results in non-compliances.

5.3.3. Method Validation

Laboratory developed methods are validated and documented according to the procedure described in Section 5.3.5.

5.3.4. Method Verification

Method verification is required when a validated standard test method or a method modification is implemented. The level of activity required for method verification is dependent on the type of method being implemented, or on the level of method modification and its affect on a method's robustness. Method modification often takes advantage of a method's robustness, or the ability to make minor changes in a method without affecting the method's outcome. Method verification commonly will minimally require Determination of Method Sensitivity and Determination of Accuracy and Precision as described in Section 5.3.5. When implementing new, but previously validated methodologies, method verification may require additional activities such as Determination of Range.

5.3.5. Method Validation and Verification Activities

Before analyzing samples by a particular method, method validation and/or method verification must occur. A complete validation of the method is required for laboratory developed methods. While method validation can take various courses, the following activities are generally required as part of method validation. Method validation records are designated QC records and are archived accordingly.

Determination of Method Selectivity
Method selectivity is demonstrated for the analyte(s) in the specific matrix or matrices. In some cases, to achieve the required selectivity for an analyte, a confirmation analysis is required as part of the method.

Determination of Method Sensitivity
Sensitivity can be both estimated and demonstrated. Whether a study is required to estimate sensitivity depends on the level of method development required when applying a particular measurement system to a specific set of samples. Where estimations and/or demonstrations of sensitivity are required by regulation or client agreement, such as the procedure in 40 CFR Part 136 Appendix B, under the Clean Water Act, these shall be followed. The laboratory determines MDLs are described in Section 4.4.3.6 and the corporate procedure S-Q-003.

Relationship of Limit of Detection (LOD) to the Quantitation Limit (QL)
An important characteristic of expression of sensitivity is the difference in the LOD and the QL. The LOD is the minimum level at which the presence of an analyte can be reliably concluded. The QL is the minimum level at which both the presence of an analyte and its concentration can be reliably determined. For most instrumental measurement systems, there is a region where semi-quantitative data is generated around the LOD (both above and below the estimated MDL or LOD) and below the QL. In this region, detection of an analyte may be confirmed but quantification of the analyte is unreliable within the accuracy and precision guidelines of the measurement system. When an analyte is detected below the QL, and the presence of the analyte is confirmed by meeting the qualitative identification criteria for the analyte, the analyte can be reliably reported, but the amount of the analyte can only be estimated. If data is to be reported in this region, it is done so with a qualification that denotes the semi-quantitative nature of the result.

Determination of Interferences
A determination that the method is free from interferences in a blank matrix is performed.

Determination of Range
Where appropriate, a determination of the applicable range of the method is performed. In most cases, range is determined and demonstrated by comparison of the response of an analyte in a curve to established or targeted criteria. The curve is used to establish the range of quantitation and the lower and upper values of the curve represent upper and lower quantitation limits. Curves are not limited to linear relationships.

Demonstration of Capability
DoCs are performed prior to method performance.

Determination of Accuracy and Precision
Accuracy and precision studies may be required as a separate determination from the IDC. Accuracy and precision studies are generally performed using four replicate analyses, with a resulting percent recovery and measure of reproducibility (standard deviation, relative standard deviation) calculated and measured against a set of target criteria.

Documentation of Method
The method is formally documented in an SOP. If the method is a minor modification of a standard laboratory method that is already documented in an SOP, an SOP Appendix describing the specific differences in the new method is acceptable in place of a separate SOP.

Continued Demonstration of Method Performance
Continued demonstration of Method Performance is addressed in the SOP. Continued demonstration of method performance is generally accomplished by batch specific QC samples such as Laboratory Control Samples and Method Blanks.

5.3.6 Data Reduction and Review

Analytical data are entered/downloaded directly into LIMS or recorded on pre-formatted bench sheets that are paginated and bound into laboratory logbooks. These logbooks are issued and controlled by the laboratory's QA Section. A unique document control code is assigned to each book to assure that chronological record keeping is maintained.

Analytical data is referenced to a unique sample identification number for internal tracking and reporting. Both LIMS entries and logbook pages contain the following information, as applicable: analytical method, analyst, date, sequential page number, associated sample numbers, standard concentrations, and raw data. Entries are in chronological order and maintained so as to enable reconstruction of the analytical sequence.

The analyst is responsible for entering / recording all appropriate information, and for signing and dating all logbook entries daily. All entries and logbook pages are reviewed for completeness by a supervisor, peer reviewer. Data review checklists document the analytical review of the LIMS entries, logbook and associated QC indicators. Copies of instrument outputs (chromatograms, mass spectra, etc..) are maintained on file or electronically with the analyst's signature/initials and date.

5.6.3.1 Data review

All data, regardless of regulatory program or level of reporting, are subject to a thorough review process. All levels of the review are documented.

Initial Review

The initial review is often referred to as a "bench-level" review. In most cases, the analyst who generates the data (i.e. logs in, prepares and/or runs the samples) is the initial reviewer. In some cases, an analyst may be reducing data for samples run by an auto-sampler set up by a different analyst. In this case, the identity of both the analyst and the initial reviewer is identified in the raw data.

One of the most important aspects of primary review is to make sure that the test instructions are clear, and that all project specific requirements have been understood and followed. If directions to the analyst are not clear, the analyst must go to the Supervisor, Manager, or PM, who must clarify the instructions.

Once an analysis is complete, the initial reviewer ensures that:

- Sample preparation information is complete, accurate, and documented.
- Calculations have been performed correctly.
- Quantitation has been performed accurately.
- Qualitative identifications are accurate.
- Manual integrations are appropriate.

- Data flags to indicate manual integrations are recorded.
- Manual integrations are authorized by a date and signature or initials of primary analyst.
- Client specific requirements have been followed.
- Method and process SOPs have been followed.
- Method QC criteria have been met.
- QC samples are within established limits.
- Dilution factors are correctly recorded and applied.
- Non-conformances and/or anomalous data have been documented and communicated.
- COC procedures have been followed.
- Initial review is documented by date and initials/signature of primary analyst.

Any anomalous results and/or non-conformances noted during the Initial Review are communicated to the Supervisor and the PM for resolution. Resolution can require sample reanalysis, or it may require that data be reported with a qualification. Non-conformances are documented per Section 4.9.

The laboratory employs a system of QA sign-off sheets called QC Batch Approval Forms and Quality Control Approval Reports (QCAR's), where each analyst must sign off that their respective part of the analysis is complete and meets the QA/QC requirements of the governing SOP. Both the Volatile and semi-volatile computer systems produce batch-specific QC summary reports to check various analytical parameters. Analysis QCAR's are filed with the analysis batches while the final deliverable QCAR's are signed and placed in each job folder along with any Corrective Action Forms (CAF) which details any problems which were encountered in the measurement of samples. Any deviations from SOPs are noted on CAF's and explained in the SDG narrative which is incorporated into the final report. The group leader has final sign-off responsibility on the QCAR and is responsible for assuring the overall quality of the data.

Secondary Review

The secondary review is a complete technical review of a data set and is performed by the Group/Section or designee. The secondary review is documented and the secondary reviewer is identified. The following items are reviewed:

- Qualitative Identification
- Quantitative Accuracy
- Calibration
- QC Samples
- Method QC Criteria
- Adherence to method and process SOPs
- Accuracy of Final Client Reporting Forms
- Manual Integrations – 100% as verified by signature of secondary data reviewer
- Completeness
- Special Requirements/Instructions

If problems are found during the secondary review, the reviewer must work with the appropriate personnel to resolve them. If changes are made to the data, such as alternate qualitative identifications, identifications of additional target analytes, re-quantitation, or re-integration, the secondary reviewer must contact the laboratory analyst and/or primary reviewer of the data so that the primary analyst and/or reviewer is aware of the appropriate reporting procedures. It is at this time the case narrative is written for the report.

Completeness Review

The completeness review performed by the Project Manager, the includes the review of a project narrative and/or cover letter which outlines anomalous data and non-compliances using project narrative notes and non-compliance reports generated during the primary and secondary review. The completeness review addresses the following items:

- Is the project report complete with all samples present?
- Does the data meet with the client's expectations?
- If available, were the data quality objectives of the project met?
- Are QC outages and/or non-conformances approved and appropriately explained in the narrative notes?

5.3.6.1 Data Reduction

The complexity of the data reduction depends on the analytical method and the number of discrete operations involved (e.g., extractions, dilutions, instrument readings and concentrations). The analyst calculates the final results from the raw data or uses appropriate computer programs to assist in the calculation of final reportable values.

For manual data entry, e.g., Wet Chemistry, the data is reduced by the analyst and then verified by the section manager or alternate analyst prior to updating the data in LIMS. The spreadsheets, or any other type of applicable documents, are signed by both the analyst and alternate reviewer to confirm the accuracy of the manual entry(s).

Manual integration of peaks will be documented and reviewed and the raw data will be flagged in accordance with the STL Corporate SOP entitled *Acceptable Manual Integration Practices* (S-Q-004).

Copies of all raw data and the calculations used to generate the final results, such as bound logbooks, are retained on file for a minimum of 5 years or as otherwise requested by the client/project.

Calculations and data reduction steps for various methods are summarized in the respective analytical SOPs or program requirements.

The following sections will describe the general procedures which are employed at the STL-Connecticut laboratory. More specific detail can be found in the standard operating procedures.

- Gas Chromatography

Data from the Gas Chromatographs is acquired through interfaces with a computer system utilizing Perkin Elmer Turbo Chrom chromatography software. After acquisition, the data is automatically copied to the Thermo analytical systems Target software package for data processing and quantitation. Data is reviewed at the bench level by the analyst. The data is reviewed for chromatographic scaling and dilutions. Necessary reintegrations and rescalings are done using Target. On column result data is then transferred to the labnet LIMS system. Prep data is manually entered and then linked to the analyses for final result calculation. If the data meets QC requirements, final reports are printed.

- GC/Mass Spectrometry

GC/MS data is acquired utilizing Hewlett Packard Chemstation computer systems with Environquant software. After acquisition, the data is automatically copied to the Thermo analytical systems Target software package for data processing and quantitation. This software allows for the comparison of sample non-target spectrum against reference library spectra. The most recent NIST/EPA mass spectral library supported by the system must be used. On column result data is then transferred to the labnet LIMS system. Prep data is manually enter and then linked to the analyses for final result calculation. Data is reviewed by the analyst. If the data meets QC requirements, final reports are printed.

- Atomic Spectroscopy

ICAP metals are analyzed by a Thermo-Jarrel Ash 61E or 61E Purge. The raw data collected is transferred via a network system to the labnet LIMS system. Mercury data is analyzed on the mercury analyzer and is transferred via a network system to the labnet LIMS system. Prep data is manually entered and then linked to the analysis for finally result calculation.

- Classical Chemistry

Routine wet chemistry analyses have pre-printed logbooks, such as distillation logs and digestion logs. The less frequent analyses are recorded in analysts' notebooks. Raw data is then entered into the LIMS for data calculation. This includes the calibration curve data which may have been previously entered. Semi-automated analyses performed on the Lachat produce results. These results are then electronically transferred to the LIMS system. Any associated prep data is manually entered and then linked to the analysis for final result calculation. Any raw data produced is stored in a central file.

5.3.7 Data Integrity and Security

This section details those procedures that are relevant to computer systems that collect, analyze, and process raw instrumental data, and those that manage and report data. STL Connecticut uses Labnet, STL's propriety LIMS, for Quotes, Project setup, sample login, standard and reagent traceability, data and report generation.

Security and Traceability

Access to computer systems that collect, analyze, and process raw instrumental data, and those that manage and report data is both controlled and recorded. There are various systems at STL to which this applies, which include the Laboratory Information Management System (LIMS), as well as specific systems such as a chromatography data system.

Control of the system is accomplished through limitation of access to the system by users with the education, training and experience to perform the task knowledgeably and accurately. System users are granted privileges that are commensurate with their experience and responsibilities.

Computer access is tracked by using unique login names and passwords for all employees that have access to the computer system. Entries and changes are documented with the identity of the individual making the entry, and the time and date. Where a computer system is processing raw instrumental data, the instrument identification number as described in Section 5.4.1 is recorded. Many of these systems, such as the Target Data System, have the capability of maintaining audit trails to track entries and changes to the data. This function is activated on any computer system that has that capability.

Outputs from all instruments are monitored for readability and consistency. If clarity is less than desired, corrective actions are undertaken to rectify the output based on instrument manufacturers' recommendations.

Verification

All commercially obtained software is verified prior to use and after version upgrade. Verification involves assessing whether the computer system accurately performs its intended function. Verification generally is accomplished by comparing the output of the program with the output of the raw data manually processed, or processed by the software being replaced. The records of the verification are required to contain the following information: software vendor, name of product, version, comparison of program output and manual output, raw data used to verify the program, date, and name of the individual performing the verification. Records of verification are retained as QC records.

Validation

Software validation involves documentation of specifications and coding as well as verification of results. Software validation is performed on all in house programs. Records of verification include original specifications, identity of code, printout of code, software name, software version, name of individual writing the code, comparison of program output with specifications, and verification records as specified above. Records of validation are retained as QC records.

Auditing

The QA Department systems audit includes review of the control, security, and tracking of Information Technology (IT) systems and software.

STLs LIMS System Managers continually review the control, security, and tracking of IT systems and software.

Version Control
The laboratory maintains copies of outdated versions of software and associated manuals for all software in use at the laboratory for a period of 5 years from its retirement date. The associated hardware, required to operate the software, is also retained for the same time period.

5.4. Equipment

5.4.1. Equipment Operation

STL facilities maintain state of the art instrumentation to perform the analyses within the QC specifications of the test methods. Each STL facility maintains an equipment list that includes the following information:

- Identity
- Date Installed
- Manufacturer's Name, Model Number, Serial Number
- Current Location
- Preventative Maintenance Schedule

All equipment is subject to rigorous checks upon its receipt, upgrade, or modification to establish that the equipment meets with the selectivity, accuracy, and precision required by the test method for which it is to be used. All manufacturer's operations and maintenance manuals are kept up to date and accessible for the use of the equipment operator. Documentation of equipment usage is maintained using analytical run and maintenance logbooks. Table 6 lists STL's major equipment.

Table 6 Major Equipment List

Instrument Type	Number
Gas Chromatograph (GC)	6
Gas Chromatograph/Mass Spectrometer (GC/MS)	8
Air Desorber	1
Inductively Coupled Argon Plasma Emission Spectrophotometer (ICP)	2
Mercury Cold Vapor Analyzer	1
Infrared Spectrophotometer (IR)	1
Wet Chemistry Autoanalyzer	2
Ion Chromatograph	1
UV-Visible Spectrophotometer	2
TOC Analyzer	2

5.4.2. Equipment Maintenance

STL employs a system of preventative maintenance in order to ensure system up time, minimize corrective maintenance costs and ensure data validity. All routine maintenance is performed as recommended by the manufacturer and may be performed by an analyst, instrument specialist or outside technician. Maintenance logbooks are kept on all major pieces of equipment in which both routine and non-routine maintenance is recorded. Notation of the date and maintenance activity is recorded each time service procedures are performed. The return to analytical control following instrument repair is documented in the maintenance logbook. Maintenance logbooks are retained as QC records. Section 5 of the Appendix outlines the Preventive Maintenance performed at STL Connecticut.

Where it is desirable, the STL-Connecticut laboratory has service contracts for major instruments. These contracts provide routine preventive maintenance according to the manufacturer's requirements. Additionally the laboratory maintains an inventory of expendable parts and supplies to minimize downtime and to allow laboratory personnel to make minor repairs if necessary.

5.4.3. Equipment Verification and Calibration

All equipment is tested upon receipt to establish its ability to meet the QC guidelines contained in the test method for which the instrumentation is to be used. This testing is documented in instrument run and maintenance logbooks. Once an instrument is placed in routine service, ongoing instrument calibration is demonstrated at the appropriate frequency as defined in the test method. The calibration data, which includes instrument conditions and standard concentrations, is documented in pre-formatted instrument runlogs or within LIMS itself. The preparation of all reference materials used for calibration is documented via LIMS. Refer to Corporate SOP P-T-001, Selection of Calibration Points for Proper handling of Calibration data. Any instrument that is deemed to be malfunctioning is clearly marked and taken out of service. When the instrument is brought back into control, this is documented in the instrument maintenance log.

5.5. Measurement Traceability

5.5.1. General

Traceability of measurements is assured using a system of documentation, calibration, and analysis of reference standards. Laboratory equipment that are peripheral to analysis and whose calibration are not necessarily documented in a test method analysis or by analysis of a reference standard is subject to ongoing certifications of accuracy.

These include procedures for checking specifications ancillary equipment: balances, thermometers, temperature, Deionized (DI) and Reverse Osmosis (RO) water systems, automatic pipettes and other volumetric measuring devices. With the exception of Class A Glassware (including glass microliter syringes that have a certificate of accuracy), quarterly accuracy checks are performed for all mechanical volumetric devices. Eppendorf pipets shall be verified monthly and checked prior to use. Wherever possible, subsidiary or peripheral equipment is

checked against standard equipment or standards that are traceable to national or international standards.

The accuracy of any non standard lab ware, such as plastic digestion cups or sample vials, used to measure initial sample volumes or final sample extract volumes must be verified one per lot. Class A glassware such as flasks, pipets, graduated cylinders and volumetrics shall be verified one per lot prior to being put into service within the lab. Accuracy must be verified to within 3 percent in accordance with ASTM procedures.

An external certified service engineer services laboratory balances on an annual basis. This service is documented on each balance with a signed and dated certification sticker. Balances are calibrated on each day of use. All thermometers are calibrated annually against a traceable reference thermometer. Temperature readings of ovens, refrigerators, and incubators are checked on each day of use.

Laboratory SOPs specify the required level of accuracy in volumetric glassware. In all cases, volumetric glassware meets the requirements specified in the published test method.

5.5.2. Reference Standards

The receipt of all reference standards is documented in labnet. References standards are purchased from commercial vendors and labeled with a unique Standard Identification Number, date received, and the expiration date. The expiration dates for ampulated solutions shall not exceed the manufacturer's expiration date. Expiration dates for laboratory-prepared stock and diluted standards shall be no later than the expiration date of the stock solution or material first. Expiration dates for pure chemicals shall be established by the laboratory and be based on chemical stability, possibility of contamination, and environmental and storage conditions. All documentation received with the reference standard is retained as a QC record and references the Standard Identification Number.

The preparation of all daughter solutions, whether a single or multiple-component stock, intermediate, or working standard solution, is documented in a standard solution preparation logbook, in a designated section of the analytical logbook or in the LIMS systems reagent program. This documentation references the Standard ID of the respective parent solution(s) used in its preparation, providing a solid trail back to the solution or chemical received from the vendor. These records include the standard name, final volume, matrix, final concentration, analyst initials, prep date and expiration date. A daughter solution should not have an expiration date which post-dates any of the parent solutions used in its preparation.

Where possible standards are purchased with an accompanying Certificate of Analysis that documents the standard purity. If a standard cannot be purchased from a vendor that supplies a Certificate of Analysis, the purity of the standard is documented by analysis. The documentation of standard purity is archived, and references the Standard Identification Number.

All efforts are made to purchase standards that are $\geq$ 97.0% purity. If this is not possible, the purity is used in performing standards calculations.

The accuracy of calibration standards is checked by comparison with a standard from a second source. In cases where a second standard manufacturer is not available, a different lot is acceptable for use as a second source. The appropriate QC criteria for specific standards are defined in laboratory SOPs. In most cases, the analysis of an ICV or LCS is used as the second source confirmation.

Storage conditions, such as shelf life, ambient or chilled, controlled or restricted access, wet or desiccated, etc.., are in conformance with the specifications set in the associated method, the program requirements, or the manufacturer's recommendation, as appropriate.

Analytical Calibration Standards

The calibration standards used for instruments and equipment are described in the specific analytical methods, or instrument manufacturers' operational guides. All standard preparations are recorded in a bound "Standards Preparation Log Book" or entered into labnet, with the lot number, method of preparation, date and analyst's initials. The labnet system and or log provides the internal documentation which traces the internal working standards to primary and secondary (purchased) stocks.

Samples shall not be stored in the same areas as the standards.

Records on the traceability of the standards are maintained within each department. These records include sources, dates of receipt, lot numbers (if applicable) and expiration dates (if applicable). All purchased standards shall be traceable to NIST Standards including EPA/A2LA standards.

Table 7 provides an overview of the standard sources, types and preparation by instrument group.

- Metals Calibration Standards

Commercially available at 1000 ppm levels from Inorganic Ventures and prepared from primary standard material traceable to NIST Standards including EPA/A2LA standards. Stock standards solutions are prepared every six months or when needed as multi-element stocks.

- Inorganic Calibration Standards

Calibration standards described in the methodology use ACS Reagent Grade materials. Some reference materials are available from NIST to standardize titrating solutions. Stock solutions are prepared every three months while diluted working standards are prepared daily at the time of analysis

- Organic Calibration Standards

Pure compounds, Calibration mixes and Spike solutions for organic compounds are available through, Protocol, Supelco, Inc., Restek, Inc. and Accustandard, Inc. Volatile organic stocks are

prepared every six months and diluted working standards are prepared weekly. Stock non-volatile solutions can be prepared every six months and diluted working standards are prepared as needed.

- pH Calibration Standards

Calibration materials which are certified by the manufacturer to be standardized against NIST Standards are commercially available and are used by the laboratory. Three standards - 4,7, and 10 are used daily to calibrate the pH meters.

- Weighing Calibration Standards

Analytical balances are certified annually. Calibration is performed on a weekly or daily basis using class "S" weights (0.50, 5.00, and 50g). All Class S weights shall be calibrated within 5 years and traceable to NIST.

- Oven Calibration Standards

Daily calibration by monitoring oven temperature with a thermometer calibrated annually with a NIST Certified Thermometer. Digital thermometers shall be calibrated on a quarterly basis.

- Conductivity Calibration Standard

Conductivity solutions are described in Standard Methods, 18th edition, Section 502.

- Turbidity Standards

Formazin solution prepared from CMS neat standard according to EPA Method 180.1-2. Four standards are used to prepare a calibration curve and are made fresh daily. The stock formazin standard is prepared every three months and kept under refrigeration.

- Photometer Calibration Standard

Spectronic Standards - Catalog #331-31-50 (wavelength calibration).

TABLE 7 .STANDARD SOURCES AND PREPARATION

Inst. Group	Source	Form Received	Storage	Preparation from Source	Laboratory Storage	Preparation Frequency
GC/MS-Volatiles	Restek, Inc. EPA Supelco Accustandard Protocol	Neat Solutions> 1000 ppm	Frozen	Primary stocks are prepared from source stocks	Freezer	Semi-annual
				Intermediate stocks are prepared from primary or source stocks	Refrigerator	Weekly
				Working stocks are prepared from intermediates	N/A	Weekly
GC/MS GC - SV	Restek, Inc. EPA RTP Supelco Accustandard	Neat Solutions >1000 ppm	Frozen	Primary stocks are prepared from source stocks	Freezer	Semi-annual
				Intermediate stocks are prepared from primary or source stocks	Refrigerator	Semi-annually
				Working stocks are prepared from intermediates	Refrigerator Certain Pesticies stored at room temperature	Semi-annually
ICP	Inorganic Ventures	Solutions of 1000ppm	Room temp.	Primary stocks (1 - 10 ppm) are prepared from source	0.15% HNO_3 at room temperature	Annually
				Intermediate stocks (1ppb - 1 ppm)	0.15% HNO_3 at room temperature	Semi-annually or as needed
				Working stocks	0.15% HNO_3 at room temperature	Daily

The accuracy of calibration standards is checked by comparison with a standard from a second source. In cases where a second standard manufacturer is not available, a different lot is acceptable for use as a second source. The appropriate Quality Control (QC) criteria for specific standards are defined in laboratory SOPs. In most cases, the analysis of an Initial Calibration Verification (ICV) or Laboratory Control Sample (LCS) is used as the second source confirmation.

5.5.3. Reagents

Reagents are, in general, required to be analytical reagent grade unless otherwise specific in method SOPs. Reagents must be at a minimum the purity required in the test method.

With the exception of the cycletainers, all solvents are pretested at an alternate STL facility. Documentation of approval is submitted to QA and posted on the STL intranet. All reagents are entered into the labnet lims system for tracking. The date of reagent receipt or preparation, and the date the reagent was opened are documented on the preprinted labnet label.

Cycletainers

STL-CT utilizes cycletainers for the organic Extractions solvents such as Hexane and Methylene Chloride. To access certification of these containers the distributor will fax a certificate of analysis from the manufacturer for the lots to be used to the QA Manager. These are kept on file. Cycletainers that do not come with a Certificate of Analysis must be pre-tested at the lab prior to being put into use. A sample of the solvent shall be concentrated and analyzed by the appropriate method. Solvents are tested and accepted in accordance with STLs Corporate *Testing Solvents and Acids* procedure (S-T-001). Documentation of lot verification must be in the extraction log and data kept on file with QA.

5.6. Sampling

Sample representativeness and integrity are the foundations upon which meaningful analytical results rely. Where documented and approved SAPs and/or LQMPs are in place, they must be made available to the laboratory before sample receipt, and approved by laboratory management before sample receipt.

5.7. Sample Handling, Transport, and Storage

5.7.1. General

Chain of Custody (COC) can be established either when bottles are sent to the field, or at the time of sampling. STL can provide all of the necessary coolers, reagent water, sample containers, preservatives, sample labels, custody seals, COC forms, ice, and packing materials required to properly preserve, pack, and ship samples to the laboratory.

Samples are received at the laboratory by a designated sample custodian and a unique Laboratory Project Identification Number is assigned thru the labnet system. The following information is recorded for each sample shipment: Client/Project Name, Date and Time of Laboratory Receipt, Laboratory Project Number, and Signature or initials of the personnel receiving the cooler and making the entries.

Upon inspection of the cooler and custody seals, the sample custodian opens and inspects the contents of the cooler, and records the cooler temperature. All documents are immediately inspected to assure agreement between the test samples received and the COC.

Any non-conformance, irregularity, or compromised sample receipt as described in Section 4.7.1 is documented on the labnet checklist and brought to the immediate attention of the PM for resolution with the client. The COC, shipping documents, documentation of any non-conformance, irregularity, or compromised sample receipt, record of client contact, and resulting instructions become part of the permanent project record. The sample data is then logged into the LIMS system by the Sample Management department.

Samples that are being tested at another STL facility or by an external subcontractor are repackaged, iced, and sent out under COC.

Following sample labeling as described in Section 5.7.1, the sample is placed in storage. Sample storage is required to be access controlled. All samples are stored according to the requirements outlined in the test method, and in a manner such that they are not subject to cross contamination or contamination from their environment. Unless specified by method or state regulation, a tolerance range of $\pm$ 2°C is used. The walk-in storage unit is monitored daily, all others are monitored each business day.

The National Enforcement Investigations Center (NEIC) of EPA defines custody of evidence in the following ways:

- It is in your actual possession; or
- It is in your view, after being in your physical possession; or
- It was in your possession and then you locked or sealed it up to prevent tampering; or it is in a secure area

At STL-Connecticut, chain of custody begins with shipment of the sample bottles and coolers. STL-Connecticut has a printed external chain-of-custody form that accompanies each sample shipment. An example of this form is found in Section 3 of the appendix.

Upon receipt of the samples in the laboratory the sample custodian and the sample control group are responsible for obtaining all necessary shipping documentation and verification of all data entered into the laboratory sample custody records. The internal laboratory custody form is generated at this point.

All samples and projects entering the laboratory are identified with a job/project number. Individual sample bottles are then identified using the job number and sample counter. The samples are then stored according to the requirements of the analytical protocols (refrigeration) and preservative type.

Preliminary sample receipt notifications are distributed to each department to notify department of sample arrival and facilitate the analysis of parameters with short holding times. Each department has a system of tracking sample analysis throughout their respective departments to ensure protocol holding times are met.

All documentation received with samples is reviewed by the sample custodian at the time of receipt. The project manager then reviews the paperwork and checks off the login review in labnet. If there are any discrepancies noted by the sample custodian, the client is then contacted for resolution.

The specific procedures and requirements for receiving samples are specified in the SOP for sample control - "Sample Processing Methods Performed at Sample Arrival". STL's chain-of-custody record is designed to meet the legal requirements of federal, state and local government agencies and the courts of law. The record covers:

- Labeling of sample bottles, packing the shipping container and transferring the shipping container under seal to the custody of a shipper;
- Outgoing shipping manifests;
- The chain-of-custody form completed by the person(s) breaking the shipping container seal, taking the sample, resealing the shipping container and transferring custody to a shipper;
- Incoming shipping manifests;
- Breaking the shipping container's reseal;
- Storing each labeled sample bottle in a secured area;
- Disposition of each sample to an analyst or technician; and
- The use of the sample in each bottle in a testing procedure appropriate to the intended purpose of the sample.

For each link in this process the records indicate the following:

- The person with custody; and
- The time and date each person accepted or relinquished custody.

STL has implemented the following standard operating procedures with regard to laboratory chain-of-custody:

- Samples are stored in a secure area;
- Non-employee access to the laboratories are controlled through the use of limited access points at each facility. Outside personnel can access the facility either through the front receptionist or the sample receipt area. Other access doors to the laboratory are maintained in a secure manner at all times;

- All visitors to each facility are required to sign-in at the reception area and must be escorted by an STL representative at all times while in the laboratory;

- The designated sample custodian and authorized personnel control access to the sample storage units; and

- Samples remain in secured sample storage until removed for sample preparation or analysis; and

All samples are stored in either the walk-in refrigerator or in a separate locked refrigerator. Samples must be stored at $4 \pm 2°$ C. All unused portions of samples, including empty sample containers, are returned to the secure sample control area.

5.7.2. Sample Identification and Traceability

Each sample container is assigned a unique Sample Identification Number that is cross-referenced to the client identification number such that traceability of test samples is unambiguous and documented. Each sample container is affixed with a sample identification label. Access to samples is controlled and documented, identifying the identity of the sample handler, and date and time of sample access. All unused portions of th sample are returned to the Sample control area.

5.7.3 Subsampling

Taking a representative sub-sample from a container containing a soil or solid matrix is necessary to ensure that the analytical results are representative of the sample collected in the field. The size of the sample container, the quantity of sample fitted within the container, and the homogeneity of the sample need consideration when sub-sampling for sample preparation.

After thoroughly mixing the sample within the sample container or transfer to a wip bag (or other suitable plastic bag), a sub-sample from various quadrants and depths of the sample are taken to acquire the required sample weight. Any non-homogenous looking material is avoided and noted as such within the sample preparation record.

The procedure used for subsampling with the laboratory is outlined in the SOP for Compositing, Homogenization and splitting Environmental Samples.

5.7.4 Sample Preparation

Sample preparation procedures are documented in the laboratory's analytical SOPs.

5.7.5 Sample Disposal

Samples are retained in the STL-Connecticut storage facilities for 30 days after the project report is sent unless prior arrangements have been made with the client. Samples may be held longer or returned to the client per written request. Unused portions of samples found or suspected to be hazardous according to state or federal guidelines may be returned to the client upon completion of the analytical work. All radioactive or dioxin containing samples will be returned to the client.

The STL-Connecticut laboratory has a designated hazardous waste storage area with bermed floors and separate ventilation. This area and satellite accumulation areas are the direct responsibility of the Hazardous Waste Manager (HWM). The HWM routinely inspections each area to ensure regulatory adherence.

Samples designated for disposal are removed from sample control and brought to the hazardous waste storage area. Samples designated for disposal may be returned to clients for disposal, on a case-by-case basis.

The laboratory sample waste to be disposed of is segregated by waste streams. Waste profiles have been generated for the following streams: acid liquid waste, NaOH liquid waste, vials (GC, GC/MS), waste organic solvent and waste pyridine. Other laboratory waste is disposed of through the established compatible waste streams. If no compatible waste stream is available the waste is sent out via lab pack procedure.

A Hazard Waste Minimization Plan has been prepared for the STL-Connecticut facility and is designed to minimize the volume and toxicity of all waste streams being generated whenever possible. This Hazard Waste Minimization Plan is designed to meet or exceed the requirements set forth in 54 FR 25056, June 12, 1989.

Each process that generates waste will be assessed to determine if there are ways to either reduce the volume or toxicity of waste being generated. It is unlikely that most processes will be changed due to the stringent EPA standard operating procedures which must be followed. Strong emphasis will, however, be placed on efficient use of products used to prevent excessive amounts from becoming waste.

5.8. Assuring the Quality of Test Results

5.8.1. Proficiency Testing

STL analyzes Proficiency Test (PT) samples as required for certification and as outlined in the National Environmental Laboratory Accreditation Conference (NELAC). Each STL facility participates in the PT program semi-annually for each area of testing and matrix (e.g. organics, inorganics, microscopy, radiological, microbiological; aqueous and drinking water) for which it is accredited. In addition to the PT program required for NELAC accreditation, STL participates in a number of additional PT programs, as appropriate for the specific facility, such as the Army Corps of Engineers Laboratory Assessment program.

PT samples are handled and tested in the same manner (procedural, equipment, staff) as environmental samples. PT test sample data is archived using the requirements for project and raw data record retention.

Double Blind Performance Evaluation

STL CT also participates in a double blind performance. An external vendor is contracted by the corporate QA Director to submit double blind samples to the STL facility. Both the level of customer service and the accuracy of the test results are assessed objectively by the external contractor, who provides a detailed report to the QA Director and to each of the STL facilities. This is administered as a double blind program in order to assess all facets of STL operations.

5.8.2. Control Samples

Control samples are analyzed with each batch of samples to monitor laboratory performance in terms of accuracy, precision, sensitivity, selectivity, and interferences. Each regulatory program and each method within those programs specify the control samples that are prepared and/or analyzed with a specific batch. There are also a number of QC sample types that monitor field sampling accuracy, precision, representativeness, interferences, and the effect of the matrix on the method performed Note that frequency and criteria of control samples vary with specific regulatory, methodology and project specific criteria.

5.8.2.1 Method Performance Control Samples: Preparation Batch

Sample preparation or pre-treatment is commonly required before analysis. Typical preparation steps include homogenization, grinding, solvent extraction, sonication, acid digestion, distillation, reflux, evaporation, drying and ashing. During these pre-treatment steps, samples are arranged into discreet manageable groups referred to as preparation (prep) batches. Prep batches provide a means to control variability in sample treatment.

Control samples are added to each prep batch to monitor method performance (Table 8) and are processed through the entire analytical procedure with investigative/field samples.

Table 8. Preparation Batch Control Samples

Control Sample Type	Details	
Method Blank (MB)	Use	Monitors for potential contamination introduced during the sample preparation and analytical processes.
	Typical Frequency [1]	1 per batch of $\leq$ 20 samples per matrix type per sample extraction or preparation method.

Table 8. Preparation Batch Control Samples

Control Sample Type	Details	
	Description	Organics: Laboratory pure water for water samples or a purified solid matrix for soil or solid samples (when available or when requested); solid matrices commonly include sodium sulfate, vendor or agency supplied soil or solid, or purchased sand; these solids may require purification at the laboratory prior to use. Inorganics: Laboratory pure water for both water and soil or sediment samples. ***Volume/weights are selected to approximately equal the typical sample volume/weight used in sample preparation; and final results in a soil/solid batch may be calculated as mg/kg or ug/kg, assuming 100% solids and a weight equivalent to the aliquot used for the corresponding field samples, to facilitate comparison to actual field samples.***
Laboratory Control Sample (LCS)	Use	Measures the accuracy of the method in a blank matrix and assesses method performance independent of potential field sample matrix affects.
	Typical Frequency [1]	1 per batch of $\leq$ 20 samples per matrix type per sample extraction or preparation method. For multi-analyte methods, the LCS may consist of surrogates in the blank matrix, and or a representative selection of target analytes/internal standards.
	Description	Prepared from a reference source of known concentration and processed through the preparation and analysis steps concurrently with the field samples. Aqueous LCS's may be processed for solid matrices unless a solid LCS is requested; final results may be calculated as mg/kg or ug/kg, assuming 100% solids and a weight equivalent to the aliquot used for the corresponding field samples, to facilitate comparison with the actual field samples.
Known QC Sample	Use	Comply with regulatory requirements; check the accuracy of an analytical procedure; troubleshoot method performance problems; verify an analyst in training's ability to accurately perform a method; to verify the return-to-control after method performance problems; and may also be used as an LCS.
	Typical Frequency [1]	As defined by the client or QAPP.
	Description	Obtained from outside suppliers or agencies; generally require preparation from concentrated materials by dilution into a standard matrix; contain known analytes or compounds; acceptance limits are provided by the vendor.

[1] Denotes an STL required frequency.

Field blanks, equipment blank and trip blanks, when received, are analyzed in the same manner as other field samples. However, a field blank should not be selected for matrix QC,

as it does not provide information on the behavior of the target compounds in the field samples. Usually, the client sample ID will provide information to identify the field blanks with labels such as "FB", "EB", or "TB".

5.8.2.2 Method Performance Control Samples: Matrix

Matrix control samples include sample duplicates (MD), sample matrix spikes (MS), and sample surrogate spikes. These control samples help monitor for potential physical and chemical effects which may interfere with the precision and/or accuracy of the selected analytical method. Since interferences can enhance or mask the presence of target analytes, matrix control samples measure the degree of interference and are used to assist in the interpretation of the analytical results. The laboratory avoids performing matrix QC on known field blank samples, such as trip blanks and rinsates, since these samples are not indicative of the sample matrix.

Table 9. Matrix Control Samples

Control Sample Type	Details	
Matrix Duplicate (MD)	Use	Monitors the effect of site matrix on the precision of the method; and of the reproducibility of laboratory preparation and measurement techniques. **Note:** Precision may also be affected by the degree of homogeneity of the sample, particularly in the case of non-aqueous samples or aqueous samples with particulates. Sample homogeneity and matrix effect should be considered when field samples are used to assess reproducibility. **Note:** A field duplicate, when received, measures Representativeness of sampling and the effect of the site matrix upon precision.
	Typical Frequency [1]	1 per 20 samples per matrix or per SAP/QAPP [2].
	Description	***Performed by analyzing two aliquots of the same field sample independently; analyzed for each associated sample matrix (e.g., when requested by the client or the analytical method).***
Matrix Spike (MS)	Use	Measures the effect of site sample matrix on the accuracy of the method.
	Typical Frequency [1]	1 per 20 samples per matrix or per SAP/QAPP.

Table 9. Matrix Control Samples

Control Sample Type	Details	
	Description	Aliquot of a field sample which is spiked with the analytes or compounds of interest; analyzed for each associated sample matrix (when requested by the client or analytical method). The determination of MS percent recovery (% R) requires an analysis of a fortified sample and a non-fortified sample under the same procedural conditions (e.g., sample volumes, dilutions, procedural conditions, etc..). The concentration determined in the non-fortified sample is subtracted from the fortified sample concentration before determining the %R. The degree of homogeneity of the sample, particularly in the case on non-aqueous samples or samples with particulates, may affect the ability to obtain representative recoveries.
Matrix Spike Duplicate (MSD)	Use	Measures effect of site sample matrix on precision of method.
	Typical Frequency [1]	1 per 20 samples per matrix, when requested by the client or the analytical method, or per SAP/QAPP [2].
	Description	Alternative to sample duplicate. Generally, inorganic protocols specify an MD/MS and organic protocols specify an MS/MSD.
Surrogate Spike	Use	Measures method performance to sample matrix (organics only).
	Typical Frequency [1]	Every QC and analytical sample.
	Description	Compounds similar to the target analytes in structure, composition and chromatography, but not typically found in the environment, are added to each QC and analytical sample, prior to preparation (e.g., extraction). If the surrogates in an analytical batch do not all conform to established control limits, the pattern of conformance in investigative and control samples is examined to determine the presence of matrix interference or the need for corrective action.
Internal Standards	Use	Monitor the qualitative aspect of organic and inorganic analytical measurements.
	Typical Frequency [1]	All organic and ICP/MS methods as required by the analytical method.
	Description	Used to correct for matrix effects and to help troubleshoot variability in analytical response and are assessed after data acquisition. Possible sources of poor internal standard response are sample matrix, poor analytical technique or instrument performance.

[1] Denotes an STL required frequency.
[2] Either an MSD or an MD is required per 20 samples per matrix or per SAP/QAPP.

5.8.3 Statistical Control Limits and Charts

Statistical control limits and control charts are used to establish method performance of a given analysis and to monitor trends of QC results graphically over time. Once a data base

of the laboratory results for a method/matrix/QC analyte combination is established, the acceptability of a given analysis of that QC parameter (and of the analytical batch to which it belongs) can be evaluated in light of the laboratory's normal performance. This is intended to help identify problems before they might affect data. Often, patterns of response that are not at all evident in sets of numbers are very distinct when the same values are viewed as a chronological graph.

Establishment of Limits

The purpose of using statistical control limits is to define, for each analyte in a given method/matrix/QC type combination, a range of expected values. This range encompasses the random variation that occurs normally in the laboratory and allows one to evaluate control samples in that context, rather than according to an arbitrary or external set of values. Limits for accuracy and precision are defined below:

Accuracy

As recoveries of a QC analyte in a given matrix are tabulated over time, a mean value for recovery is established, as is the standard deviation (s) of those recoveries. If the analysis is in statistical control (e.g., if the set of QC recoveries over time show random variation about the mean) approximately 99.7% of all recoveries for that QC will fall within three standard deviations (3s) of the mean. Thus, assuming that the mean itself is an acceptable level of recovery, the values corresponding to 3s above and 3s below the mean are defined as the Control Limits. Any single recovery outside these values is assumed to have resulted from some circumstance other than normal variation and shall be investigated.

Roughly 95% of points should fall within 2s of the mean. The values +2s and -2s are the Warning Limits. Any normal result has approximately a 1/20 chance of being between 2s and 3s from the mean, so a result in this region doesn't necessarily warrant corrective action, but attention should be paid to such points.

Precision

Precision is used to indicate matrix variability so that appropriate decisions can be made by the client when repeated analyses vary significantly. The coefficient of variation, expressed as a percentage (e.g., the %RSD) for the data set used to calculate accuracy control limits defines the control limit for precision. Duplicate analyses of the QC samples, such as duplicates or MS/MSD, should have an RPD less than or equal to this established precision control limit to be considered free of matrix interferences.

The laboratory calculates statistical control limits on an annual basis, or more frequently if change have been made to the analytical process which affects the chemistry of the method. Such limits are available on a project or QAPP-specific basis.

In the case where laboratory generated limits do not meet the requirements of a specific project or regulation then the project and regulatory limits shall supersede the laboratory defined limits.

5.8.4 Calibration

Calibration protocols are method specific and defined in STL facility method SOPs.

- Instrument Calibration Procedures

The proper calibration of instrumentation and equipment is a key element in the quality of the analysis done by the laboratory. Each type of instrumentation and each EPA approved method has specific requirements for the calibration procedures, depending on the analytes of interest and the medium of the sample.

Table 10 lists in tabular form the general procedures which are followed by STL Connecticut. The calibration protocols meet or exceed the minimum method criteria requirements. Exact details regarding calibration for each method are outlined in the analytical SOPs. If a method calibration requirement, outlined in a project specific QA Plan, is more stringent than those listed in the Quality Assurance Plan, the more stringent will be followed in each case.

Documentation and records on calibrations are maintained in instrument logs and also with the data sets of the samples which are analyzed and related to them. In addition, laboratory department managers monitor the results of the calibration program to ensure the proper implementation at the analyst level.

TABLE 10 INSTRUMENT CALIBRATION SUMMARY

Analysis	Cal. Type	# Standards	Type of curve	Acceptance/rejection criteria	Frequency
GC Pesticides Herbicides OP pesticides GRO/DRO	Initial Continuing	5 concentration levels 1 standard (mid)	Linear	≤ 20% RSD $r^2 \leq 0.99$ +/- 15% Difference	continuing calibration fails every 12 hrs or 20 samples
GC/MS quadrupole	Initial Continuing	5 concentration levels; tuning with BFB/DFTPP 1 standard; tuning with BFB/DFTPP	Linear; tuned to manufacturer's specifications	≤ 30% RSD $r^2 \leq 0.99$ +/- 20% Diff	continuing calibration failure Every 12 hours
ICP	Initially Daily Continuing	5 concentration levels 2 levels 1 standard	Linear	According to instrument manufacture's instructions	Quarterly Every 10 samples
Lachat Analysis	Initially, Daily Continuing	5 concentration levels 1 standard	Linear	<.995 coefficient of variation $r^2 \leq 0.99$	continuing calibration failure Every 10 samples
pH Meters	Initially and daily Continuing	3 standards 1 standard	Linear	+/- 95% of value $r^2 \leq 0.99$	Daily Every 10 samples
Spectrophoto-meter	Initially and daily Continuing	5 concentration levels plus set %T with no cuvette in holder 1 standard	Linear	<.995 coefficient of variation $r^2 \leq 0.99$ +/- 95% of value	Daily Every 10 samples
Infrared Spectrophoto-meter	Initially and monthly Continuing	5 concentration levels 1 level	Linear	<.995 coefficient of variation $r^2 \leq 0.99$ +/- 95% of value	Daily Every 10 samples
Conductivity meter	Daily Continuing	3 concentration levels 3 concentration levels	Linear	<.995 coefficient of variation $r^2 \leq 0.99$ +/- 95% of value	Daily Every 10 samples

TABLE 10 INSTRUMENT CALIBRATION SUMMARY

Turbidimeter	Daily Continuing	3 concentration levels 3 concentration levels	Linear	<.995 coefficient of variation $r^2 \leq 0.99$ +/- 95% of value	Daily Every 10 samples
Balance	Daily	3 levels Class "S" weights	Point		Check single weight upon use

5.8.5 Glassware cleaning

STL Connecticut employs rigorous cleaning procedures for all glassware used within the laboratory. Glassware washing procedures are to be posted at all relevant stations. Detailed procedures are outlined in SOP for Glassware Washing.

5.8.6 Procedure for Permitting Departures from Documented Procedure

Where a departure from a documented SOP, test method, or policy is determined to be or perceived to be necessary, or is unavoidable, the departure is documented on a non-conformance summary or in a format specifically designed for that purpose. The departure from procedure must be authorized by the QA Manager, the Laboratory Director or the department Manager. Where a departure affects a specific client project, the PM must be informed of the deviation. In some instances, it is appropriate to inform the client before permitting a departure. Any such occurrence is documented in the cover letter and/or project narrative.

5.8.7 Development of QC Criteria, Non-Specified in Method/Regulation

Where a method or regulation does not specify acceptance and/or rejection criteria, the laboratory must examine the data user's needs and the demonstrated sensitivity, accuracy and precision of the available test methods in determining appropriate QC criteria.

Data users often need the laboratory's best possible sensitivity, accuracy, and precision using a routinely offered test method, or are unsure of their objectives for the data. For routine test methods that are offered as part of STL's standard services, the laboratory bases the QC criteria on statistical information such as determination of sensitivity, historical accuracy and precision data, and method verification data. The method SOP includes QC criteria for ongoing demonstration that the established criteria are met (e.g., acceptable LCS accuracy ranges, precision requirements, method blank requirements, initial and continuing calibration criteria, etc..).

In some cases, a routine test method may be far more stringent than a specific data user's needs for a project. The laboratory may either use the routinely offered test method, or may opt to develop an alternate test method based on the data user's objectives for sensitivity, accuracy, and precision. In this case, it can be appropriate to base the QC criteria on the data user's objectives, and demonstrate through method verification and ongoing QC samples that these objectives are met.

For example, a client may require that the laboratory to test for a single analyte with specific DQOs for sensitivity, accuracy, and precision as follows: Reporting Limit of 10 ppm, Accuracy ±25%, and RSD of <30%. The laboratory may opt to develop a method that meets these criteria and document through the Method Blank results, MDL study, and LCS results that the method satisfies those objectives. In this case, both the method and the embedded QC criteria have been based on the client's DQOs.

In some cases, the data user needs more stringent sensitivity, accuracy, and/or precision than the laboratory can provide using a routine test method. In this case, it is appropriate that the laboratory provide documentation of the sensitivity, accuracy, and precision obtainable to the data user and let the data user determine whether to use the best available method offered by the laboratory, or determine whether method development or further research is required.

5.9. Project Reports

5.9.1. General

Laboratory customers have a wide variety of analytical needs. In order to meet these varied requirements, the laboratory offer several levels of data reporting options ranging from very simple format to an extreme level of documentation. Table 11 presents the contents of various levels of reports offered by the laboratory. Custom reporting beyond those listed is usually available but may require additional cost. The information provided in Table 11 is a summary only. In some cases, individual methods may not include the indicated items. For example, in metals graphite furnace analysis an ICP interference check would not be included since it is inappropriate for that method.

The criteria described in Section 5.9.2 apply to all Project Reports that are generated under NELAC requirements. The criteria described in Section 5.9.3 and 5.9.4 apply to all Project Reports.

5.9.2. Project Report Content

- Title
- Laboratory name, address, telephone number, contact person
- Unique Laboratory Project Number
- Total Number of Pages (report must be paginated)

- Name and address of Client
- Client Project Name (if applicable)
- Laboratory Sample Identification
- Client Sample Identification
- Matrix and/or Description of Sample
- Dates: Sample Receipt, Collection, Preparation and/or Analysis Date
- Definition of Data Qualifiers
- Reporting Units
- Test Method

The following are required where applicable to the specific test method or matrix:

- Solid Samples: Indicate Dry or Wet Weight
- Whole Effluent Toxicity: Statistical package used
- If holding time $\leq$ 48 hours, Sample Collection, Preparation and/or Analysis Time
- Indication by flagging where results are reported below the quantitation limit.

5.9.3. Project Narrative

A Project Narrative and/or Cover Letter is included with each project report and at a minimum includes an explanation of any and all of the following occurrences:

- Non-conformances
- "Compromised" sample receipt (see Section 4.7.1)
- Method Deviations
- QC criteria failures

Project Release

The Project Manager or his/her designee authorizes the release of the project report with a signature. The Laboratory Director or his/her designee authorizes the release of the project report narrative with a signature as required by the data reporting deliverables.

Where amendments to project reports are required after issue, these shall be in the form of a separate document and/or electronic data deliverable. The revised report is clearly identified as revised with the date of revision and the initials of the person making the revision. Specific pages of a project report may be revised using the above procedure with an accompanying cover letter indicating the page numbers of the project revised. The original version of the project report must be kept intact and the revisions and cover letter included in the project files.

5.9.4. Subcontractor Test Results

Project reports from external subcontract shall not be altered, and shall be included in original form in the final project report provided by STL. Data from subcontractors' reports may be added to an STL electronic deliverable.

Subcontracted data shall be clearly identified as such, and the name, address, and telephone number for the laboratory performing the test is included in the project report. If the report is being generated under NELAC requirements, all information outlined in Section 5.9.2 are required for both the originating laboratory and the subcontracting laboratory.

Data subcontracted within STL may be reported on the originating laboratory's report forms provided the following mandatory requirements are met:

- The name, address, and telephone number of the facility are provided.
- Analytical results produced by the STL intra-company subcontractor are clearly identified as being produced by the subcontractor facility.
- The intra-company subcontractor's original report, including the chain of custody is retained by the originating laboratory.
- Proof of certification is retained by the originating laboratory.
- All information as outlined in Section 5.9.2 is included in the final report where the report is required to be compliant with NELAC, for both the originating and subcontracting laboratory.

5.9.5. Electronic Data Deliverables

Electronic Data Deliverables (EDD) are routinely offered as part of STL's services. STL offers a variety of EDD formats including Environmental Restoration Information Management System (ERPIMS), New Agency Standard (NAS), Format A, Excel, Dbase, GISKEY, and Text Files.

EDD specifications are submitted to the IT department by the PM for review and undergo the contract review process in Section 4.4.1. Once the facility has committed to providing diskettes in a specific format, the coding of the format is performed. This coding is documented and validated. The validation of the code is retained as a QC record.

EDDs are subject to a review to ensure their accuracy and completeness. If EDD generation is automated, review may be reduced to periodic screening if the laboratory demonstrates that it can routinely generate that EDD without errors. Any revisions to the EDD format are reviewed until it is demonstrated that it can routinely be generated without errors.

5.9.6. Project Report Format

STL offers a wide range of project reporting formats, including EDDs, short report formats, and complete data deliverable packages modeled on the Contract Laboratory Protocol (CLP) guidelines. Regardless of the level of reporting, all projects undergo the same levels of review as described in Section 5.3.6.

Table 11 Report Content Options

	Data reporting Options			
Wet Chemistry	Level 1	Level 2	Level 3 *	Level 4 (CLP)
Case narrative	Yes	Yes	Yes	Yes
Sample Results	Result forms	Result forms	Result forms	Result forms
Method Blank	Yes	Yes	Yes	Yes
External Chain of Custody	Yes	Yes	Yes	Yes
Internal Chain of Custody	Yes	Yes	Yes	Yes
Duplicate	-	Yes	Yes	Yes
Matrix Spike	-	Yes	Yes	Yes
Initial Calibration Verification (ICV)	-	-	Yes	Yes
Continuing Calibration Verification (CCV)	-	-	Yes	Yes
Laboratory Control Sample (LCS)	-	-	Yes	Yes
EPA Forms 1-14	-	-	Yes	Yes
Metals	Level 1	Level 2	Level 3 *	Level 4 (CLP)
Case Narrative	Yes	Yes	Yes	Yes
Sample Results	Result forms	Result forms	Result forms	Result forms
Method Blank	Yes	Yes	Yes	Yes
External Chain of Custody	Yes	Yes	Yes	Yes
Internal Chain of Custody	Yes	Yes	Yes	Yes
Duplicate	-	Yes	Yes	Yes
Matrix Spike	-	Yes	Yes	Yes
Initial Calibration Verification (ICV)	-	-	Yes	Yes
Continuing Calibration Verification (CCV)	-	-	Yes	Yes
Laboratory Control Sample (LCS)	-	-	Yes	Yes
ICP Interference Check	-	-	Yes	Yes
ICP Linear Range	-	-	Yes	Yes
ICP Post Spike	-	-	Yes	Yes
EPA Forms 1-14	-	-	Yes	Yes
Organics	Level 1	Level 2	Level 3*	Level 4 (CLP)
Case Narrative	Yes	Yes	Yes	Yes
Sample Results	Result forms	Result forms	Result forms	Result forms
Method Blank	Yes	Yes	Yes	Yes
External Chain of Custody	Yes	Yes	Yes	Yes
Internal Chain of Custody	Yes	Yes	Yes	Yes
Matrix Spike	-	Yes	Yes	Yes
Matrix Spike Duplicate	-	Yes	Yes	Yes
Laboratory Control Sample (LCS)	-	-	Yes	Yes
Surrogate Recovery Information	-	Yes	Yes	Yes
Tuning Data (GC/MS only)	-	-	Yes	Yes
Initial Calibration Information	-	-	Yes	Yes
Continuing Calibration Information	-	-	Yes	Yes
Run Sequence Logs	-	-	Client Specific	Client Specific
Sample Preparation Logs	-	-	Yes	Yes
Chromatograms and Mass Spectra	-	-	-	Yes
EPA Forms 1-8	-	-	Yes	Yes

* Raw backup data not provided

Table 12 Correlation of QMP Sections with NELAC Quality Manual Requirements

NELAC Chapter 5.5.2 Quality Manual	Quality Management Plan Section
a. Quality policy statement, including objectives and commitments	1.2 Quality Assurance Policy 4.2.1 Objectives of the Quality System
b. Organization and management structure	4.1 Organization and Management
c. Relationship between management, technical operations, support services and the quality systems	4.1.2 Roles and Responsibilities 4.2 Quality System
d. Records retention procedures; document control procedures	4.3 Document Control 4.12.2 Record Retention
e. Job descriptions of key staff and references to job descriptions of other staff	4.1.2 Roles and Responsibilities
f. Identification of laboratory approved signatories	4.1 Organization and Management
g. Procedures for achieving traceability of measurements	5.5 Measurement Traceability
h. List of all test methods under which the laboratory performs its accredited testing	5.3.1 Method Selection
i. Mechanisms for assuring the laboratory reviews all new work to ensure that it has the appropriate facilities and resources before commencing such work	4.4.2 Project-Specific Quality Planning
j. Reference to the calibration and/or verification test procedures used	5.4.3 Equipment Verification and Calibration
k. Procedures for handling submitted samples	4.7.1 Sample Acceptance Policy 5.7 Sample Handling, Transport and Storage
l. Reference to the major equipment and reference measurement standards used as well as the facilities and services used in conducting tests	5.2 Laboratory Facilities 5.4.2 Equipment Maintenance 5.4.3 Equipment Verification and Calibration
m. Reference to procedures for calibration, verification and maintenance of equipment	5.4.2 Equipment Maintenance 5.4.3 Equipment Verification and Calibration
n. Reference to verification practices including interlaboratory comparisons, proficiency testing programs, use of reference materials and internal QC schemes	5.8.1 Proficiency Testing 5.8.2 Control Samples
o. Procedures for feedback and corrective action whenever testing discrepancies are detected, or departures from documented procedures occur	4.9 Control of Non-Conformances 4.10 Corrective Action 4.11 Preventive Action 5.8.6 Permitting Departures from Documented Procedures

Table 12 Correlation of QMP Sections with NELAC Quality Manual Requirements

NELAC Chapter 5.5.2 Quality Manual	Quality Management Plan Section
p. Laboratory management arrangements for exceptionally permitting departures from documented policies and procedures	4.4.2 Project-Specific Quality Planning 5.8.6 Permitting Departures from Documented Procedures
q. Procedures for dealing with complaints	4.8 Complaints
r. Procedures for protecting confidentiality and proprietary rights	4.7.2 Client Confidentiality and Proprietary Rights
s. Procedures for audits and data review	4.13 Internal Audits 5.3.6 Data Reduction and Review
t. Process/procedures for establishing that personnel are adequately experienced in duties they are expected to carry out and are receiving any needed training	5.1.2 Training
u. Ethics policy statement developed by the laboratory and training personnel in their ethical & legal responsibilities	5.1.3 Ethics Policy
v. Reference to procedures for reporting analytical results	5.3.6 Data Reduction & Review 5.9 Project Reports
w. Table of contents, listing reference, glossaries and appendices	TOC Table of Contents Appendix I: List of Cited SOPs and Misc. Laboratory Information

APPENDIX, Section 1

PROFESSIONAL PROFILES OF KEY PERSONNEL

The following professional profiles are presented alphabetically and represent the key quality assurance and laboratory management personnel for the network organization. Additional professional profiles are available for review during a site visit to any of our laboratory facilities.

Qualifications Summary

Mr. Frick has 20 years of experience in environmental and analytical chemistry that includes broad management and leadership experience. He is responsible for the overall direction of the laboratory and has extensive knowledge in environmental analytical chemistry and business management.

Professional Experience

Laboratory Director – 2004 to present

STL Connecticut—Shelton, CT
Mr. Frick directs the growth and development of the laboratory, including strategic plan development and implementation. He is responsible for all phases of operation within the Shelton, Connecticut facility, including; the technical and administrative management of the laboratory. The functional groups of the facility include Sample Control, Sample Preparation, Organic Chemistry, Metals, Wet Chemistry, Project Management, QA/QC and Information Technology, Report Generation, Data Management, and Human Resources. His other responsibilities include adherence to budget, staff development and control, quality assurance and quality control, scheduling, client support/liaison, as well as profit and loss responsibility for the facility. In addition, he is responsible for oversight of the Environmental Health and Safety Program, and was instrumental in the set up of the mixed waste license for the Connecticut laboratory.

Chromatography Product Manager
Supelco Incorporated—Bellefonte, PA—1998 to 2004

Laboratory Director
American Environmental Network—Schaumburg, IL—1996 to 1998

Laboratory Manager
Industrial Environmental Analysts—Schaumburg, IL—1995 to 1996

Group Leader
Industrial Environmental Analysts—Monroe, CT—1988 to 1995

Chemist
Environmental Analysis Corporation—Norwalk, CT—1984 to 1988

Education

- BS in Chemistry – University of Connecticut—Storrs, CT—1984
- MBA in Finance – University of Bridgeport—Bridgeport, CT—1993

Professional Training

- Environmental Laboratory Management —John H. Taylor, ACS Course
- Performance Management Workshop—Cynthia. Barnet, HR Consultant
- Interview Skills Workshop—Cynthia. Barnet, HR Consultant
- Frontline Leadership Development —William Frackler, Ingoldsby, Inc.
- 40 Hour OSHA Training —Lynn Sherman, YWC Midwest
- Radiation Safety Program Training —Radiation Safety Associates, Inc.
- Theory of Constraint Training—Sigma-Aldrich, Inc.
- Strategic Sales Management —Sigma-Aldrich, Inc.
- Corporate Finance Workshops—Sigma-Aldrich, Inc.

Professional Affiliations

- American Chemical Society

Qualifications Summary

Mr. Hobart has 14 years of experience in the environmental laboratory industry that includes management of the client services and sample control departments, project management responsibilities, and experience performing analyses. He possesses excellent presentation skills, communication skills, and writing proficiency. Paul is adept at motivating his team to achieve goals and objectives.

Professional Experience

Client Services Manager – 1999 to present

STL Connecticut -- Shelton, CT
Mr. Hobart's responsibilities include the administrative management of the project management, sample control and courier staff of the facility. He coordinates the project management staff with laboratory operations to ensure that projects are executed properly and effectively. He is responsible for generating and tracking price quotations, and for providing detailed forecasting and project schedules to the laboratory director. Additionally, Paul is responsible for the management of key client accounts.

Project Manager – 1996 - 1999
STL Connecticut – Whippany NJ and Shelton, CT

Project Manager – 1993 -1996
Quanterra, Inc. – Edison, NJ and Pittsburgh, PA

Analyst/Project Manager – 1990 - 1993
Analytica, Inc. – Golden, CO

Analyst – 1980 - 1990
Ledoux & Co. – Teaneck, NJ

Education

- BA in Literature – Ramapo College of NJ--Mahwah, NJ--1986

Professional Training

- Seminar- Conference on Customer Service, 2000
- Principles of Mass Spectrometry , 1991

Qualifications Summary

Ms. Culik has over 22 years experience in the environmental laboratory field. Experience includes analysis of drinking water utilizing a variety of organic and inorganic methods and Gas chromatography chemist on environmental samples. Experience also includes supervisor of the Gas Chromatography department responsible for analysis of environmental samples for pesticides/PCB's according to EPA/NYSDEC CLP Protocols, SW846 Methods and EPA "600" Series Methods.

Professional Experience

Quality Assurance Manager – 1991 to present

STL Connecticut (formerly IEA Incorporated)--Shelton, CT--1991 to Present

Ms Culik is responsible for developing and implementing the laboratory's quality system and laboratory quality manual to ensure compliance with STL policies for quality assurance and control (QA/QC). She administrates the laboratory certification and accreditation programs and responds to external audits. She is responsible for the assessment of operations through internal audits, management review and proficiency testing and for the oversight of preventative and corrective actions. Additional responsibilities include document control and archival of laboratory records. In addition, she prepares and submits monthly reports to corporate management, assists in reviewing project QA plans and serves as a laboratory/client support liaison.

Ms. Culik's responsibilities also include maintaining the laboratory's LIMS reporting system.

Gas Chromatography Group Leader

IEA Incorporated –Monroe, CT – 1986 to 1991

Chemist

York Laboratories – Monroe, CT – 1984 to 1986

Laboratory Analyst

American Waterworks Service Company – 1981 to 1984

Lab Technician

Suffolk County Water Authority 1978 to 1981

Lab Technician

Hooker Chemicals & Plastics – 1976 to 1978

Education

- AAS – Medical Technology, S.U.N.Y. at Alfred - Alfred, New York, 1976

Professional Training

- Two day seminar on Environmental Laboratory Management
  John H. Taylor, Analytical Technology.

- Performance Management Workshop
  One day seminar
  Cynthia Barnet, Human Resources Consultant

- Interview Skills Workshop
  One day seminar
  Cynthia Barnet, Human Resources Consultant

- Leadership Development Workshop
  Four day workshop
  William Frackler, Ingoldsby, Inc.

- Mass Spectral Data Interpretation
  One day seminar
  Dr. Frank Rutecek, Cornell University

- Introduction to Analytical Separations
  Four day seminar
  Dr. Dhea Habboush, Sacred Heart University

- ASQC Course
  Auditing of Quality Systems

- ASQC Course
  Introduction to SPC

- Six Sigma Green belt training

Professional Affiliations

Qualifications Summary

Mr. Helfrich has 15 years of experience in the environmental laboratory industry that includes extensive management/leadership experience with full profit and loss responsibility. He has functioned in numerous analytical roles including: Sample prep, furnace analysis, ICP analysis and hazardous waste coordinator. Experienced in data review, and familiar with EPA and NYSDEC protocols. He possesses excellent communication skills. Mr. Helfrich has an exceptional ability to effectively handle multiple projects and tasks. He is action-oriented, with a can-do attitude, a fast learner who has the capacity to adapt quickly to new situations.

Professional Experience

Inorganic Manager – 1998 to present

STL Connecticut - 1998 to Present
Mr. Helfrichs' responsibilities include the technical management of the inorganic analytical laboratory including approximately 10 chemists. The functional groups of the facility include Sample Preparation, Metals, General Inorganic Chemistry, and Report Generation. His other responsibilities include staff development and control, quality assurance and quality control of the inorganic departments, scheduling, as well as profit and loss responsibility for the Inorganic department. In addition, he is responsible for oversight of Waste Management and is part of the Environmental Health and Safety Program team.

Metals Manager
IEA INC – Monroe CT, 1992 to 1998

Metals Chemist
IEA INC – Monroe CT, 1989-1992

Education

- BS in Biology - St. Anselm College, Manchester NH, 1982
- MS in Chemistry - Quinnipiac College, Hamden CT, 1986
- MBA in Finance – Sacred Heart University, Fairfield CT, 1990

Qualifications Summary

Mrs. Maturo has over 19 years of experience in the environmental laboratory industry that includes extensive management/leadership experience.

She started in the Organic Extractions department as a lab technician and worked her way up to supervisor. From there, she transferred to the Gas Chromatography Department in order to expand her knowledge by learning more about the analysis of environmental samples. She is now Group Leader of the GC Department and is experienced in Pesticide and PCB residue analysis as well as a variety of other GC parameters.

Professional Experience

Gas Chromatography Group Leader-1991 to present

STL Connecticut (formery IEA, Inc.)-1991 to present
Mrs. Maturo is Supervisor of the Gas Chromatography Department. She is responsible for the analysis of environmental samples for Organochlorine and Organophosphorous pesticides, PCB's, Diesel Range Organics, and CT. Extractable Petroleum Hydrocarbons according to EPA/NYSDEC CLP Protocols, SW846 Methods and EPA "600" Series Methods.

Other duties include hiring personnel, ordering supplies, tracking samples thru the department, updating SOP's and final data package review.

GC- Senior Lab Technician

STL Connecticut (formerly IEA, formerly AEN)-1988 to 1991
Ms. Maturo's primary duties were the operation of gas chromatographs for a variety of analyses. She has experience in pesticide/PCB determinations as well as other miscellaneous analytes.

Other duties included sample tracking, data entry, report generation, and preparation of standards used for instrument calibration.

Extractions Technician/Extractions Group Leader

STL Connecticut (formerly YWC)-1988 to 1991
Over this time period Ms. Maturo was a member of the extractions group and supervised the operations and staff for the last year. Her duties were primarily extraction of environmental samples for semi-volatile organics, pesticides/PCB's and herbicides.
Other duties included preparation of standard reagents used in the extraction procedures, writing SOP's, and screening of sample extracts by gas chromatography.

Education

- BS in Biology – Southern Connecticut State University—New Haven, CT--1985

Professional Training

- Six Sigma Yellow Belt Management Training, 2003
- HAZWOPER Refresher-Field Safety Corp., 2000
- Perkin Elmer TurboChrom C/S Fundamentals Training Course, 1999
- Gas Chromatography Open Forum-Hewlett Packard, 1999
- "Dealing with Unacceptable Employee Behavior"- SkillPath Seminar, 1999
- Frontline Leadership-Zenger Miller, date Unknown
- 24 Hour Technician Course for Hazardous Waste Operations and Emergency Response-Field Safety Corp., 1999
- RCRA Compliant Hazardous Waste Handler Program-Field Safety Corp., 1999
- "Coaching and Teambuilding Skills for Managers and Supevisors"-SkillPath Seminar, date unknown
- Gas Chromatography Workshop-Env. Research Institute, UCONN., 1995
- "Basic Supervision"-SkillPath Seminar, 1988

Professional Affiliations

Qualifications Summary

Mr. Decker has 18 years of experience in the environmental laboratory industry that includes supervisory and leadership experience. He possesses extensive knowledge in volatile organic analyses and is a resource to the laboratory, project management and customers. He is an action-oriented manager with a can-do attitude; who has the capacity to adapt quickly to new situations.

Professional Experience

GC/MS Manager – 1992 to present

Mr. Decker's responsibilities include the management and overall production of the volatile organics laboratory including 3 employees and 7 analytical systems. Methodologies include SW-846, CLP, EPA 500 and 600 series methods. Other responsibilities include work scheduling, data review, method development and compliance and employee training. He is also proficient in the maintenance and troubleshooting of all analytical systems in his laboratory. In addition, he ensures conformance to STL Environmental Health and Safety and manages costs and expenditures incurred by his laboratory.

GC/MS Section Leader
Industrial Environmental Analysts—Monroe, CT—1991 to 1992

GC/MS Analyst
Industrial Environmental Analysts—Monroe, CT—1986 to 1991

Education

- BA in Biology – Franklin Pierce College—Rindge, NH --1982

Professional Training

- Mass Spectroscopy Data Interpretation – Dr. Frank Turecek
- GC/MS Software Training – Mark Hartwick
- HP User I Course – Hewlett-Packard
-

Professional Affiliations

American Chemical Society

Qualifications Summary

Mrs. May has 14 years of experience in the environmental laboratory industry that includes extensive experience in all phases of laboratory operations in the organic departments. She began as an analyst for GC volatile organics and quickly became responsible for the analysis of GC/MS volatiles, GC Pesticide/PCB and Herbicides, as well as GC/MS semi-volatiles. She also learned the extractions of all these analyses. She then changed companies to work in GC Pesticide/PCB/Herbicide/DRO analysis and reporting for SW-846 and CLP protocols. She became the Senior analyst in the department and was responsible for any troubleshooting issues with the instruments as well as system manager for the acquisition/analysis software system. She was then promoted to GC/MS Semivolatile Group leader and is now responsible for the day to day operation of the GC/MS Semi-Volatiles group.

Professional Experience

GC/MS Semi-volatile Group Leader – June 1, 2004 to present

STL Connecticut--Shelton, CT—June 1, 2004 to Present
Mrs. May's responsibilities include the supervision of 2 analyst's, sample tracking through the department, the analysis of semi-volatile extracts, target and non-target compound identification, instrument troubleshooting and maintenance, the reporting of data, and the final review of data packages. She provides guidance to staff to ensure that project specific data quality objectives are met. She ensures that the SOP's are updated and that the department is meeting protocol requirements.

GC Analyst II to IV/Reporting
STL Connecticut--Shelton, CT—April 1996 to June 2004

Responsiblities included data reporting as well as analysis of Pesticides, PCB's, Herbicides, CTETPH, DRO's, and Fingerprint Analysis. Responsible for troubleshooting and maintenance of all instrumentation as well as method development. She was the system manager for the Perkin Elmer Turbochrom software system. She perfomed data review of data packages.

GC/MS Semivolatile and Volatile analyst
Averill Environmental Laboratory—Plainville, CT--1993 to 1996

Responsible for the analysis and reporting of volatile and semi-volatile samples using SW-846 and drinking water methodologies. Responsible for the extraction of pesticides, PCB's, semi-volatile and TPH extracts.

GC Analyst
Averill Environmental Laboratory—Plainville, CT--1990 to 1996

Responsible for the analysis and reporting of Volatile, Pesticide, PCB, and Herbicide samples using SW-846 and drinking water methodologies.

Education

- BS in Renewable Natural Resources-Cum laude – University of Connecticut—Storrs, CT--1990

Professional Training

- Capillary Chromatography Training - 1996
- Turbochrom Client/Server System Manager – 2001
- Comprehensive Environmental GC Training - 2001
- RCRA Compliant Hazardous Waste Handler Program – 1999

Qualifications Summary

Ms. Haas has 7 years of experience in the environmental laboratory industry that includes management/leadership experience. Ms. Haas is responsible for the overall operations of the classical chemistry department. These responsibilities include but are not limited to meeting client satisfaction goals, managing the human resources within the department, and ensuring health and safety and quality assurance plan compliance. Ms. Haas serves as a technical resource to department employees, as well as project managers, sales personnel, and clients. She makes recommendations to laboratory management in regard to process improvements.

Professional Experience

Department Manager – Classical Chemistry – 2001 to present

STL Connecticut, Shelton, CT--2001 to Present
Ms. Haas' responsibilities include:

- Coordinating work projects with project managers to appropriately schedule laboratory workload to meet client requirements.
- Prioritizing samples for analysis to ensure that OTD and TAT requirements are met.
- Determining client-specific requirements and testing methodology; communicating requirements to analysts.
- Scheduling employees in regard to workload and backlog to improve efficiency.
- Supervising supervisors to maximize productivity and ensure appropriate testing procedures are used n compliance with QA and SOP requirements.
- Preparing and analyzing samples for analysis based on method requirements.
- Uploading data files to reporting system.
- Reviewing data produced in assigned department and authorizes its release.
- Communicating department issues and providing status reports to Laboratory Director and Projects Managers.
- Recommending process improvements to improve efficiency.
- Partnering with laboratory management to evaluate new work opportunities and plan implementation.

Classical Chemistry Laboratory Analyst/Data Manager

STL Connecticut, Shelton, CT--1997 to 2001

- Analyzed water and soil matrices using Standard Operation Procedures specific to the classical chemistry department.
- Performed tests such as total suspended and dissolved solids, pH, alkalinity, oil and grease, and hexavalent chromium using colorimetric, gravimetric, instrumental, and titrametric methods.
- Oversaw quality control of department.
- Prepared and reviewed client reports using raw data.
- Supervised data management staff.

Veterinary Technician

Mobile Veterinary Clinic, Trumbull, CT--1994-1997

- Performed diagnostic tests and procedures, such as radiographs and blood collection.
- Administered medical treatments.
- Provided surgical assistance and nursing care.
- Supervised kennel workers.
- Educated clients.

Campus Organizer

NJ Public Interest Research Group (NJPIRG), New Brunswick, NJ--1990-1993

- Organized student activities in NJPIRG chapter at Rutgers University.
- Created and implemented environmental programs, such as educating grade-school children about recycling.
- Lobbied for environmental legislation.
- Managed 100 student interns and volunteers.
- Developed relations with administration and faculty.

Education

- BS in Biology – Rutgers University—New Brunswick, NJ --1990

Qualifications Summary

Ms. Dubauskas has 24 years of experience in the environmental industry that includes extensive knowledge of laboratory, hazardous waste treatment and project management skills. She possesses excellent organizational and communication ability. Her enthusiasm for the highest achievable level of quality and customer service is apparent. Johanna has an exceptional capability to effectively handle multiple projects and tasks.

Professional Experience

Senior Project Manager – 1991 to present

STL Connecticut – Shelton, CT
Ms. Dubauskas' responsibilities include assisting clients in solving problems, answering client inquiries, discussing technical issues and managing clients through sampling programs with guidance on proper protocols. She is also responsible for scheduling sample pickups, coordinating incoming work within the laboratory, preparing written price quotations and invoicing. In addition, she assists Account Executives on sales calls and in project kick-off meetings.

Client Service Representative – 1987 to 1991
York Labs – Monroe, CT

Inside Sales Representative – 1986 to 1987
The Rockbestos Company – New Haven, CT

Chemical Buyer – 1985 to 1986
Pfaltz & Bauer – Waterbury, CT

Lab Technician – 1984 to 1985
Cecos Treatment Corporation – Bristol, CT

Research and Development Chemist –1983 to 1985
American Chemical and Refining, Inc. – Waterbury, CT

Chemist – 1980 to 1983
Environmental Waste Removal, Inc. – Waterbury, CT

Education

- BA in Biology – Western Connecticut State University – Danbury, CT - 1979

Professional Training

- Certificate Program of Environmental Science – 1985
- Customer Service Seminar - 2000

Qualifications Summary

Mrs. Duhancik has 6 years of experience in the environmental laboratory industry that includes project management and volatile organic compound GC/MS analysis experience. She possesses excellent communication and organizational skills. Jill has a passion for the highest achievable level of quality and customer service. She has an exceptional ability to effectively handle multiple projects and tasks. She is an action-oriented individual with a can-do attitude; a fast learner who has the capacity to adapt quickly to new situations. Jill is also adept at motivating a team to achieve goals and objectives.

Professional Experience

Project Manager – 2002 to present

STL Connecticut -Shelton, CT
Mrs. Duhancik's responsibilities include the coordination and management of customer's projects through all phases of laboratory operations, ensuring fulfillment of Severn Trent Laboratories commitments to client requirements, error-free work, and on-time delivery. She maintains communications with clients and Account Executives and serves as a liaison between clients and laboratory operations to meet client's needs. Mrs. Duhancik works closely with business unit personnel to manage quotations and change orders for existing scopes of work. She monitors compliance with industry regulations, contractual agreements, program management processes, and program specifications. She works towards achieving goals for revenue, profit, and KRI's through the effective utilization of laboratory capacity and definition of customer requirements.

VOA Analyst – 1998-2002
STL Connecticut – Shelton, CT

Waitress – 1996-1998
Olive Garden – Orange, CT

Education

- BS in Environmental Science – Saint Joseph College – West Hartford, CT -1998
- BS in Biology - Saint Joseph College – West Hartford, CT -1998

Qualifications Summary

Mr. Goodman has 3 years of experience in the environmental laboratory industry that includes Semivolatiles extractions and GC/MS analysis and management positions. He possesses excellent communication and writing skills. He has a passion for the highest achievable level of quality and customer service and the ability to effectively handle multiple projects and tasks. He is an action-oriented member of STL-CT with a can-do attitude; a fast learner who has the capacity to adapt quickly to new situations. He is also adept at motivating a team to achieve goals and objectives.

Professional Experience

Project Manager – 2004 to present

STL Connecticut – Shelton, CT--2004 to Present
Mr. Goodman's responsibilities include coordination and management of customers' projects through all phases of laboratory operations, ensuring fulfillment of Severn Trent Laboratories' commitments to client requirements, error-free work, and on-time delivery. Maintains communications with clients and Account Executives and serves as a liaison between clients and laboratory operations to meet client needs. Works closely with business unit personnel to manage quotations and change orders for existing scopes of work. Monitors compliance with industry regulations, contractual agreements, program management processes, and program specifications. Works toward achieving goals for revenue, profit, and customer service through the effective utilization of laboratory capacity and definition of customer requirements.

Extractions Manager
STL-Connecticut—Shelton, CT—02/2004 to 05/2004

Semivolatiles Analyst
STL-Connecticut—Shelton, CT—01/2002 to 02/2004

Extractions Analyst
STL-Connecticut—Shelton, CT—09/2001 to 02/2002

Education

- B.S. Environmental Science, St. Michael's College, Winooski Park, Colchester, VT May 2001.

APPENDIX, Section 2

ETHICS POLICY and QUALITY STATEMENT

SEVERN TRENT STL

Severn Trent Laboratories, Inc.
EMPLOYEE ETHICS STATEMENT

I understand that STL is committed to ensuring the highest standard of quality and integrity of the data and services provided to our clients. I have read the Ethics Policy of the Company.

With regard to the duties I perform and the data I report in connection with my employment at the Company, I agree that:

- I will not intentionally report data values that are not the actual values obtained;
- I will not intentionally report the dates, times, sample or QC identifications, or method citations of data analyses that are not the actual dates, times, sample or QC identifications, or method citations;
- I will not intentionally misrepresent another individual's work;
- I will not intentionally misrepresent any data where data does not meet Method or QC requirements. If it is to be reported, I will report it with all appropriate notes and/or qualifiers;
- I agree to inform my Supervisor of any accidental reporting of non-authentic data by me in a timely manner; and I agree to inform my Supervisor of any accidental or intentional reporting of non-authentic data by other employees;
- If a supervisor or a member of STL management requests me to engage in or perform an activity that I feel is compromising data validity or quality, I will not comply with the request and will report this action immediately to a member of senior management, up to and including the President of STL; and
- I will not share the pricing or cost data of Vendors or Suppliers with anyone outside of the Severn Trent family of companies.

As a STL employee, I understand that I have the responsibility to conduct myself with integrity in accordance with the ethical standards described in the Ethics Policy. I will also report any information relating to possible kickbacks or violations of the Procurement Integrity Act, or other questionable conduct in the course of sales or purchasing activities. I will not knowingly participate in any such activity and will report any actual or suspected violation of this policy to management.

The Ethics Policy has been explained to me by my supervisor or at a training session, and I have had the opportunity to ask questions if I did not understand any part of it. I understand that any violation of this policy subjects me to disciplinary action, which can include termination. In addition, I understand that any violation of this policy which relates to work under a government contract or subcontract could also subject me to the potential for prosecution under federal law.

EMPLOYEE SIGNATURE _____ Date _____

Supervisor/Trainer: _____ Date _____

Reference: STL Ethics Policy, P-L-006, Rev. 5.

SEVERN TRENT STL

Severn Trent Laboratories, Inc.

CONFIDENTIALITY AND PROPRIETARY INFORMATION AGREEMENT

Severn Trent Laboratories, Inc. and its predecessors, in their businesses, have developed and use commercially valuable technical and non-technical information and to guard the legitimate interests of STL and its clients, it is necessary to protect certain information as confidential and proprietary.

I, _____, understand and acknowledge that during the term of my employment by STL, I will be privy to and entrusted with certain confidential information and trade secrets of STL and its clients.

Confidential information and trade secrets include, but are not limited to: customer and client lists; price lists; marketing and sales strategies and procedures; operational and equipment techniques; business plans and systems; quality control procedures and systems; special projects and technological research, including projects, research and reports for any government entity or client; client's plans and processes; client's manner of operation; the trade secrets of clients; client's data; vendor or supplier pricing; and any other records, data, files, drawings, inventions, discoveries, applications, or processes which are not in the public domain.

I agree as follows:

1. I will not in any way, during the term of my employment, or at any time thereafter, except as authorized in writing by the Legal Department of STL or the client where client data is involved, disclose to others, use for my own benefit, remove from STL's premises, copy or make notes of any confidential information and/or trade secrets of STL or its clients, excepting only that information which may be public knowledge. Technical and business information of any previous employer or other third party which I may disclose to STL shall be limited to that which was acquired legitimately and disclosed to me without restriction as to secrecy.

2. I agree that all inventions (whether or not patentable) conceived or made by me during the period of my employment by STL shall belong to STL, provided such inventions grow out of my work for STL and are related to the business of STL. I agree to disclose and assign such inventions to STL. In California, this provision shall not apply to any invention which qualifies fully under Section 2870 of the California Labor Code.

3. On termination of my employment from STL, I will deliver to STL all documents, records, notes, data, memoranda, files, manuals, equipment and things of any nature which relate in any way to confidential information and/or trade secrets of STL or its clients and which are in my possession or under my control.

4. I acknowledge that if I were to breach any provision of this Confidentiality Agreement, money damages will be inadequate, and I hereby agree that STL shall be entitled, where appropriate, to specific performance and/or injunctive relief (i.e. to require me to comply with this Agreement). I further acknowledge that the willingness of STL to hire me or to continue my employment constitutes full and adequate consideration for the agreements, and obligations to which I have agreed as set forth in this document.

I have executed this Agreement, intending to be legally bound.

_____	_____	_____
Printed Name	*Signature*	*Date*

Reference: STL Ethics Policy, P-L-006, Rev. 5.

APPENDIX, Section 3

CHAIN-OF-CUSTODY FORM

Chain of Custody Record

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484
Tel: 203-929-8140

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number 00019
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page ____ of ____
City / State / Zip Code	Site Contact	Lab Contact	Analysis (Attach list if more space is needed)
Project Name and Location (State)	Carrier/Waybill Number		Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.	Matrix	Containers & Preservatives	

| Sample I.D. No. and Description (Containers for each sample may be combined on one line) | Date | Time | Air | Aqueous | Sed. | Soil | | Unpres. | H2SO4 | HNO3 | HCl | NaOH | ZnAc/ NaOH | | |

APPENDIX, Section 4

STL SAMPLE PRESERVATION AND HOLDING TIME REQUIREMENTS

Parameter[1]	Methods	Matrix	Holding Time*	Container	Preservation
Inorganics-Metals					
Metals, excluding Hg	200 Series 7000 Series 6010	Water	6 months	500 ml P,G	HNO3 to PH <2
Mercury	200 Series 7000 Series	Water	28 Days	500 ml P,G	HNO3 to PH <2
Metals, excluding Hg	200 Series 7000 Series 6010	Soil	6 months	100 g P,G	Cool 4°C
Mercury	200 Series 7000 Series	Soil	28 Days	100 g P,G	Cool 4°C
Inorganics-Wet Chemistries					
Acidity	EPA 600	Water	14 Days	100 ml P,G	Cool 4°C
Alkalinity	EPA 600	Water	14 Days	100 ml P,G	Cool 4°C
BOD	EPA 600	Water	48 Hours	1000 ml P,G	Cool 4°C
Bromide	EPA 600	Water	28 Days	50 ml P,G	None Req.
COD	EPA 600	Water	28 Days	50 ml P,G	Cool 4°C, H2SO4 to pH <2
Chloride	EPA 600	Water	28 Days	50 ml P,G	None Req.
Chromium, CR+6	EPA 600	Water	24 Hours	50 ml P,G	Cool 4°C
Cyanide	EPA 600	Water	14 Days[2]	500 ml P,G	Cool 4°C, NaOH to pH > 12 Ascorbic Acid[3]
Fluoride	EPA 600	Water	28 Days	500 ml P,G	None Req.
Hardness	EPA 600	Water	6 Months	100 ml P,G	HNO3 to pH <2
MBAS	EPA 600	Water	48 Hours	500 ml P,G	Cool 4°C
Nitrogen-Ammonia	EPA 600	Water	28 Days	500 ml P,G	Cool 4°C, H2SO4 to pH <2
Nitrogen-TKN	EPA 600	Water	28 Days	500 ml P,G	Cool 4°C, H2SO4 to pH <2
Nitrate	EPA 600	Water	48 Hours	100 ml P,G	Cool 4°C
Nitrate-Nitrite	EPA 600	Water	28 Days	100 ml P,G	Cool 4°C, H2SO4 to pH <2

Parameter	Methods	Matrix	Holding Time*	Container	Preservation
Inorganics-Wet Chemistries-cont.					
Oil and Grease	EPA 600	Water	28 Days	1000 ml P,G	Cool 4°C, HCL or H2SO4 to pH <2
Petroleum Hydrocarbons	EPA 600-418.1	Water	28 Days	1000 ml P,G	Cool 4°C, HCL to pH <2
pH	EPA 600	Water	Immed.	50 ml P,G	NA
Phenols	EPA 600	Water	28 Days	500 ml P,G	Cool 4°C, H2SO4 to pH<2
Phosphorus, Ortho	EPA 600	Water	48 Hours	50 ml P,G	Filter Immed., Cool 4°C
Phosphorus,Total	EPA 600	Water	28 Days	50 ml P,G	Cool 4°C, H2SO4 to pH <2
Residue, TDS	EPA 600	Water	7 Days	100 ml P,G	Cool 4°C
Residue, TSS	EPA 600	Water	7 Days	250 ml P,G	Cool 4°C
Residue, TS	EPA 600	Water	7 Days	250 ml P,G	Cool 4°C
Residue, Volatile	EPA 600	Water	7 Days	250 ml P,G	Cool 4°C
Residue, Settleable	EPA 600	Water	48 Hours	250 ml P,G	Cool 4°C
Specific Conductance	EPA 600	Water	28 Days	100 ml P,G	Cool 4°C
Sulfate	EPA 600	Water	28 Days	250 ml P,G	Cool 4°C
Sulfide	EPA 600	Water	7 days	500 ml P,G	Cool 4°C, ZnAc/NaOH to pH >9
TOC	EPA 600	Water	28 Days	50 ml P,G	Cool 4°C, HCL or H2SO4 to pH <2
TOX	EPA 600	Water	28 Days	40 ml G	Cool 4°C, H2SO4 to pH <2, Sodium Sulfite
Turbidity	EPA 600	Water	48 Hours	100 ml P,G	Cool 4°C
Cyanide	SW846	Soil	14 Days	100 g G	Cool 4°C
Sulfide	SW846	Soil	7 Days	100 g G	Cool 4°C

Parameter	Methods	Matrix	Holding Time*	Container	Preservation
Organics-Parameters by Gas Chromatography					
Volatiles; Halogenated	600 series SW846	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, Thiosulfate[4]
Volatiles; Aromatics	600 series SW846	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, HCL to pH <2 Thiosulfate[4]
Volatiles; Non-Halogenated	SW846 - 8015	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, Thiosulfate[4]
Semi-volatiles	600 series SW846	Water	ext.- 7 Days anal.-40 Days	1L, amber G	Cool 4°C, Thiosulfate[4]
Organochlorine Pesticides/PCBs	600 series SW846	Water	ext.- 7 Days anal.-40 Days	1L, amber G	Cool 4°C, Thiosulfate[4]
Organophosphorus Pesticides	600 series SW846	Water	ext.- 7 Days anal.-40 Days	1L, amber G	Cool 4°C, Thiosulfate[4]
Herbicides	SW846	Water	ext.- 7 Days anal.-40 Days	1L, amber G	Cool 4°C, Thiosulfate[4]
Volatiles; Halogenated	SW846	Soil	14 Days	50 g, G	Cool 4°C
Volatiles; Aromatics	SW846	Soil	14 Days	50 g, G	Cool 4°C
Volatiles; Non-Halogenated	SW846 - 8015	Soil	14 Days	50 g, G	Cool 4°C
Semi-volatiles	SW846	Soil	ext.- 14 Days anal.-40 Days	100 g, G	Cool 4°C
Organochlorine Pesticides/PCBs	SW846	Soil	ext.- 14 Days anal.-40 Days	100 g, G	Cool 4°C
Organophosphorus Pesticides	SW846	Soil	ext.- 14 Days anal.-40 Days	100 g, G	Cool 4°C
Herbicides	SW846	Soil	ext.- 14 Days anal.-40 Days	100 g, G	Cool 4°C

Parameter	Methods	Matrix	Holding Time*	Container	Preservation
Organics-GC/MS Parameters					
Volatiles; Halogenated	600 series SW846	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, Thiosulfate[4]
Volatiles; Aromatics	600 series SW846	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, HCL to pH <2 Thiosulfate[4]
Volatiles; Halogenated	500 series	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, HCL to pH <2 Thiosulfate[4]
Volatiles; Aromatics	500 series	Water	7/14 Days[5]	3 x 40 ml vial	Cool 4°C, HCL to pH <2 Thiosulfate[4]
Semi-volatiles	600 series SW846	Water	ext.- 7 Days anal.-40 Days	1L, amber G	Cool 4°C, Thiosulfate[4]
Volatiles; Halogenated	SW846	Soil	14 Days	50 g, G	Cool 4°C
Volatiles; Aromatics	SW846	Soil	14 Days	50 g, G	Cool 4°C
Semi-volatiles	SW846	Soil	ext.- 14 Days anal.-40 Days	100 g, G	Cool 4°C

* From Collection

1. The following information is based upon WPA requirements outlines in Part 136, title 40 of the Code of Federal Regulations. Various state agencies have differing requirements for both holding times and preservation from those listed above. In such cases, the local requirements supersede the EPA information.

2. Maximum holding time is 24 hours when sulfide is present. Sample must be tested with lead acetate paper be fore pH adjustment in order to determine is sulfide is present.

3. If residual chlorine is present in the sample 0.6 g of ascorbic acid is utilized.

4. If samples contain residual chlorine sodium thiosulfate must be added at the time of sampling.

5. If samples do not received pH adjustment, the holding time is 7 days.

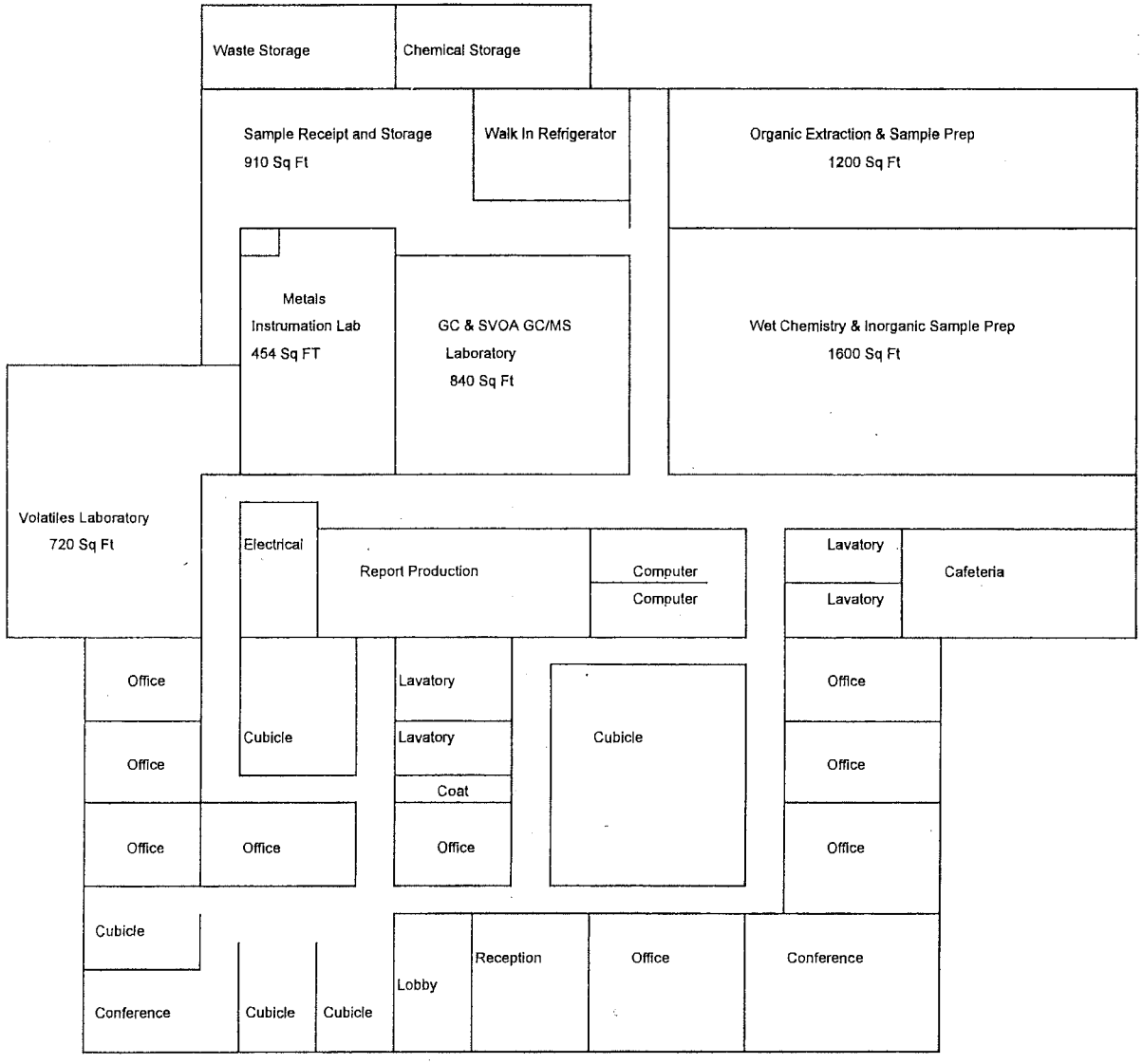
APPENDIX, Section 5

LABORATORY FLOOR PLAN

EQUIPMENT LIST

PREVENTIVE MAINTENANCE

Severn Trent Laboratories
Shelton, CT



STL CONNECTICUT LABORATORY
Instrument List

Instrument Type	Manufacturer	Model	Purchase Date	Autosampler	Method Performed
ICP	Thermo Jarrell Ash (61E) S/N 349490	61E ICAP	1994	Yes	6010B, 200.7
	Thermo Jarrell Ash (61P) S/N 464790	61E Trace	1997	Yes	6010B, 200.7
Mercury Analyzer	Perkin Elmer S/N 1398	FIMS	1999	Yes	7471A, 7470, 245.1
GC/MS Semivolatiles	Hewlett-Packard (U) S/N US33210086	5973/6890	2004	Yes	8270C, 625, SIM
	Hewlett-Packard (Q) S/N US00007319	5890/5971	1992	Yes	8270C, 625, SIM
	Hewlett-Packard (R) S/N US00036181	5890/5971	1992	Yes	8270C, 625, SIM
	Hewlett-Packard (P) S/N US00007291	5890/5971	1992	Yes	8270C, 625, SIM
GC/MS Volatiles	Hewlett-Packard (L) S/N 3240A18492	5890/5971	1992	Yes	8260B, 624
	Hewlett-Packard (K) S/N 3029A30026	5890/5970	1990	Yes	8260B, 624 – waters
	Hewlett-Packard (O) S/N 3203A41807	5890/5971	1991	Yes	8260B, 624 – waters
	Hewlett-Packard (N) S/N 3133A37851	5890/5971	1991	Yes	8260B, 624
	Hewlett-Packard (M) S/N 33033A33746	5890/5970	1991	Yes	8260B, 624 – soils
	Hewlett-Packard (T) S/N 3336A51317	5890/5972	1996	Yes	T0 17 – air
	Hewlett-Packard (v) S/N	6890/5973	2004	Yes	8260B, 624
GC Semivolatiles	Hewlett-Packard (GC1C/D) S/N	5890II - Dual ECD	1994	Yes	8081, 8082, 608
	Hewlett-Packard (GC4C/D) S/N 3033A33529	5890II - Dual ECD	1992	Yes	8082
	Hewlett-Packard (GC5C/D) S/N	5890II - Dual ECD	1989	Yes	8081, 8082, 608
	Hewlett-Packard (GC7C/D) S/N	5890II - Dual ECD	2004	Yes	8081, 8082, 608
	Hewlett-Packard (GC2C/D) S/N 3033A32099	5890II – FID/NPD	1991	Yes	WSO, 8141
	Hewlett-Packard (GC3) S/N 3033A32563	5890 - FID	1991	Yes	8015B (DRO), ETPH
Ion Chromatograph	Lachat S/N A83000-1476	Quickchem 8000	1999	Yes	300.0, 9056 350.1, 351.2 9012, 335.4, 353.2, 420.2
TOC	Dohrmann	Phoenix 8000	2004	No	415.2, 9060

STL CONNECTICUT LABORATORY
Instrument List

Instrument Type	Manufacturer	Model	Purchase Date	Autosampler	Method Performed
	Dohrmann	DC-190	1998	Yes	415.2, 9060
TKN Digestion System	Scientific Instruments	AD-4020	1994	No	351.2, 351.3
UV/VIS	Barnstead Turner	SP 830	2003	No	7196A, 376.2
UV/VIS	Buck Scientific	HC 404	2000	No	418.1
PH Meter	Orion Research	SA 720	1998	No	9040B, 9045C, 150.1
PH Meter	Beckman	12	1995	No	9040B, 9045C, 150.1
Autotitrator (pH, Alkalinity, Conductance)	Man-Tech (ATZ)	PC 1300	2003	Yes	9040B, 9045C, 150.1, 2320B, 310.1, 310.2, 2510B, 9050A, 120.1
Dissolved Oxygen Meter	YSI	51A	1994	No	405.1
Turbidimeter	HACH	2100 N	1990	No	180.1
Conductivity	Cole-Parmer	1484-20	1996	No	120.1
Automated Distillation Apparatus	Westco S/N 1028	1075 Easy Dist	2003	No	350.1, 420.2, 9066
COD	HACH	45600	1991	No	410.4
Flash Point Apparatus	Precision Scientific	Pensky-Martin	1990	No	1020
Midi Distillation Setups	Andrews Galss	110-10-R	1995	No	9012A, 335.1, 335.3
TCLP Spinners	Dayton	3M137B/5K939B	1990	No	1311, 1312
GPC	ABC	Autoprep 1000	1999	Yes	8270, 8081, 8082

STL- Connecticut LABORATORY PREVENTIVE MAINTENANCE

GC/MS SYSTEMS		
EQUIPMENT	ACTION PERFORMED	FREQUENCY
Hewlett-Packard 5970 MSD / 5971 MSD/5972 MSD	Check oil level in mechanical pumps	Weekly
	Change the oil in the mechanical pumps	Every 6 months
	Inspect the pump hoses and replace if required	Every 6 months
	Change oil in the turbo pump	Every 6 months
	Change exhaust trap absorbent	Every 6 months
	Inspect and refill the calibration sample vial with PFTBA	Every 6 months
	Vacuum fan grills and filters	Every 6 months
	Ion source cleaning and filament replacement	As needed
	Manual tuning	As needed
	Replace electron multiplier	As needed
	Clean out transfer line to GC	After every column removal
Hewlett-Packard 5890 GC	Check helium gas supply	Daily
	Change split vent trap	Every 3 months
	Column replacement and conditioning	As needed
	Column cutting and reinstallation	Daily or as needed
	Change helium gas cylinder	As needed
	Change liner and septum	Daily or as needed
	Clean injection port	As needed
EQUIPMENT	ACTION PERFORMED	FREQUENCY
Hewlett-Packard 7672A Autosampler	Inspect and correct injector alignment	After reseating
	Inspect syringe	Daily
	Check compressed air gas supply	Daily
	Inspect and adjust tension on sample tray	Daily
	Change rinse vials	Daily
	Change waste vials	Weekly
	Replace syringe	As needed
	Sand injector post	As needed
	Realign autosampler on brackets	As needed

	Change compressed air cylinder	As needed
Hewlett-Packard 7673A Autosampler	Inspect syringe	Daily
	Inspect seating of injector	Daily
	Change rinse vials	Daily
	Change waste vials	Weekly
	Replace syringe	As needed
	Reset control box	As needed
Tekmar Purge and Trap Sample Concentrators and Autosamplers	Inspect spargers and fittings	Daily
	Check purge flow	Daily
	Inspect line and valve temperatures	Daily
	Change and condition trap	As needed
	Adjust purge flow	As needed
	Rinse or clean sparging vessels	As needed
	Rinse sample lines	As needed
	Bake out trap	After each analysis, extend as needed
	Replace lines and fittings	As needed
	Adjust line and valve temperatures	As needed
EQUIPMENT	ACTION PERFORMED	FREQUENCY
Envirochem Air Sample Concentrator and AS	Inspect fittings	Daily
	Check flows	Daily
	Inspect line and valve temperatures	Daily
	Change and condition internal traps	As needed
	Adjust flow	As needed
	Bake out trap	After each analysis, extend as needed
	Replace lines and fittings	As needed
	Adjust line and valve temperatures	As needed
Archon	Check Syringe	Daily
	Check reagent water and waste bottles	Daily
	Autocalibrate robotic arm	As needed
	Replace inline filter	As needed

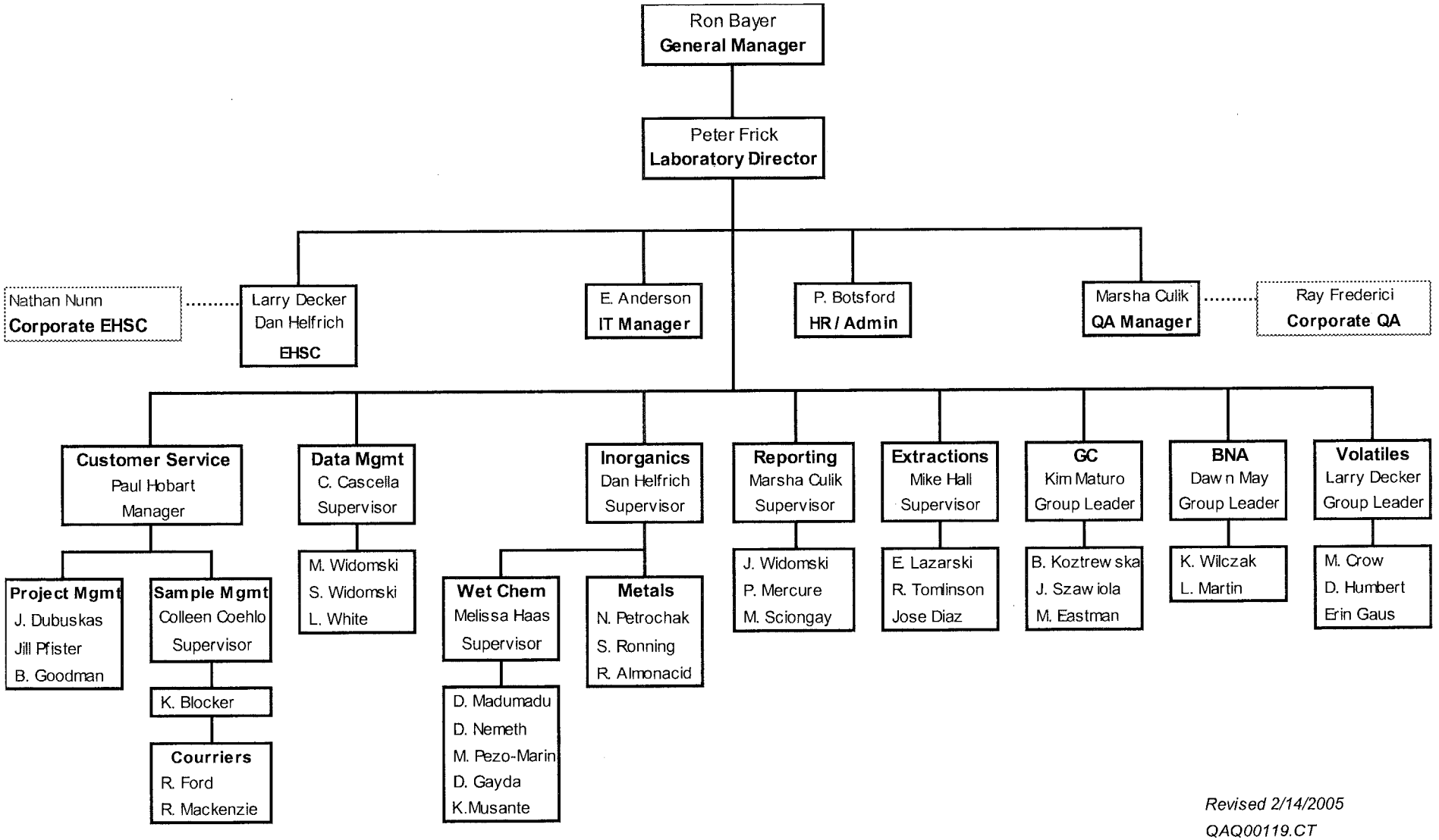
GC SYSTEMS		
EQUIPMENT	ACTION PERFORMED	FREQUENCY
Hewlett-Packard 5890A GC (GC-1,4,5 Dual ECD)	Check gas supply	Daily
	Check breakdown criteria	As required by run sequence
	Vacuum filters and grills	Quarterly
	Column replacement and conditioning	As needed
	Column cutting and reinstallation	As needed
	Change gas cylinders	As needed
	Change liner and septum	As needed
	Replace guard column	As needed
	Clean injection port	As needed
	Recondition ECD	As needed
	Change ECD vent absorbent traps	Quarterly
EQUIPMENT	ACTION PERFORMED	FREQUENCY
Hewlett-Packard 5890A GC (GC-3 FID/NPD)	Check gas supply	Daily
	Vacuum filters and grills	Quarterly
	Column replacement and conditioning	As needed
	Column cutting and reinstallation	As needed
	Change gas cylinders	As needed
	Change liner and septum	As needed
	Clean injection port	As needed
	Replace or reactivate the NPD collector	As needed
Hewlett-Packard 7673A Autosampler	Inspect syringe	Daily
	Inspect seating of injector	Daily
	Inspect rinse and waste vials	Daily
	Vacuum filters and grills	Quarterly
	Replace syringe	As needed
	Change rinse and waste vials	As needed

EQUIPMENT	ACTION PERFORMED	FREQUENCY
METALS SYSTEMS		
Inductively Coupled Plasma	Change capillary and pump tubing	Twice weekly
	Replace liquid argon tank	As required
	Reprofile via slit micrometer	Per manual
	Replace and realign plasma torch	As needed
	Clean nebulizer and spray chamber	As needed
	Check primary imaging mirror	Weekly
Mercury Analyzer	Clean sample cell and tubing	Monthly
	Check sparger condition	Daily
	Check level of mercury scrubber solution	Daily
	Replace lamps	As required
WET CHEMISTRY SYSTEMS		
EQUIPMENT	ACTION PERFORMED	FREQUENCY
pH Meters	Clean electrode if calibration has deteriorated	As needed
	Store pH electrodes in pH 7.0 buffer	Daily
	Check ISE electrodes and meter	Per manual
Analytical Balances	Surfaces cleaned and covered	Daily
	Calibrated and cleaned by manufacturer	Semi-annually
	Accuracy checked by class "S" weights	Prior to use
Conductivity Meters	Instrument surfaces inspected and cleaned	Daily
	Calibrated using 0.01M potassium chloride	Daily
	Spare cells on inventory	As needed
Spectrophotometers	Instrument cleaned	Daily use
Autoanalyzer Systems	Clean all components and flush system	Daily use
	Inspect all pump tubes and sample lines	Daily use
	Inspect line coils, heating baths and filters	Weekly
	Inspect all colorimeter filters	Weekly
	Inspect and clean chemical manifolds	Monthly

APPENDIX, Section 6

ORGANIZATIONAL CHART

STL Connecticut Organization



Revised 2/14/2005
QAQ00119.CT

SEVERN TRENT STL

Leaders in Environmental Testing

APPENDIX, Section 7

CORRECTIVE ACTION FORM

STL

CORRECTIVE ACTION FORM

A. Originator Information **Client Inquiry**

Client:_____ Job/Case:_____

Date/time:_____ Sample Number(s):_____

Client/Lab Contact: _____ Date/Time Response Due:_____

Detailed Description of Potential Problem:

_____

_____

_____

_____

_____

_____

_____

B. Quality Assurance Information **Corrective Action ID#** _____

Recommended Corrective Action:

_____

_____

_____

_____

Groups Involved:

__Sample Control __ Wet Chemistry __ Metals __Organic Extraction

__Gas Chromatography __ MS- VOA __ Report Generation __Lab Director

__Client Service __ MS -SV __EDD __ Subcontractor

C. Final Resolution

Describe What Happened and Corrective Action Taken:

_____

_____

_____

_____

Supervisor Signature: _____ Date_____ Date/Time Client Notified:_____

D. Quality Assurance Final Approval (QA Manager or designee use only)

Corrective Action Approved:_____

APPENDIX, Section 8

LISTING OF LABORATORY

STANDARD OPERATING PROCEDURES (SOPs)

Standard Operating Procedures Listing

Dept	Document Number	Revison	Active Date	SOP Title	Document Type
Sample Receipt	**SMS00106.CT**	6	09/05/04	Bottle Order Preparation	SOP
Sample Receipt	**SMS00408.CT**	8	09/06/04	Sample Processing and Sample Arrival	SOP
Sample Receipt	**SMS00609.CT**	9	09/06/04	Storing Water and Soil Samples	SOP
Sample Receipt	**SMS00808.CT**	8	09/06/04	Documenting Sample and Removal from the Laboratory	SOP
Sample Receipt	**SMS00908.CT**	8	09/06/04	Securing the Laboraotory and Samples	SOP
Sample Receipt	**SMS01006.CT**	6	09/06/04	Temperature Control Requirements	SOP
Sample Receipt	**SMS01106.CT**	6	09/06/04	Compositing, Homogenization and Splitting Environmental Samples	SOP
Sample Receipt	**SMS01304.CT**	4	09/06/04	Log-in for CLP (OLM04.2) Samples	SOP
Sample Receipt	**SMS01402.CT**	2	09/06/04	Sample Disposal	SOP
Sample Receipt	**SMS01500.CT**	0	09/04/04	Handling Samples under a Foreign Soil Permit	SOP
Organic Prep	**SPS02804.CT**	2	03/06/03	Preparation of Chlorinated Herbicides (W) – 8151A	SOP
Organic Prep	**SPS01306.CT**	6	05/15/02	Aqueous BNA Methods 3510/3520	SOP
Organic Prep	**SPS01205.CT**	5	04/25/02	Aqueous Pest/PCB Methods 3510C/3520C	SOP
Organic Prep	**SPS01405.CT**	5	09/01/02	Soil BNA Method 3550	SOP
Organic Prep	**SPS01605.CT**	5	06/20/02	Soil Pest/PCB Method 3550	SOP
Organic Prep	**SPS01703.CT**	3	05/15/02	Aqueous OP Pesticides Methods 3510/3520	SOP
Organic Prep	**SPS01805.CT**	5	04/03/02	SW846 GPC of BNA extracts	SOP
Organic Prep	**SPS01902.CT**	2	04/03/02	GPC of Pesticide/PCB extracts method 3640	SOP
Organic Prep	**SPS02703.CT**	3	09/05/02	Soil OP Pesticides Method 3550	SOP
Organic Prep	**SPS03005.CT**	5	04/02/02	Waste dilution - BNA	SOP
Organic Prep	**SPS03103.CT**	3	09/13/02	Waste dilution - Pesticides/PCB (3580)	SOP
Organic Prep	**SPS03205.CT**	5	05/15/02	Pesticide/PCB extraction method 608	SOP
Organic Prep	**SPS03302.CT**	2	09/05/02	Prep Soil/Sediment samples for CLP P/P OLM03.2	SOP
Organic Prep	**SPS03401.CT**	1	04/03/02	GPC of Pesticide extracts OLM03.2	SOP
Organic Prep	**SPS03503.CT**	3	02/21/03	Prep Soil/Sed samples for CLP BNA's OLM03.2	SOP
Organic Prep	**SPS03601.CT**	1	04/03/02	GPC of Semivolatile extracts OLM03.2	SOP
Organic Prep	**SPS03701.CT**	1	02/20/03	Prep of Aqueous samples for CLP BNA's OLM03.2	SOP
Organic Prep	**SPS03802.CT**	2	05/22/02	Prep of Aqueous samples for CLP P/P OLM03.2	SOP
Organic Prep	**SPS03901.CT**	1	06/18/97	CLP Extraction Standard Prep	SOP
Organic Prep	**SPS02901.CT**	1	07/26/96	Alumina Column C/U Method 3611A	SOP
Organic Prep	**SPS04001.CT**	1	06/05/02	Prep of Aqueous SV OLC10/92	SOP
Organic Prep	**SPS04201.CT**	1	09/18/02	Prep of Semivolatiles in Tissue samples	SOP
Organic Prep	**SPS04305.CT**	5	06/20/02	Prep of Pesticides/PCBs in Tissue samples	SOP
Organic Prep	**SPS04403.CT**	3	02/16/00	Prep of Chlorinated Herbicides -Method 8151 (S)	SOP

Standard Operating Procedures Listing

Dept	Document Number	Revison	Active Date	SOP Title	Document Type
Organic Prep	**SPS04502.CT**	2	09/18/02	Prep of PUF Samples for Pesticides/PCB T04	SOP
Organic Prep	**SPS04602.CT**	2	09/09/02	Prep of PUF Samples for Semi-volatiles T013	SOP
Organic Prep	**SPS04703.CT**	3	05/22/02	Prep of SV Method 625 (Water)	SOP
Organic Prep	**SPS04801.CT**	1	09/18/02	Prep of Wipe Samples Pesticides/PCBs	SOP
Organic Prep	**SPS04903.CT**	3	09/18/02	Florisil Cartridge clean-up P/P extracts	SOP
Organic Prep	**SPS05002.CT**	2	06/05/02	Prep of Low Level PCBs - Method 608	SOP
Organic Prep	**SPS05101.CT**	1	03/06/03	Prep of Low level PCBs – 3510C	SOP
Organic Prep	**SPS05304.CT**	4	06/05/02	Prep of Aqueous samples for DRO analysis - 8015B	SOP
Organic Prep	**SPS05203.CT**	3	06/20/02	Prep of Solid samples for DRO analysis - 8015B	SOP
Organic Prep	**SPS05602.CT**	2	02/13/03	Prep of Aqueous samples for CLP P/P OLM04.3	SOP
Organic Prep	**SPS05702.CT**	2	02/20/03	Prep of Soil/Sediment samples for CLP P/P OLM04.3	SOP
Organic Prep	**SPS05802.CT**	2	02/20/03	GPC CLP P/P Extracts OLM04.3	SOP
Organic Prep	**SPS05902.CT**	2	02/13/03	Standards Prep for CLP P/P OLM04.3	SOP
Organic Prep	**SPS06002.CT**	2	02/13/03	Prep of Aqueous samples for CLP BNA's OLM04.3	SOP
Organic Prep	**SPS06102.CT**	2	02/20/03	Prep of Solid samples for CLP BNA's OLM04.3	SOP
Organic Prep	**SPS06202.CT**	2	02/20/03	GPC of Semivolatile extracts OLM04.3	SOP
Organic Prep	**SPS06301.CT**	1	02/20/03	Standards Prep for CLP BNA OLM04.3	SOP
Organic Prep	**SPS06400.CT**	0	03/17/00	Standards Prep for CLP Pest/PCB OLM03.2	SOP
Organic Prep	**SPS06500.CT**	0	04/02/02	Prep of BNA Soils – Method 3541	SOP
Organic Prep	**SPS06600.CT**	0	09/10/02	Prep of Soil Samples for GC Method 3541	SOP
GCMS Semi VOA	**MSS01604.CT**	4	10/04/04	GC/MS Semivolatiles OLM03.2	SOP
GCMS Semi VOA	**MSS02009.CT**	9	10/10/04	GC/MS Analysis Method 625	SOP
GCMS Semi VOA	**MSS02200.CT**	0	10/05/04	GC/MS Semivolatile OLC2.1	SOP
GCMS Semi VOA	**MSS02706.CT**	6	08/19/04	GC/MS Semivolatile analysis - Method 8270C	SOP
GCMS Semi VOA	**MSS03501.CT**	1	09/14/04	GC/MS Semi-volatiles OLM04.3	SOP
GCMS Semi VOA	**MSS03601.CT**	1	10/08/04	GC/MS Semi-volatile screening OLM04.3	SOP
GCMS Semi VOA	**MSS03701.CT**	1	10/07/04	Semi-volatile Std Prep	SOP
GCMS Semi VOA	**MSS03400.CT**	0	01/21/03	Semi-volatile by Method T0 13A	SOP
GCMS VOA	**MSS00100.CT**	0	04/30/93	Volatile Std Prep CLP	SOP
GCMS VOA	**MSS01500.CT**	0	dft	GC/MS Volatile 524.2 Rev. 3	SOP
GCMS VOA	**MSS01801.CT**	1	06/27/97	GC/MS Volatiles OLM03.2	SOP
GCMS VOA	**MSS02102.CT**	2	02/15/00	GC/MS Analysis Method 624	SOP
GCMS VOA	**MSS02803.CT**	3	09/23/03	GC/MS Volatile analysis - Method 8260B	SOP
GCMS VOA	**MSS02900.CT**	0	dft	GC/MS Volatiles – OLC02.1	SOP
GCMS VOA	**MSS03001.CT**	1	03/27/03	GC/MS VOA OLM04.3	SOP

Standard Operating Procedures Listing

Dept	Document Number	Revison	Active Date	SOP Title	Document Type
GCMS VOA	MSS03300.CT	0	01/27/00	GC/MS Volatile Standards Prep OLM04.2	SOP
GCMS VOA	MSS03802.CT	2	01/24/05	Volatile by Method T0 17	SOP
GC Semivoa	GCS00302.CT	2	01/13/04	Sulfur Removal	SOP
GC Semivoa	GCS00504.CT	4	01/13/04	Analysis of OP Pesticides Method 8141A	SOP
GC Semivoa	GCS00703.CT	3	02/18/04	Misc. Volatiles Method 8015 (DAI)	SOP
GC Semivoa	GCS01302.CT	2	01/13/04	Analysis of Hydrocarbon Fingerprinting	SOP
GC Semivoa	GCS01104.CT	4	01/20/04	Pesticides/PCB Method 608	SOP
GC Semivoa	GCS01503.CT	3	01/13/04	GC/ECD Pesticides/PCB analysis OLM03.2	SOP
GC Semivoa	GCS01804.CT	4	01/13/04	Diesel Range Organics - Method 8015B	SOP
GC Semivoa	GCS02003.CT	3	01/19/04	Pesticide/PCB analysis - Method T04	SOP
GC Semivoa	GCS02104.CT	4	01/13/04	Water soluble Organics - DAI/NPD	SOP
GC Semivoa	GCS02205.CT	5	01/14/04	Analysis of Pesticides - Method 8081A	SOP
GC Semivoa	GCS02306.CT	6	01/14/04	Analysis of PCBs - Method 8082	SOP
GC Semivoa	GCS02403.CT	3	01/20/04	Analysis of Herbicides - Method 8151A	SOP
GC Semivoa	GCS02503.CT	3	01/20/04	GC/ECD Pesticides/PCB CLP OLM04.3	SOP
GC Semivoa	GCS02603.CT	3	01/20/04	Pesticide/PCB Standard Prep OLM04.3	SOP
GC Semivoa	GCS02702.CT	2	01/13/04	CT ETPH - DRO	SOP
Metals	MES00906.CT	6	04/01/04	SW846 Method 3010A	SOP
Metals	MES01006.CT	6	04/01/04	SW846 Method 3050B	SOP
Metals	MES02001.CT	1	01/20/03	Method 6010B - TJA61 Trace ICP	SOP
Metals	MES02201.CT	1	02/12/00	Metals Digestion ILM04.1 (Water)	SOP
Metals	MES02301.CT	1	02/12/00	Metals Digestion ILM04.1 (Soil)	SOP
Metals	MES02401.CT	1	02/12/00	Determination of Mercury in Water ILM04.1	SOP
Metals	MES02501.CT	1	02/12/00	Determination of Mercury in Soil ILM04.1	SOP
Metals	MES02601.CT	1	03/22/00	Determination of Metals - ILM04.1 TJA-61E Trace	SOP
Metals	MES02700.CT	0	08/01/96	Determination of Metals - 200.7 TJA 61E Trace	SOP
Metals	MES02800.CT	0	08/01/96	Determination of Mercury in Water Method 245.1	SOP
Metals	MES02900.CT	0	dft	Metals Digestion of Wipe Samples	SOP
Metals	MES03103.CT	3	03/27/03	Mercury 7470A (Hot Block)	SOP
Metals	MES03202.CT	2	01/20/03	Mercury 7471A (Hot Block)	SOP
Metals	MES03301.CT	1	07/12/02	Metals Digestion 200.7 (Water)	SOP
Wet Chemistry	CVS01004.CT	4	01/28/04	Analysis of Oil & Grease (Gravimetric)- 413.1	SOP
Wet Chemistry	WC:070891:0	0	07/08/91	Analysis of Salinity in Water	SOP
Wet Chemistry	CVS04301.CT	1	02/26/99	Measurement of Conductivity	SOP
Wet Chemistry	WC:071691:0	0	07/16/91	Analysis of Dissolved Oxygen in Water	SOP

Standard Operating Procedures Listing

Dept	Document Number	Revison	Active Date	SOP Title	Document Type
Wet Chemistry	CVS00706.CT	6	10/14/04	Analysis of Alkalinity in Water - 310.1	SOP
Wet Chemistry	CVS02603.CT	3	10/14/04	Analysis of Ammonia (method 350.2) in Water	SOP
Wet Chemistry	CVS00900.CT	0	03/31/94	Measurement of pH	SOP
Wet Chemistry	CVS01705.CT	5	10/14/04	Analysis of Sulfide	SOP
Wet Chemistry	CVS00506.CT	6	01/23/04	Analysis of Biochemical Oxygen Demand	SOP
Wet Chemistry	CVS01205.CT	5	02/17/04	Analysis of COD (Method 410.4)	SOP
Wet Chemistry	CVS01101.CT	1	02/04/00	Analysis of Samples for Total Cyanide CLP Protocol	SOP
Wet Chemistry	CVS01502.CT	2	10/8/1999	SOP for Toxicity Characteristic Leaching Procedure - 1311	SOP
Wet Chemistry	CVS04003.CT	3	4/10/2000	Measurement of Turbidity in Water Samples	SOP
Wet Chemistry	CVS00103.CT	3	10/26/1999	Analysis of Total Dissolved Solids in Water	SOP
Wet Chemistry	CVS03403.CT	3	10/19/2004	Analysis of TOC Soil Samples	SOP
Wet Chemistry	CVS03902.CT	2	10/8/1999	Analysis of Chloride (325.2) in Water	SOP
Wet Chemistry	CVS01901.CT	1	10/9/1999	Standard Operating Procedure for Reactivity	SOP
Wet Chemistry	CVS04603.CT	3	6/8/2004	Standard Operating Procedure for Corrosivity	SOP
Wet Chemistry	CVS02303.CT	3	10/19/2004	Standard Operating Procedure for Ignitability (1030)	SOP
Wet Chemistry	CVS00204.CT	4	1/21/2004	Analysis of Total Suspended Solids in Water	SOP
Wet Chemistry	CVS02502.CT	2	10/8/1999	Analysis of Nitrate and Nitrite for Water Samples (Method 353.2)	SOP
Wet Chemistry	CVS02002.CT	2	10/20/2004	SOP for Total Cyanide - Method 335.4	SOP
Wet Chemistry	CVS02102.CT	2	10/4/2004	SOP for Amenable Cyanide - Method 335.1	SOP
Wet Chemistry	CVS00300.CT	0	08/21/93	SOP for Total Solids	SOP
Wet Chemistry	CVS02900.CT	0	3/20/1995	SOP for CEC Method 9081	SOP
Wet Chemistry	CVS03000.CT	0	3/20/1995	SOP for Soil Homogenization	SOP
Wet Chemistry	CVS03303.CT	3	10/19/2004	SOP for Oxidation -Reduction Potential	SOP
Wet Chemistry	CVS03700.CT	0	10/10/1996	SOP for The Determination of Ferrous Iron	SOP
Wet Chemistry	CVS02403.CT	3	10/20/2004	SOP for Phenols method 420.1/420.2	SOP
Wet Chemistry	CVS04100.CT	0	1/6/1997	SOP for Determination of Percent Solids	SOP
Wet Chemistry	CVS04504.CT	4	6/8/2004	SOP for Oil and Grease - Method 1664A	SOP
Wet Chemistry	CVS04703.CT	3	10/20/2004	SOP for Total Petroleum Hydrocarbons - Method 418.1	SOP
Wet Chemistry	CVS04804.CT	4	10/27/2004	SOP for Analysis of Total Phosphorus	SOP
Wet Chemistry	CVS04902.CT	2	11/1/1999	SOP for Sample Screening for Chorine Residual	SOP
Wet Chemistry	CVS05203.CT	3	10/28/2004	SOP for Chlorine Residual	SOP
Wet Chemistry	CVS05102.CT	2	10/28/2004	SOP for Reagent Water Monitoring	SOP
Wet Chemistry	CVS05303.CT	3	11/2/2004	SOP for Ferrous Iron (SM4500)	SOP

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Dept	Document Number	Revison	Active Date	SOP Title	Document Type
Wet Chemistry	**CVS05005.CT**	5	11/2/2004	SOP for Hexavalent Chromium – 7196A	SOP
Wet Chemistry	**CVS05401.CT**	1	5/16/2002	SOP for Total Cyanide – 9012A	SOP
Wet Chemistry	**CVS05500.CT**	0	9/10/1999	SOP for CC Labeling /Coding of Standards	SOP
Wet Chemistry	**CVS05601.CT**	1	05/16/02	Total Sulfide (W/S) 9030B	SOP
Wet Chemistry	**CVS05701.CT**	1	10/07/02	Paint Filter	SOP
Wet Chemistry	**CVS05802.CT**	2	01/29/04	SOP for pH of Soil	SOP
Wet Chemistry	**CVS06000.CT**	0	04/25/00	SOP for TKN (351.2)	SOP
Wet Chemistry	**CVS06100.CT**	0	04/25/00	SOP for Ion Chromatography –9065/300	SOP
Wet Chemistry	**CVS06200.CT**	0	05/21/01	SOP for SPLP Preparation (SW846 1312)	SOP
Wet Chemistry	**CVS06400.CT**	0	03/12/03	SOP for Flashpoint 1020	SOP
Wet Chemistry	**CVS06301.CT**	1	02/12/03	SOP for Cyanide – ILM05.2	SOP
Wet Chemistry	**CVS06500.CT**	0	05/23/03	SOP for Color	SOP
Wet Chemistry	**CVS06600.CT**	0	08/20/03	SOP for Hardness	SOP
Wet Chemistry	**CVS06700.CT**	0	02/12/04	SOP for TPH-IR Soils – Soxtherm	SOP
Wet Chemistry	**CVS07000.CT**	0	01/26/04	SOP for Autotitrator	SOP
Wet Chemistry	**CVS07100.CT**	0	11/02/04	SOP for TOC -water Phoenix 8000	SOP
Information Systems	**SYS01900.CT**	0	04/23/97	SOP for GC/MS Chemserver Archive	SOP
Information Systems	**SYS02000.CT**	0	01/20/98	SOP for Generating Standard E-mail Result Files	SOP
Information Systems	**SYS02300.CT**	0	04/08/02	SOP for GC Target Deliverables	SOP
Information Systems	**SYS02400.CT**	0	07/22/02	SOP for GC Labnet Deliverables	SOP
Information Systems	**SYS02500.CT**	0	DFT	SOP for GC/MS VOA Target Deliverables	SOP
Information Systems	**SYS02600.CT**	0	DFT	SOP for GC/MS VOA Labnet Deliverables	SOP
Project Management	**MKS00101.CT**	1	03/06/99	SOP for Taking Client Orders	SOP
Project Management	**MKS00201.CT**	1	03/06/99	SOP for LIMS Log-in	SOP
Project Management	**MKS00400.CT**	0	06/22/94	SOP for Telephone Logs	SOP
Quality Assurance	**QAS00305.CT**	5	02/12/03	SOP for Document Control	SOP
Quality Assurance	**QAS00504.CT**	4	02/10/03	SOP for Corrective Action Reports	SOP
Quality Assurance	**QAS00803CT**	3	2/10/2003	SOP for Generating SOPs	SOP
Quality Assurance	**QAS00901.CT**	1	1/27/2001	SOP for Balance Calibraton	SOP
Quality Assurance	**QAS01003.CT**	1	10/1/2004	SOP for Document coding, Approval and Revisions	SOP
Quality Assurance	**QAS01101.CT**	1	2/23/1999	SOP for Thermometer Calibration	SOP
Quality Assurance	**QAS01301CT**	1	1/10/2003	SOP for Corrections to Lab Documents	SOP
Quality Assurance	**QAS01201.CT**	1	4/10/2000	SOP for Temperature Monitoring of Lab Equipment	SOP
Quality Assurance	**QAS01501.CT**	1	3/15/2001	SOP for Glassware Cleaning	SOP
Quality Assurance	**QAS01601.CT**	1	6/1/2003	SOP for Employee Training	SOP

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Dept	Document Number	Revison	Active Date	SOP Title	Document Type
Quality Assurance	**QAS01700.CT**	0	02/22/99	SOP for Conducting MDL Studies	SOP
Quality Assurance	**QAS01800.CT**	0	03/01/99	SOP for Reagent Control and Coding	SOP
Quality Assurance	**QAS01900.CT**	0	09/01/99	SOP for Terms and Definitions	SOP
Quality Assurance	**QAS02001.CT**	1	02/12/03	SOP for PT Testing	SOP
Quality Assurance	**QAS02102.CT**	2	02/24/03	SOP for Maintenance logs	SOP
Quality Assurance	**QAS02200.CT**	0	04/10/00	SOP for Sample Prep for MEOH preserved Volatiles	SOP
Quality Assurance	**QAS02400.CT**	0	05/01/04	SOP for Independent QA Review	SOP
Report Preparation	**RPS00304.CT**	4	04/25/00	Preparation and Review of Laboratory Reports	SOP
Report Preparation	**RPS00400.CT**	0	03/21/95	Report Retrieval	SOP
Report Preparation	**RPS00600.CT**	0	10/07/04	EDD Generation	SOP
Health and Safety	**SFS00202.CT**	2	06/03/02	Operating and Maintaining Fume Hoods	SOP
Health and Safety	**SFS00101.CT**	1	01/14/05	Tracking and Collection of Hazardous Waste	SOP
Radiological	**RAS00102.CT**	2	06/03/02	Tracking and Collection of Mixed Waste	SOP
Radiological	**RAS00202.CT**	2	06/03/02	Radioactivity Swipe Tests	SOP
Radiological	**RAS00302.CT**	2	06/03/02	Radiation Screening	SOP
Radiological	**RAS00400.CT**	0	08/24/94	Management/Disposal of Mixed Waste	SOP

APPENDIX, Section 9

LISTING OF ANALYTICAL CAPABLITIES

STL Analytical Capabilities List

STL Connecticut

Program	Technique	Analyte Group	Method	Source	Description
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	1020A	SW-846	Flashpoint (Setaflash)
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	1030	SW-846	Ignitability of Solids
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	1030	SW-846	Flashpoint of Solids
Non-potable Water	Colorimetric	General Chemistry	110.2	EPA	Color
Non-potable Water	Electrometric	General Chemistry	120.1	EPA	Conductance, Specific
Solid & Hazardous Waste	TCLP	Leach	1311	SW-846	Toxicity Characteristic Leachate Procedure
Solid & Hazardous Waste	SPLP	Leach	1312	SW-846	Synthetic Precipitate Leachate Procedure
Non-potable Water	General Chemistry	General Chemistry	140.1	EPA	Odor
Drinking Water	Electrometric	General Chemistry	150.1	EPA	pH
Non-potable Water	Electrometric	General Chemistry	150.1	EPA	pH
Non-potable Water	Gravimetric	Residue Testing, solids	160.1	EPA	Solids, Total Dissolved
Non-potable Water	Gravimetric	Residue Testing, solids	160.2	EPA	Solids, Total Suspended
Non-potable Water	Gravimetric	Residue Testing, solids	160.3	EPA	Solids, Total
Non-potable Water	Gravimetric	Residue Testing, solids	160.3	EPA	Moisture, Percent (%)
Non-potable Water	Gravimetric	Residue Testing, solids	160.4	EPA	Solids, Total Volatile
Non-potable Water	Gravimetric	Residue Testing, solids	160.4	EPA	Solids, Volatile Suspended
Non-potable Water	Gravimetric	General Chemistry	160.5	EPA	Solids, Settleable
Non-potable Water	Gravimetric	Residue Testing, solids	160.5	EPA	Solids, Settleable
Non-potable Water	Gravimetric	Hydrocarbons	1664A	EPA	Oil & Grease
Non-potable Water	Turbidimetric	General Chemistry	180.1	EPA	Turbidity
Drinking Water	Turbidimetric	General Chemistry	180.1	EPA	Turbidity
Drinking Water	ICP	Metals	200.7	EPA	ICP Metals
Non-potable Water	ICP	Metals	200.7	EPA	ICP Metals
Non-potable Water	Calculation	General Chemistry	200.7	EPA	Hardness (calculation from ICP results)
CLP	ICP	Metals	200.7 CLP-M	CLP ILM04.0	ICP Metals
Non-potable Water	General Chemistry	General Chemistry	2120B	SM	Color
Drinking Water	General Chemistry	General Chemistry	2120B	SM	Color
Non-potable Water	Turbidimetric	General Chemistry	2130 B	SM	Turbidity

Drinking Water	Turbidimetric	General Chemistry	2130 B	SM	Turbidity
Non-potable Water	Titrimetric	General Chemistry	2320 B	SM	Alkalinity, Hydroxide
Non-potable Water	Titrimetric	General Chemistry	2320 B	SM	Alkalinity, Bicarbonate
Non-potable Water	Titrimetric	General Chemistry	2320 B	SM	Alkalinity, Total
Non-potable Water	Titrimetric	General Chemistry	2320 B	SM	Alkalinity, Carbonate
Drinking Water	Titrimetric	General Chemistry	2320B	SM	Alkalinity, Bicarbonate
Drinking Water	Titrimetric	General Chemistry	2320B	SM	Alkalinity, Total
Drinking Water	Titrimetric	General Chemistry	2320B	SM	Alkalinity, Carbonate
Non-potable Water	Calculation	General Chemistry	2340B	SM	Hardness
Drinking Water	Calculation	General Chemistry	2340B	SM	Hardness (by calculation)
Non-potable Water	CVAA	Metals	245.1	EPA	Mercury-Hg (cold vapor)
Drinking Water	CVAA	Metals	245.1	EPA	Mercury-Hg (cold vapor)
CLP	CVAA	Metals	245.1 CLP-M	CLP ILM04.0	Mercury-Hg (water by manual cold vapor)
CLP	CVAA	Metals	245.5 CLP-M	CLP ILM04.0	Mercury-Hg (soil by manual cold vapor)
Drinking Water	Electrometric	General Chemistry	2510B	SM	Conductance, Specific
Non-potable Water	Electrometric	General Chemistry	2510B	SM	Conductance, Specific
Non-potable Water	Gravimetric	General Chemistry	2520B	SM	Salinity
Non-potable Water	Gravimetric	Residue Testing, Solids	2540 B	SM	Solids, Total
Drinking Water	Gravimetric	Residue Testing, Solids	2540 C	SM	Solids, Total Dissolved
Non-potable Water	Gravimetric	Residue Testing, Solids	2540 C	SM	Solids, Total Dissolved
Non-potable Water	Gravimetric	Residue Testing, Solids	2540 D	SM	Solids, Total Suspended
Non-potable Water	General Chemistry	General Chemistry	2710D	SM	Sludge Volume Index
Non-potable Water	Ion Chromatography	Anions	300	EPA	Phosphate (Ortho)
Non-potable Water	Ion Chromatography	Anions	300	EPA	Sulfate, as SO4
Non-potable Water	Ion Chromatography	Anions	300	EPA	Nitrite-Nitrogen
Non-potable Water	Ion Chromatography	Anions	300	EPA	Nitrate-Nitrogen
Non-potable Water	Ion Chromatography	Anions	300	EPA	Anions, by IC (Br, PO4, SO4, NO3, NO2,Cl, F)
Non-potable Water	Ion Chromatography	Anions	300	EPA	Fluoride
Non-potable Water	Ion Chromatography	Anions	300	EPA	Nitrate/Nitrite
Non-potable Water	Ion Chromatography	Anions	300	EPA	Chloride
Non-potable Water	Ion Chromatography	Anions	300	EPA	Bromide
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Phosphate (Ortho)
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Anions, by IC (Br, PO4, SO4, NO3, NO2,Cl, F)
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Nitrite-Nitrogen
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Nitrate/Nitrite
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Fl Fluoride (IC)

Drinking Water	Ion Chromatography	Anions	300.0	EPA	Sulfate, as SO4
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Nitrate-Nitrogen
Drinking Water	Ion Chromatography	Anions	300.0	EPA	Chloride
Solid & Hazardous Waste	Digestion	Metals	3010A	SW-846	Acid Digest of Aqueous Samples for Total Metals FLAA& ICP
Solid & Hazardous Waste	Digestion	Metals	3050B	SW-846	Acid Digest of Sediments, Sludges & Soils
Non-potable Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Bicarbonate
Non-potable Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Hydroxide
Drinking Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Carbonate
Drinking Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Hydroxide
Non-potable Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Total
Drinking Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Total
Non-potable Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Carbonate
Drinking Water	Titrimetric	General Chemistry	310.1	EPA	Alkalinity, Bicarbonate
Non-potable Water		Hydrocarbons	310.13	NY	Petroleum Hydrocarbons (TPHC)
Drinking Water	Spectrophotometric	General Chemistry	330.5	EPA	Chlorine Residual
Non-potable Water	Spectrophotometric	General Chemistry	330.5	EPA	Chlorine Residual, DPD
Non-potable Water	Spectrophotometric	Cyanides	335.1	EPA	Cyanide, Amenable to Chlorination
CLP	Spectrophotometric	Cyanides	335.2 CLP-M	CLP ILM04.0	Cyanide, Total
Drinking Water	Spectrophotometric	Cyanides	335.4	EPA	Cyanide, Total
Non-potable Water	Spectrophotometric	Cyanides	335.4	EPA	Cyanide, Total (Semi-automated)
Drinking Water	Colorimetric	Nitrogen Series	350.1	EPA	Ammonia, Nitrogen (w. distillation)
Non-potable Water	Spectrophotometric	Nitrogen Series	350.1	EPA	Ammonia, Nitrogen (w. distillation)
Non-potable Water	Spectrophotometric	Nitrogen Series	350.1	EPA	Ammonia, Nitrogen (Automated phenate)
Non-potable Water	Spectrophotometric	Nitrogen Series	350.1	EPA	Nitrogen, Total Organic (TON), automated phenate
Drinking Water	Colorimetric	Nitrogen Series	350.1	EPA	Ammonia, Nitrogen (Automated phenate)
Non-potable Water	Spectrophotometric	Nitrogen Series	350.2	EPA	Ammonia, Nitrogen (w. distillation)
Non-potable Water	Spectrophotometric	General Chemistry	3500-CR D	SM	Chromium (Hexavalent)
Non-potable Water	Spectrophotometric	Metals	3500-FE D	SM	Ferrous Iron
Non-potable Water	Spectrophotometric	Nitrogen Series	351.2	EPA	Nitrogen, Total Kjeldahl (TKN)
Non-potable Water	Spectrophotometric	Nitrogen Series	351.2	EPA	Nitrogen, Total Organic (TON), automated
Non-potable Water	General Chemistry	Nitrogen series	351.2-350.1	EPA	Organic Nitrogen (calculation)
Solid & Hazardous Waste	Extraction	Organics	3510C	SW-846	Separatory Funnel Liquid-Liquid
Solid & Hazardous Waste	Extraction	Organics	3520C	SW-846	Continuous Liquid-Liquid
Non-potable Water	Spectrophotometric	Nitrogen Series	353.2	EPA	Nitrate/Nitrite, Automated Cd Reduction

Non-potable Water	Spectrophotometric	Nitrogen Series	353.2	EPA	Nitrite-Nitrogen, Automated Cd Reduction
Non-potable Water	Spectrophotometric	Nutrients	353.2	EPA	Nitrate-Nitrogen, Automated Cd Reduction
Drinking Water	Spectrophotometric	Nutrients	353.2	EPA	Nitrate-Nitrogen
Drinking Water	Spectrophotometric	Nitrogen Series	353.2	EPA	Nitrite-Nitrogen
Drinking Water	Spectrophotometric	Nitrogen Series	353.2	EPA	Nitrate/Nitrite
Non-potable Water	Spectrophotometric	Nitrogen Series	354.1	EPA	Nitrite-Nitrogen
Solid & Hazardous Waste	Extraction	Organics	3541	SW-846	Soxhlet (Automated)
Solid & Hazardous Waste	Extraction	Organics	3550B	SW-846	Ultrasonic Extraction
Solid & Hazardous Waste	Extraction	Organics	3580A	SW-846	Waste Dilution
Non-potable Water	Potentiometric	General Chemistry	360.1	EPA	Oxygen, Dissolved
Solid & Hazardous Waste	Clean-Up	Organics	3610B	SW-846	Alumina Cleanup
Solid & Hazardous Waste	Clean-Up	Organics	3620B	SW-846	Florisil Cleanup
Solid & Hazardous Waste	Clean-Up	Organics	3640A	SW-846	Gel-Permeation Cleanup
Non-potable Water	Spectrophotometric	Nutrients	365.2	EPA	Phosphate (Ortho)
Non-potable Water	Spectrophotometric	Nutrients	365.2	EPA	Phosphorus (Total), Persulfate digestion
Solid & Hazardous Waste	Clean-Up	Organics	3660B	SW-846	Sulfur Cleanup
Solid & Hazardous Waste	Clean-Up	Organics	3665A	SW-846	Sulfuric Acid/Permanganate Cleanup
Non-potable Water	Titrimetric	Sulfide Species	376.1	EPA	Sulfide, as S
Non-potable Water	Potentiometric	Demand Series	405.1	EPA	BOD5
Non-potable Water	Spectrophotometric	Demand Series	410.4	EPA	COD, Automated
Non-potable Water	Gravimetric	Hydrocarbons	413.1	EPA	Oil & Grease
Non-potable Water	Infrared Spectrophotometric	Carbon	415.1	EPA	Total Organic Carbon (TOC)
Non-potable Water	Infrared Spectrophotometric	Carbon	415.1	EPA	Dissolved Organic Carbon
Non-potable Water	Gravimetric	Hydrocarbons	418.1	EPA	Petroleum Hydrocarbons-IR (TPHC)
Non-potable Water	Spectrophotometric	Phenols	420.2	EPA	Phenols, Total (Automated)
Drinking Water	General Chemistry	General Chemistry	4500-Cl D, E, F, G, I	SM	Chlorine, Total
Drinking Water	General Chemistry	General Chemistry	4500-Cl G	SM	Chlorine Residual
Non-potable Water	General Chemistry	General Chemistry	4500-Cl G	SM	Chlorine Residual
Drinking Water	Spectrophotometric	Cyanides	4500-CN C E	SM	Cyanide, Total
Drinking Water	Colorimetric	General Chemistry	4500-CN E	SM	Cyanide, Total
Non-potable	Spectrophotometric	Cyanides	4500-CN G	SM	Cyanide, Amenable to Chlorination

Water					
Drinking Water	Spectrophotometric	Cyanides	4500-CN G	SM	Cyanide, Amenable to Chlorination
Non-potable Water	Spectrophotometric	Cyanides	4500-CN I	SM	Cyanide, Weak & Dissociable
Non-potable Water	Spectrophotometric	Cyanides	4500-CN I	SM	Cyanide, Free (Weak Acid Dissociable)
Non-potable Water	Electrometric	General Chemistry	4500-H+B	SM	pH
Drinking Water	Electrometric	General Chemistry	4500-H+B	SM	pH
Non-potable Water	Potentiometric	General Chemistry	4500-O G	SM	Oxygen, Dissolved
Solid & Hazardous Waste	Purge and Trap	Volatile Organics	5030B	SW-846	Purge and Trap for Aqueous Samples
Solid & Hazardous Waste	Purge and Trap	Volatile Organics	5035	SW-846	Closed System Purge and Trap for Soils and Waste
Drinking Water	GC/MS	Volatile Organics	524.2	EPA	Volatiles, Drinking Water
Drinking Water	GC/MS	Volatile Organics	524.2	EPA	Tentatively Identified Compounds (TICs)
Solid & Hazardous Waste	ICP	Metals	6010B	SW-846	Metals
Non-potable Water	GC/ECD	Pesticides	608	EPA	Organochlorine Pesticides
Non-potable Water	GC/ECD	Pesticides	608.1	EPA	Organochlorine Pesticides
Non-potable Water	GC/ECD	Pesticides	614	EPA	OP Pesticides
Non-potable Water	GC/MS	Volatile Organics	624	EPA	Volatiles
Non-potable Water	GC/MS	Semivolatile Organics	625	EPA	Polynuclear Aromatic Hydrocarbons (PAHs)
Non-potable Water	GC/MS	Semivolatile Organics	625	EPA	Semivolatiles
Solid & Hazardous Waste	Colorimetric	Metals	7196A	SW-846	Chromium (Hexavalent)
Solid & Hazardous Waste	CVAA	Metals	7470A	SW-846	Mercury in Liquid Waste
Solid & Hazardous Waste	CVAA	Metals	7471A	SW-846	Mercury in Solid or Semisolid Waste
Solid & Hazardous Waste	GC/FID	Hydrocarbons	8015B	SW-846	Diesel Range Organics
Solid & Hazardous Waste	GC/FID Direct Aqueous Injection	Volatile Organics	8015B	SW-846	VOC-DAI-Direct Aqueous Injection
Solid & Hazardous Waste	GC/ECD	Pesticides	8081A	SW-846	Organochlorine Pesticides
Solid & Hazardous Waste	GC/ECD	PCBs	8082	SW-846	PCBs
Solid & Hazardous Waste	GC/NPD	Pesticides	8141A	SW-846	Organophosphorous Pesticides
Solid & Hazardous Waste	GC/MS	Volatile Organics	8260B	SW-846	Volatile Organic Compounds
Solid & Hazardous	GC/MS	Semivolatile Organics	8270C	SW-846	PAHs GC/MS Scan Low Level

Waste					
Solid & Hazardous Waste	GC/MS	Semivolatile Organics	8270C	SW-846	Semivolatiles
Solid & Hazardous Waste	GC/MS	Semivolatile Organics	8270C SIM	SW-846	PAHs GC/MS SIM Low Level
Solid & Hazardous Waste	Spectrophotometric	Cyanides	9012A	SW-846	Cyanide, Amenable to Chlorination
Solid & Hazardous Waste	Spectrophotometric	Cyanides	9012A	SW-846	Cyanide, Total
Solid & Hazardous Waste	Titrimetric	Sulfide Species	9034	SW-846	Sulfide, Acid Insoluble
Solid & Hazardous Waste	Electrometric	General Chemistry	9040B	SW-846	Corrosivity, as pH
Solid & Hazardous Waste	Electrometric	General Chemistry	9045C	SW-846	pH, Solid & Waste
Solid & Hazardous Waste	Ion Chromatography	Nutrients	9056	SW-846	Nitrate-Nitrogen
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Nitrite-Nitrogen
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Chloride
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Phosphate [Ortho]
Solid & Hazardous Waste	Ion Chromatography	Nutrients	9056	SW-846	Nitrate/Nitrite
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Bromide
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Fl Fluoride (IC)
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Anions
Solid & Hazardous Waste	Ion Chromatography	Anions	9056	SW-846	Sulfate, as SO4
Solid & Hazardous Waste	Infrared Spectrophotometric	Carbon	9060	SW-846	Total Organic Carbon (TOC)
Solid & Hazardous Waste	Colorimetric	Phenols	9066	SW-846	Phenols, Total
Solid & Hazardous Waste	General Chemistry	Physical Properties	9095A	SW-846	Paint Filter Test
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	Chapter 7, Ignitability	SW-846	Ignitability
CLP	Digestion	Metals	CLP Metals Digestion	ILM04.0	CLP Metals Digestion
Other	General Chemistry	Leach	D-3987	ASTM	ASTM Leaching Procedure
Non-potable Water	Titrimetric	Carbon	Lloyd Kahn	Region II	Total Organic Carbon (TOC)

Clean Air	GC/MS	Semivolatile Organics	Mod TO-13A	EPA	Polynuclear Aromatic Hydrocarbons (PAHs)
CLP	GC/ECD	Pesticides/PCBs	Pesticides / Aroclors	CLP OLM03.2	Organochlorine Pesticides / PCBs
CLP	GC/ECD	Pesticides/PCBs	Pesticides / Aroclors	CLP OLM04.1	Organochlorine Pesticides / PCBs
CLP	GC/ECD	Pesticides/PCBs	Pesticides / Aroclors	CLP OLM04.2	Organochlorine Pesticides / PCBs
CLP	GC/MS	Semivolatile Organics	Semivolatile Organics	CLP OLC02.1	Semivolatiles, Low Level
CLP	GC/MS	Semivolatile Organics	Semivolatile Organics	CLP OLM04.1	Semivolatiles
CLP	GC/MS	Semivolatile Organics	Semivolatile Organics	CLP OLM04.2	Semivolatiles
CLP	GC/MS	Semivolatile Organics	Semivolatile Organics	CLP OLM03.2	Semivolatiles
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	SW846,Chapter7	SW-846	Sulfide (Reactive)
Solid & Hazardous Waste	Waste Characterization	Waste Characterization	SW846,Chapter7	SW-846	Cyanide (Reactive)
Clean Air	GC/MS	Semivolatile Organics	TO-13	EPA	Polyaromatic Hydrocarbons by GC/MS
Clean Air	GC/ECD	Pesticides	TO-4	EPA	Pesticide by GC
Non-potable Water	Calculation	General Chemistry	Total Cr - Cr+6	SM	Chromium, Trivalent by Difference
CLP	GC/MS	Volatile Organics	Volatile Organics	CLP OLM03.2	Volatiles
CLP	GC/MS	Volatile Organics	Volatile Organics	CLP OLM04.1	Volatiles
CLP	GC/MS	Volatile Organics	Volatile Organics	CLP OLM04.2	Volatiles
CLP	GC/MS	Volatile Organics	Volatile Organics	CLP OLC02.1	Volatiles, Low Level

Submit Query

Work Plan Addendum

Remedial Investigation – Additional Borings
35 Kent Avenue
Williamsburg Works
Former Manufactured Gas Plant Site

Brooklyn, New York
ACO Index No. A2-0552-0606
Site #: 224055

Submitted to:
National Grid NY
237 Maspeth Avenue
Brooklyn, NY 11211

Submitted by:
GEI Consultants, Inc.
455 Winding Brook Drive
Glastonbury, CT 06033
860-368-5300

November 19, 2008
083240 *-1010

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Table

1 Sample Descriptions, Rationale and Analysis

Plate

1 Proposed Sample Locations

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1. Introduction

National Grid requested that GEI Consultants, Inc. (GEI) provide this Work Plan Addendum to implement additional Remedial Investigation (RI) field activities at the 35 Kent Avenue property of the Williamsburg Works (Williamsburg) Manufactured Gas Plant (MGP) site in the Williamsburg Neighborhood in Brooklyn, New York. The RI Work Plan (*Final- Remedial Investigation Work Plan Williamsburg Works, Former Manufactured Gas Plan Site, Brooklyn, New York ACO Index No A2-0552-0606, Site # 224055,* dated May 2008) was approved by the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) in a letter dated June 23, 2008. This Work Plan Addendum includes related work in addition to that specified in the original Work Plan.

On October 27, 2008, National Grid met with Fleming Lee Shue Environmental Management and Consulting (FLS) to discuss property access and the scope of work at 35 Kent Avenue. FLS requested additional sample locations within and downgradient of the gas holders. National Grid agreed to add four boring locations: two within the large holder footprint, one within the small holder footprint, and one downgradient of the large holder. This Work Plan Addendum addresses only these additional sample locations.

35 Kent Avenue is located on the block bounded by Kent Avenue, N. 12th Street, N. 11th Street and Wythe Avenue. This property includes a privately owned building.

Plate 1 depicts the proposed additional soil borings and temporary groundwater points. **Table 1**, attached summarizes the proposed soil borings and temporary groundwater point samples locations and analyses being addressed by this Work Plan Addendum. The scope of work is outlined below.

2. Scope of Work

The scope of work addressed by this Work Plan Addendum is outlined in **Table 1** and in the text below. The proposed sampling program includes sampling of soils and groundwater at 35 Kent Avenue.

The scope of work includes the following tasks:

- Pre-Investigation Tasks
- Site Utility Survey
- Field Investigation Sampling and Analysis
- Survey
- QA/QC and Data Validation

Proposed field methods for the above tasks are as described in the May 2008 RI Work Plan. The sampling rationale is described in **Table 1**. Descriptions of each proposed work activity to be performed at the 35 Kent Street property are provided separately below.

2.1 Pre-Investigation Tasks

Upon approval of this Work Plan Addendum by NYSDEC, and the necessary access agreements, GEI will mobilize to the site to implement the sampling program. The field mobilization will include the following items to be completed prior to the commencement of this scope of work:

- Reconnaissance to confirm accessibility of boring locations
- Identify underground utilities
- Document existing conditions with digital video and still imagery

2.1.1 Site Access and Permits

National Grid, GEI, and our subcontractors will need site access granted by the current property owner to complete the proposed scope of work. GEI assumes that National Grid will negotiate access with current property owner.

2.1.2 Utility Clearance

The general location of the proposed sample locations are identified in **Figure 1**. Each actual boring and subsurface investigation location will be marked by GEI with white paint prior to intrusive activities. The drilling subcontractor will provide the boring locations to the utility clearance organization (New York City and Long Island One Call) to identify potential utility

conflicts at the Site. Prior to installation, each proposed sample location will also be cleared by a private utility mark-out company. GEI requests that the current property owner provide the utility plans for on-site utilities.

Each soil boring location will either be hand cleared to a depth of 5 feet below ground surface (bgs), or 1 foot below the estimated depth of any adjacent known utility.

2.2 Field Investigation Sampling and Analysis

Table 1 presents the general rationale and proposed sampling and analysis for the soil borings and temporary groundwater grab sample points. In addition, community air monitoring and surveying will be performed as specified in the RI Work Plan. Sampling procedures and methods are presented in the May 2008 RI Work Plan. In addition to the suite of analyses listed in the RI work plan, the soil samples will be analyzed for ammonia by Environmental Protection Agency (EPA) method 350.1 as requested by FLS.

2.2.1 Soil Borings

A total of four soil borings are proposed as part of the additional scope of work. The proposed soil boring locations are shown on **Plate 1**. **Table 1** provides sample description, rationale, and analysis.

Soil samples will be collected and logged continuously from each boring. We anticipate that drilling will proceed approximately 10 feet into soils that are visually un-impacted by MGP-related materials. If no apparent MGP-related impacts are observed at a particular on-site boring location, the boring will terminate at the top of the clay layer as described in the May 2008 RI Work Plan.

Any deep drilling through impacted zones will minimize the vertical communication of DNAPL caused by the drilling. Drilling methods and procedures are provided in the Field Sampling Plan (FSP), which was appended to the May 2008 RI Work Plan. Actual drilling locations will be determined based on the building configuration and other on-site constraints.

Drilling equipment (i.e., drilling rods, auger, casing, and/or macro-core sampler) will be decontaminated between each sample location. Soil cuttings and decontamination fluids will be contained and disposed of as described in Section 2.2.8.

Three soil samples per boring will be selected for chemical analysis as summarized in **Table 1**. The RI Work Plan details the targeted intervals from which these samples will be collected.

Following the collection of subsurface soil samples, each soil boring will be abandoned by tremie grouting the boring from the bottom of the boring to the top in accordance with the FSP.

Each sampling implement will be decontaminated in accordance with decontamination procedures described in the FSP, which is appended to the RI Work Plan.

2.2.4 Temporary Groundwater Point Sampling

A total of three temporary groundwater sampling points are proposed as part of the additional scope of work. The proposed locations are shown on **Plate 1**. **Table 1** provides sample description, rationale, and analysis. The temporary groundwater points will be constructed of a PVC screen and riser, or a stainless steel groundwater sampler, as specified in the RI Work Plan. The temporary groundwater points will be screened in the uppermost portion of the water table aquifer and sampled in accordance with the RI Work Plan. To the extent feasible, we will allow water levels to equilibrate in the temporary sampling points to measure the water table elevation relative to ground or slab elevation and confirm flow direction. The temporary sampling point will be installed and sampled during soil boring advancement, when the depth of the boring is approximately five feet below the estimated water table. After sampling, each temporary groundwater point will be removed, and borehole advancement will continue to the proposed depth. The boring will then be tremie grouted from the bottom of the boring to the top.

2.2.7 Air Monitoring

A Community Air Monitoring Program (CAMP) will be implemented at the site during intrusive field activities. The CAMP will meet the requirements of the NYSDOH's Generic CAMP contained in Appendix 1 of NYSDEC's Draft DER-10 Technical Guidance For Site Investigation and Remediation dated December 25, 2002. Air will be monitored in the vicinity of each soil boring location. VOCs and respirable particulates (PM-10) will be monitored up-wind and downwind of the active work locations on a continuous basis. Wind direction will be determined using a wind sock(s) and/or flagging poles installed on site.

VOCs will be monitored using a PID. Particulate dust will be monitored using a DataRAM™ particulate meter or equivalent. The equipment will be calibrated at least daily or in accordance with manufacturers' recommendations. The CAMP is presented in **Appendix C** of the RI Work Plan.

2.2.8 Decontamination and Investigation Derived Wastes

Drilling equipment will be decontaminated at the established temporary decontamination pad between each sample in accordance with the FSP in **Appendix D** of the RI Work Plan. Sampling equipment used for sample collection (e.g., stainless steel split spoons, sample spoons, and hand trowels) will be decontaminated prior to use and reuse or disposable sampling equipment will be used.

Soil cuttings and wastewaters produced during decontamination will be collected and contained within 55-gallon USDOT drums, roll-off or frac tank. The investigation derived waste (IDW) will be stored in a storage area.

2.2.9 Waste Disposal Sampling

National Grid will arrange for the disposal of the IDW at the completion of the field program.

2.2.10 Survey

Each of the completed RI sample locations including soil borings and temporary groundwater points will be surveyed by a licensed New York State Licensed Land Surveyor. The elevation of each sampling location will be determined to ±0.01 foot and will be tied into the site benchmark. All locations and elevations will be referenced to the New York State Plane Eastern Zone (3104) North American Datum 1983 (NAD) and North American Vertical Datum (NAVD 88).

2.3 Quality Assurance/Quality Control and Data Validation

An approved NYSDOH environmental laboratory approval program (ELAP) laboratory will provide New York State Category B data deliverables. The data will be validated in accordance with New York State Analytical Service Protocols (NYSASP). The data will validated and a data usability summary report (DUSR) will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any pertinent data excursions or limitations on the use of the data. The DUSR will be used in preparing the RI report, and will be submitted as part of the RI report.

3. Reporting

A RI report, including QHHEA and FWRIA components, is required for submittal to the NYSDEC and NYSDOH at the conclusion of the full RI. This RI report is described in the May 2008 work plan.

4. Schedule

GEI will begin field activities once this Work Plan Addendum is approved, the notice to proceed is received, and access to 35 Kent Avenue is obtained.

Table

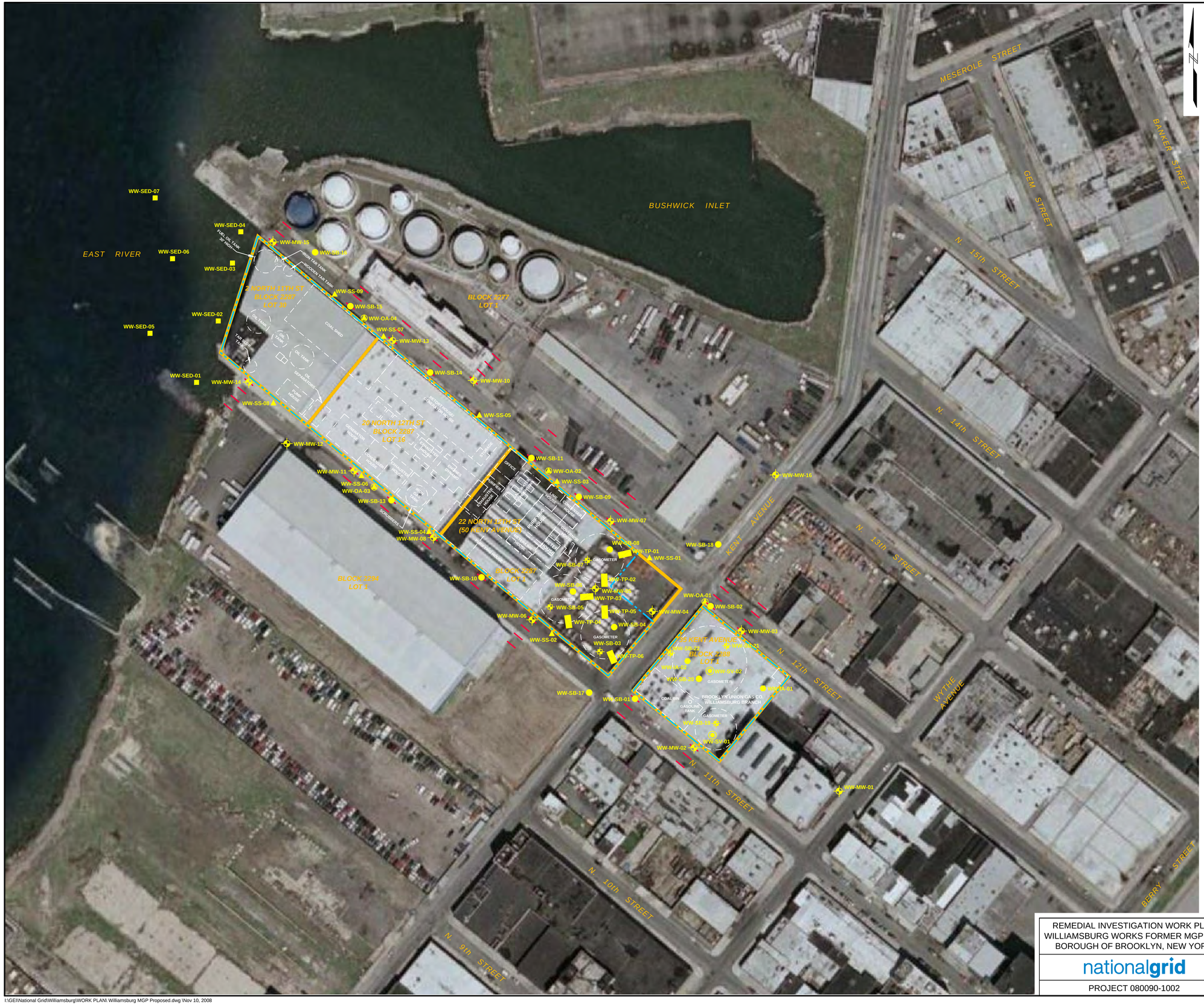
Table 1
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)	Ammonia (EPA 350.1)
				Soil	Groundwater								
Subsurface Soil Borings and Temporary Groundwater Monitoring Points													
WW-SB-19	Block 2288, Lot 1, within the footprint of the former gas holder	Evaluate soil and groundwater quality within the footprint of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X[1]	X[1]	X[1]	X
WW-SB-20	Block 2288, Lot 1, within the footprint of the former gas holder	Evaluate soil quality within the footprint of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	X	X	X	X	X[1]	X[1]	X[1]	X
WW-SB-21	Block 2288, Lot 1, within the footprint of the former gas holder	Evaluate soil and groundwater quality within the footprint of the former gas holder	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X[1]	X[1]	X[1]	X
WW-SB-22	Block 2288, Lot 1, downgradient of the former gas holders	Evaluate soil and groundwater quality downgradient of the footprint of the former gas holders	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X[1]	X[1]	X[1]	X

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA - Environmental Protection Agency
VOC - volatile organic compounds
SVOC - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
bgs - below ground surface
[1]-One sample from within the fill in each soil boring
[2]-Soils will be analyzed by Free Cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion American Society for Testing and Materials (ASTM)]

Prepared by: MJF

Figure



LEGEND

- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE
- HISTORIC STRUCTURE

PROPOSED SAMPLES

- WW-MW-05 — PROPOSED REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION
- WW-SB-01 — PROPOSED RI SOIL BORING LOCATION
- WW-SB-03 — PROPOSED SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION
- WW-SS-01 — PROPOSED SURFACE SOIL SAMPLE LOCATION
- WW-SV-01 — PROPOSED SOIL VAPOR POINT
- WW-TP-01 — PROPOSED TEST PIT LOCATION
- WW-IA-01 — PROPOSED INDOOR AIR SAMPLE LOCATION
- WW-OA-01 — PROPOSED OUTDOOR AIR SAMPLE LOCATION
- WW-SED-01 — PROPOSED SEDIMENT SAMPLE LOCATION
- POTENTIAL SAMPLE OFFSET LOCATION

0 80 160

SCALE, FEET

SOURCES:

1. PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, IMAGE © DIGITALGLOBE 2008.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM http://www.oasisnyc.net, ACCESSED JANUARY 2008.

REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

PROJECT 080090-1002

GEI Consultants
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CONNECTICUT 06033

PROPOSED SAMPLE LOCATIONS

November 2008 Plate 1

I:\GEI\National Grid\Williamsburg\WORK PLAN\ Williamsburg MGP Proposed.dwg \Nov 10, 2008

nationalgrid

Donald Campbell
Project Manager

February 12, 2009

Lisa Gorton
Environmental Engineer
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

Re: Remedial Investigation Work Plan Addendum
50 Kent Avenue
Williamsburg Works Former Manufactured Gas Plant (MGP) Site
Brooklyn, New York
Site No. 2-24-055
Index No. W2-1090-06-06

Dear Ms. Gorton:

National Grid is submitting for your review and approval the following Remedial Investigation Work Plan (RIWP) addendum to conduct RI field activities at the 50 Kent Avenue (City of New York Department of Sanitation) property of the Williamsburg Works former Manufactured Gas Plant (MGP) site in the Williamsburg Neighborhood, Brooklyn, New York. The location of the former Williamsburg Works former MGP is shown on Plate 1.

1.0 RI Addendum Scope of Work

During the RIWP preparation a Department of Sanitation building was present at 50 Kent Avenue. The Department of Sanitation building is in the process of being demolished, and demolition should be completed by March 2009. After demolition is complete the property will be accessible for RI activities. Soil borings and surface soil samples in the adjacent N. 11th Street and N. 12th Street right-of-ways (ROWs) were proposed adjacent to former MGP structures because the building was not accessible for sampling. This proposed RI work plan addendum includes relocating three previously proposed soil borings and two surface sample locations, installing a monitoring well, and collecting three additional surface soil samples in order to evaluate MGP structures and conditions at the site. The remainder of this letter presents the proposed RI work plan addendum in detail.

The RI activities will be conducted in accordance with the RIWP entitled *Final- Remedial Investigation Work Plan Williamsburg Works, Former Manufactured Gas Plan Site, Brooklyn, New York ACO Index No A2-0552-0606, Site # 224055*, dated May 2008. This RIWP was approved by New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) in a letter dated June 23, 2008. The Final RIWP also includes the Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP), and Field Sampling Plan (FSP). The following sections describe the proposed soil borings, surface and subsurface soil analysis, monitoring well and groundwater analysis.

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1.1 Surface Soil Sampling

Three additional surface soil samples (WW-SS-10 to WW-SS-12) are proposed and two previously proposed surface soil samples (WW-SS-03 and WW-SS-04) will be relocated to evaluate the exposed surface soils within the footprint of the former MGP site. The locations are shown on Plate 1. Table 1 provides sample description, rationale, and analysis. Each surface soil sample will be collected from unpaved areas from the upper 2 inches of mineral soil beneath any gravel layers as specified in the RIWP.

1.2 Soil Boring Installation

One additional soil boring (WW-MW-17) is proposed and three previously proposed borings (WW-SB-09 through WW-SB-11) will be relocated to evaluate the soil conditions and former MGP structures as part of this RI addendum. The borings are proposed to be installed via Geoprobe® drilling methods. The proposed soil boring locations are shown on Plate 1. Table 1 provides sample description, rationale, and analysis.

Soil samples will be collected and logged continuously from each boring. Drilling will proceed approximately 10 feet into soils that are visually un-impacted by MGP-related materials. If no apparent MGP-related impacts are observed at a particular on-site boring location, the boring will terminate at the top of the clay layer which is located approximately 60 feet below ground surface. Three soil samples per boring will be selected for chemical analysis as summarized in Table 1. The RIWP details the targeted intervals for these samples and quality assurance samples that will be collected.

Any deep drilling through impacted zones will minimize the vertical communication of dense non-aqueous phase liquid (DNAPL) caused by the drilling. Drilling methods and procedures are provided in the FSP. Actual drilling locations will be determined based on site constraints.

A Community Air Monitoring Program will be implemented at the site during intrusive field activities. Drilling equipment (i.e., drilling rods, auger, casing, and/or macro-core sampler) will be decontaminated between each sample location. Soil cuttings and decontamination fluids will be contained and disposed of as described in the RI Work Plan.

Following the collection of subsurface soil samples, each soil boring will be abandoned by tremie grouting the boring from the bottom of the boring to the top in accordance with the FSP.

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1.3 Monitoring Well Installation

One monitoring well (WW-MW-17) is proposed to evaluate the groundwater conditions downgradient of the former MGP holders and upgradient of the adjacent property. This monitoring well will be installed using a conventional hollow stem auger rig. The proposed location is shown on Plate 1. Table 1 provides sample description, rationale, and analysis. The well will consist of a 2-inch-diameter poly vinyl chloride (PVC), 0.010" slotted screen that is 10 feet long and 2-inch PVC riser to the surface. A 2-foot sump will be installed at the bottom of the well if soils exhibit potential recoverable DNAPL in the monitoring zone. The well will be constructed as a water table well as specified by the RI Work Plan.

The monitoring well will be developed in general accordance with the FSP, appended to the RI Work Plan.

1.4 Groundwater Sampling and Gauging

The monitoring well will be gauged and sampled in general accordance with the FSP and RI Work Plan. Prior to sampling, two synoptic rounds of groundwater level measurements will be recorded for the monitoring wells and an established surface water measuring point in the East River. The groundwater will be gauged at both the low tide and high tidal levels.

The monitoring well will be purged and sampled after a minimum of two weeks following completion of well development utilizing low flow groundwater sampling procedures and in accordance with the FSP. Table 1 provides sample description, rationale, and analysis.

1.5 Survey

Each of the completed RI sample locations including soil borings and monitoring wells will be surveyed by a New York State Licensed Land Surveyor. The elevation of each sampling location will be determined to ±0.01 foot and will be tied into the site benchmark. All locations and elevations will be referenced to the New York State Plane Eastern Zone (3104) North American Datum 1983 and North American Vertical Datum 1988.

1.6 Data Validation and Management

An approved NYSDOH environmental laboratory approval program laboratory will provide New York State Category B data deliverables. The data will be validated in accordance with New York State Analytical Service Protocols. The data will be validated and a data usability summary report will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any pertinent data excursions or limitations on the use of the data.

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2.0 REPORT PREPARATION

A RI report, including Qualitative Human Health Exposure Assessment and Fish and Wildlife Resource Impact Analysis components, will be prepared for submittal to NYSDEC and NYSDOH at the conclusion of the RI. This RI report is described in the approved May 2008 Work Plan.

3.0 SCHEDULE

Field work can commence following the completion of the current demolition activities, which are being completed under the direction of City of New York. The demolition activities are projected to be completed in March 2009. GEI will begin field activities once this work plan addendum is approved, subcontractors are secured, and access to 50 Kent Avenue is obtained. The RI addendum will add approximately one week to the overall RI program.

If you have any questions or require additional information, please feel free to contact me at (718) 963-5453 or by e-mail at donald.campbell@us.ngrid.com.

Sincerely,

Melissa J Felter for:

Donald Campbell
Project Manager

Attachments
c: T. Bell – National Grid
B. Callaghan - NYSDOH
M. Felter - GEI
D. Terry - GEI

H:\WPROC\Project\KEYSPAN\Williamsburg\Draft RI WP\RI WP 50 Kent 02.12.09\Williamsburg RI letter 50 Kent.doc

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Table 1
Remedial Investigation Addendum
50 Kent Avenue
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)
				Soil	Groundwater							
Relocated Sample Locations												
Surface Soil Sample Locations												
WW-SS-03	50 Kent Avenue (northern portion of the property adjacent to North 12th Street)	Soil sample to evaluate surface soil conditions at the site	0-2"	1	0	X	X	X	X	X	X	X
WW-SS-04	50 Kent Avenue (northwestern portion of the property adjacent to North 12th Street)	Evaluate soil quality at the site, within the footprint of the former purifying house	0-2"	1	0	X	X	X	X	X	X	X
Subsurface Soil Borings and Monitoring Wells												
WW-SB-09	50 Kent Avenue (northeast portion of the property adjacent to North 12th Street)	Evaluate subsurface soil condition within the footprint of the former condenser house	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	X	X	X	X	X[1]	X[1]	X[1]
WW-SB-10	50 Kent Avenue (southeast portion of the property adjacent to North 11th Street)	Evaluate soil quality at the site, within the footprint of the former purifying house	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	X	X	X	X	X[1]	X[1]	X[1]
WW-SB-11	50 Kent Avenue (northern portion of the property adjacent to North 12th Street)	Evaluate soil quality at the site, within the footprint of the former condensers	Between 0&5', depth at greatest suspected impact and beneath impacts	3	0	X	X	X	X	X[1]	X[1]	X[1]
Additional Proposed Sample Locations												
Surface Soil Sample Locations												
WW-SS-10	50 Kent Avenue (northeast portion of the property adjacent to North 12th Street)	Evaluate surface soil conditions within the footprint of the former condenser house	0-2"	1	0	X	X	X	X	X	X	X
WW-SS-11	50 Kent Avenue (Central portion of the property)	Evaluate surface soil conditions within the footprint of the former purifying house	0-2"	1	0	X	X	X	X	X	X	X
WW-SS-12	50 Kent Avenue (southeast portion of the property adjacent to North 11th Street)	Evaluate surface soil conditions within the footprint of the former purifying house	0-2"	1	0	X	X	X	X	X	X	X

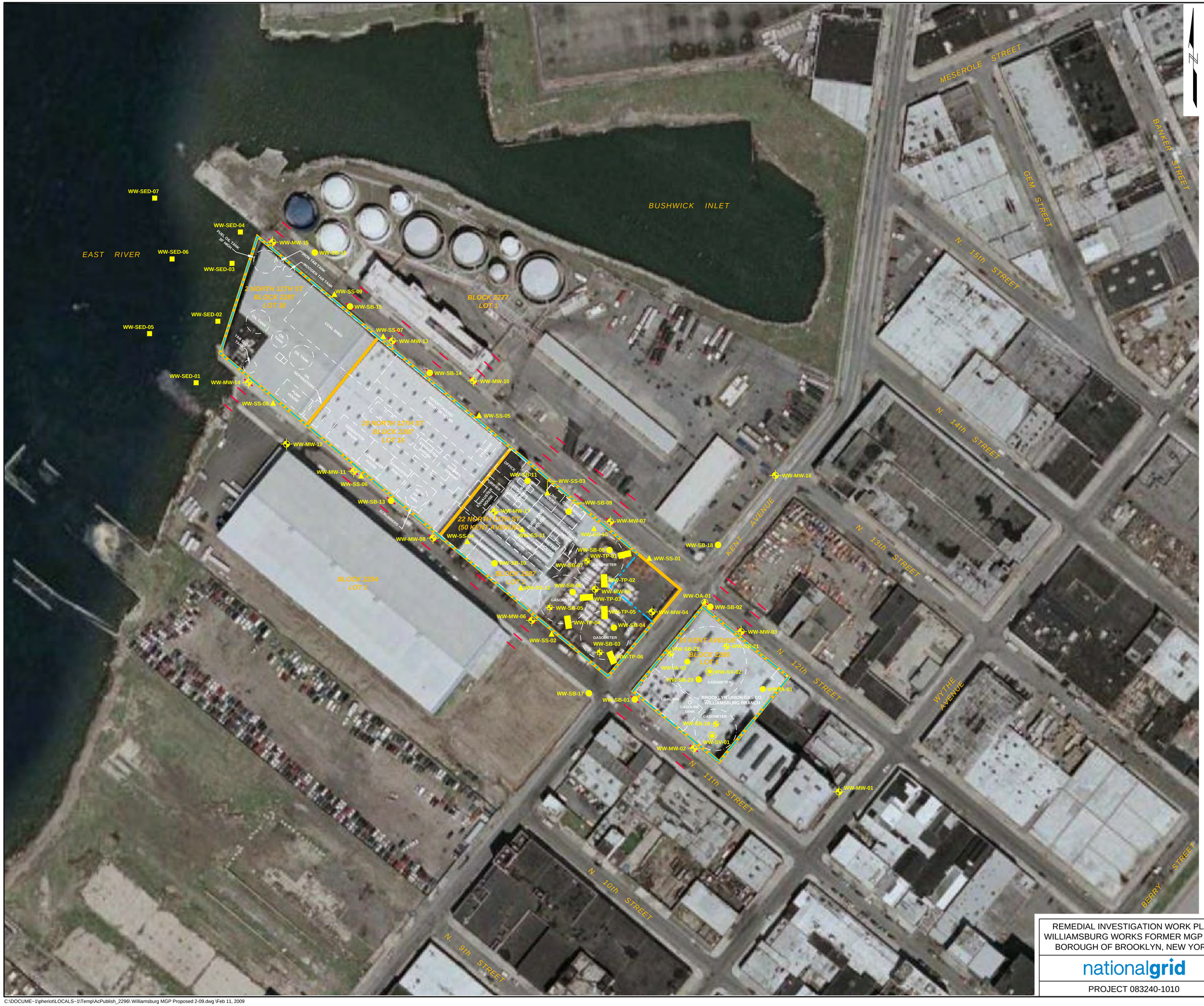
Table 1
Remedial Investigation Addendum
50 Kent Avenue
Sample Descriptions, Rationale and Analysis
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Rationale	Sample Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[2]	Herbicides (EPA 8151A)	PCBs (EPA 8082)	Pesticides (EPA 8081A)
				Soil	Groundwater							
Subsurface Soil Boring and Monitoring Well												
WW-MW-17	50 Kent Avenue	Evaluate soil and groundwater conditions downgradient of the former holders and adjacent to the adjacent property.	Between 0&5', depth at greatest suspected impact and beneath impacts	3	1	X	X	X	X	X[1]	X[1]	X[1]

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA - Environmental Protection Agency
VOC - volatile organic compounds
SVOC - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
bgs - below ground surface
[1]-One sample from within the fill in each soil boring

Prepared by: MJF

[2]-Soils will be analyzed by Free Cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion American Society for Testing and Materials (ASTM)]



LEGEND

APPROXIMATE CURRENT PROPERTY BOUNDARY

APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE

HISTORIC STRUCTURE

PROPOSED SAMPLES

- WW-MW-05 — PROPOSED REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION
- WW-SB-01 — PROPOSED RI SOIL BORING LOCATION
- WW-SB-03 — PROPOSED SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION
- WW-SS-01 — PROPOSED SURFACE SOIL SAMPLE LOCATION
- WW-SV-01 — PROPOSED SOIL VAPOR POINT
- WW-TP-01 — PROPOSED TEST PIT LOCATION
- WW-IA-01 — PROPOSED INDOOR AIR SAMPLE LOCATION
- WW-OA-01 — PROPOSED OUTDOOR AIR SAMPLE LOCATION
- WW-SED-01 — PROPOSED SEDIMENT SAMPLE LOCATION
- POTENTIAL SAMPLE OFFSET LOCATION

0 80 160

SCALE, FEET

SOURCES:

1. PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, IMAGE © DIGITALGLOBE 2008.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM http://www.oasisnyc.net, ACCESSED JANUARY 2008.

REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

PROJECT 083240-1010

GEI Consultants
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CONNECTICUT 06033

PROPOSED SAMPLE LOCATIONS

February 2009 Plate 1

C:\DOCUME~1\pheriot\LOCALS~1\Temp\AcPublish_2296\.Williamsburg MGP Proposed 2-09.dwg \Feb 11, 2009

nationalgrid

Donald Campbell
Project Manager

December 17, 2009

Henry Willems
Environmental Engineer
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

Re: Remedial Investigation Work Plan Addendum (Revised)
Williamsburg Works Former Manufactured Gas Plant (MGP) Site
Brooklyn, New York
Site No. 224055
Index No. A2-0552-0606

Dear Mr. Willems:

National Grid is submitting for your review and approval the following Remedial Investigation (RI) Work Plan Addendum to conduct RI field activities on the 50 Kent Avenue property of the Williamsburg Works former Manufactured Gas Plant (MGP) site in Brooklyn, New York (Site). National Grid has prepared this work plan based upon discussions with you in order to further evaluate the extent of dense non-aqueous phase liquid (DNAPL) tar impacts and the depth and thickness of an apparently confining clay layer at the Site. This work plan has been revised based on your December 10, 2009 comment letter.

1.0 RI Addendum Scope of Work

National Grid and its contractors have completed the RI sampling activities that were proposed as part of the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH)-approved RI Work Plan entitled *Remedial Investigation Work Plan Williamsburg Works, Former Manufactured Gas Plan Site, Brooklyn, New York ACO Index No A2-0552-0606, Site # 224055*, dated May 2008.

Twenty-four borings were advanced on or adjacent to the 50 Kent Avenue parcel as part of RI activities. DNAPL tar impacts were encountered in six borings (WW-SB-09, WW-SB-10, WW-SB-23, WW-SB-26, WW-MW-05, and WW-MW-06) near the interface of a potentially confining clay layer. The top of the clay layer ranged from 40 to 63 feet below ground surface (bgs) at this parcel. No visual evidence of contamination was found within the clay layer. Cross sections depicting the visual impacts and the potentially confining clay layer are provided in Figures 1 and 2. Boring logs for soil borings completed on and adjacent to the 50 Kent Avenue parcel are also included as Attachment 1. In a letter dated December 2, 2009, NYSDEC is requiring deeper soil borings penetrating below the clay layer within the 50 Kent Avenue parcel. The purpose of the deeper borings is to determine the vertical extent of impacts within the parcel, due to the potential that DNAPL tar may have migrated beneath the clay layer.

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T: 718.963.5453 ■ F: 718.963.5611 ■ donald.campbell@us.ngrid.com ■ www.nationalgrid.com

In this RI Work Plan Addendum, the installation of six soil borings is proposed to evaluate the vertical extent of DNAPL tar impacts in subsurface soil at the Site (Plate 1).

The RI activities will be conducted in accordance with the NYSDEC and NYSDOH-approved RI Work Plan including the Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP), and Field Sampling Plan (FSP). The remainder of this letter describes the proposed soil borings and subsurface soil analysis.

1.1 Proposed Soil Borings

Six soil borings (WW-SB-37 through WW-SB-42) are proposed at 50 Kent Avenue. The proposed soil boring locations are shown in Plate 1. Actual drilling locations will be determined based upon the subsurface utility clearance activities. The borings are proposed to be installed with a sonic drill rig in accordance with drilling methods and procedures in the FSP and RI Work Plan.

Soil samples will be collected and logged continuously from each boring. The borings will be advanced through the clay layer to approximately 100 feet bgs. The borings will be advanced using rotosonic techniques with six-inch diameter casing. If no tar is encountered near the top of the clay layer, the boring will be continued through the clay layer using six-inch casing, to 100 feet bgs.

NYSDEC required installation of two soil borings in the center of the Site (WW-SB-41 and 42) that will be installed in areas where tar was observed atop the clay layer, potentially creating a vertical migration pathway for DNAPL tar impacts. Previously, National Grid objected to drilling in locations where tar was observed directly atop an apparently confining clay layer, and NYSDEC required the installation of two borings in these locations (Reference NYSDEC December 10, 2009 comment letter and undated letter from NYSDEC to National Grid [attached] requiring the installation of 6 soil borings).

If DNAPL tar impacts are observed near the top of the clay layer in the proposed borings, seven-inch casing will be advanced to the top of clay to isolate the contaminated zone. The seven-inch casing will be seated in a five-foot thick column of bentonite slurry placed at the top of clay. The bentonite slurry will be used to attempt to prevent downward migration of the contamination along the walls of the casing.

Once the seven-inch casing has been seated in the bentonite, soil sampling will continue below the seven-inch casing. Six-inch casing will be advanced after collection of each sample to case the borehole below the bottom of the seven-inch casing. The boring will be terminated at 100 feet. If tar is present at 100 feet, the boring will be advanced to 10 feet below the bottom of observed tar, or top of bedrock.

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After completing each borehole, the six-inch casing will be removed incrementally as the boring is grouted. If seven-inch isolation casing is used, once the grout has reached the bottom depth of the seven-inch casing, the six-inch casing will be completely removed. Grouting will then proceed with incremental removal of the seven-inch casing.

Up to two soil samples per boring will be selected for chemical analysis as summarized in Table 1. If MGP-related impacts are observed below the clay layer, one soil sample will be collected from soils that exhibit the greatest apparent impact below the clay layer and a second sample will be collected below the observed impacts. If no tar impacts are encountered, then a sample will be collected at the termination depth of the boring. The RI work plan and QAPP detail the quality assurance/quality control (QA/QC) samples that will be collected. Following the collection of subsurface soil samples, each soil boring will be abandoned by tremie grouting the boring from the bottom of the boring to the top, in accordance with the FSP and RI Work Plan.

Drilling equipment will be decontaminated between each sample location. Soil cuttings and decontamination fluids will be contained within United States Department of Transportation (USDOT) 55-gallon drums and disposed of at a National Grid-approved disposal facility. A Community Air Monitoring Plan (CAMP) will be implemented at the Site during intrusive field activities.

1.2 Survey

The sample locations will be surveyed by a New York State Licensed Land Surveyor. The elevation of each sample location will be determined to ±0.01 foot and will be tied into the Site benchmark. All locations and elevations will be referenced to the New York State Plane Eastern Zone North American Datum 1983 and North American Vertical Datum 1988.

1.3 Data Validation and Management

The soil samples will be analyzed by TestAmerica- Connecticut, which is a NYSDOH environmental lab approval program accredited laboratory. TestAmerica will provide analytical results in a New York State Category B data deliverable format. The data will be validated in accordance with New York State Analytical Service Protocols, and a data usability summary report will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any pertinent data excursions or limitations on the use of the data.

2.0 REPORT PREPARATION

The information collected as part of this addendum will be used to develop the site conceptual model for the Site and will be incorporated into the RI report, as described in the Final RI Work Plan.

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3.0 SCHEDULE

Due to Site constraints and contractor availability, field work will be conducted from December 21 through 23, 2009 and December 28 through 30, 2009. We expect the RI Addendum scope of work can be completed in six days without consideration for weather delays, logistical problems, or contractor delays. National Grid's Site access agreement allows no work to be conducted on the 50 Kent Avenue parcel after December 30, 2009. If progress is delayed due to unforeseen circumstances, we will complete as much of the proposed scope of work as possible in this timeframe.

If you have any questions or require additional information, please feel free to contact me at (718) 963-5453 or by e-mail at donald.campbell@us.ngrid.com.

Sincerely,

Melissa J Felter for:

Donald Campbell
Project Manager

Attachments

c: T. Bell – National Grid
C. Doroski - NYSDOH
D. Terry - GEI
M. Felter - GEI

MF/ah:H:\WPROC\Project\KEYSPAN\Williamsburg\RI WP Addendum Dec 09\12-17-09\Williamsburg RIWP Addendum Revised Deep Investigation121709.doc

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New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **Fax:** (518) 402-9679
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

December 10, 2009

Mr. Donald Campbell
National Grid
Site Investigation and Remediation
287 Maspeth Ave.
Brooklyn, NY 11201

Re: Remedial Investigation Work Plan Addendum
Williamsburg Works Former MGP
Site# 224055

Dear Mr. Campbell:

The Remedial Investigation Work Plan Addendum for the Williamsburg Works Former MGP is approved with the following modifications:

1. The Work Plan makes no mention of the deep tar observation on the 35 Kent Ave property, where tar was observed at approximately 57 feet bgs. The proposed protocol for terminating borings could result in premature cessation of drilling which would miss this contamination and thus understate the full nature and extent of contamination. Consequently, all borings must be advanced to a depth of at least 100 feet bgs.

2. Two additional soil borings must be completed along cross section line A' A. Each of these borings should be positioned to align with the approximate center of one of the Gasometer footprints located southeast of line A'A. Appropriate procedures should be followed to prevent the creation of a vertical migration pathway for NAPL. In the event that large volumes of extremely mobile NAPL are encountered in these borings, the New York State Department of Environmental Conservation will discuss appropriate modifications to the boring locations with National Grid.

Sincerely,

Kathleen Sutkaska for

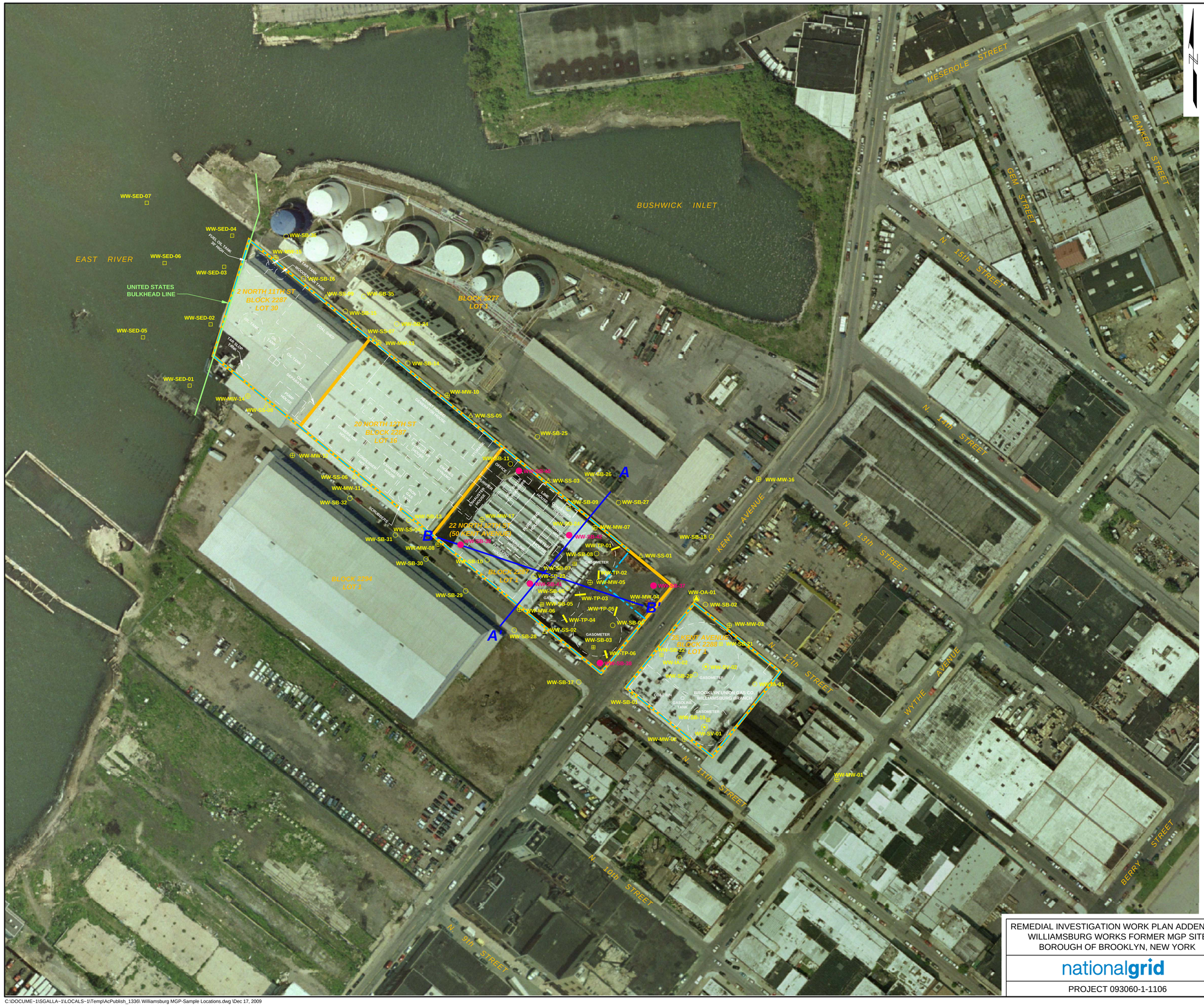
Henry T. Willems
Engineering Geologist 1

ec: T. Bell, National Grid
C. Willard, National Grid
G. Cross, NYSDEC
R. Schick, NYSDEC

Table 1
Sample Descriptions, Rationale, and Analysis
Remedial Investigation Addendum
Williamsburg Works MGP Site
Brooklyn, New York

Sample I.D.	Sample Location	Sample Location Rationale	Sample Depth	Number of Soil Samples	VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Free Cyanide[1]
Subsurface Soil Borings								
WW-SB-37	50 Kent Avenue, adjacent to Kent Avenue and North 12th Street	To the west and downgradient of 35 Kent Avenue, to evaluate the depth and thickness of the clay layer.	At greatest observed impact beneath the clay layer and beneath observed impacts at the end of boring.	2	X	X	X	X
WW-SB-38	50 Kent Avenue, adjacent to Kent Avenue and North 11th Street	To the west and downgradient of 35 Kent Avenue, to evaluate the depth and thickness of the clay layer.	At greatest observed impact beneath the clay layer and beneath observed impacts at the end of boring.	2	X	X	X	X
WW-SB-39	50 Kent Avenue, adjacent to North 11th Street	To the west and downgradient of WW-SB-23, to evaluate tar impacted soils as deep as 60 feet bgs and to evaluate the depth and thickness of the clay layer.	At greatest observed impact beneath the clay layer and beneath observed impacts at the end of boring.	2	X	X	X	X
WW-SB-40	50 Kent Avenue, adjacent to North 12th Street	To the west and downgradient of WW-SB-09 and WW-SB-24, to evaluate tar impacted soils as deep as 54 feet bgs and to evaluate the depth and thickness of the clay layer.	At greatest observed impact beneath the clay layer and beneath observed impacts at the end of boring.	2	X	X	X	X
WW-SB-41	50 Kent Avenue, adjacent to North 11th Street	Adjacent to WW-SB-23, to evaluate tar impacted soils as deep as 60 feet bgs and to evaluate the depth and thickness of the clay layer.	At greatest observed impact beneath the clay layer and beneath observed impacts at the end of boring.	2	X	X	X	X
WW-SB-42	50 Kent Avenue, adjacent to North 12th Street	Adjacent to WW-SB-24, to evaluate tar impacted soils as deep as 54 feet bgs and to evaluate the depth and thickness of the clay layer.	At greatest observed impact beneath the clay layer and beneath observed impacts at the end of boring.	2	X	X	X	X

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
bgs - below ground surface
EPA - Environmental Protection Agency
VOC - volatile organic compounds
SVOC - semivolatile organic compounds
TAL - target analyte list
1 - Soils will be analyzed by Free Cyanide [extraction by EPA Method 9013A/ and analysis by Microdiffusion American Society for Testing and Materials (ASTM) Method D4282-02]



LEGEND

- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE
- HISTORIC STRUCTURE
- A — A' CROSS-SECTION LOCATION

EXISTING SAMPLES

- WW-MW-05 — REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION
- WW-SB-01 — RI SOIL BORING LOCATION
- WW-SB-03 — SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION
- WW-SS-01 — SURFACE SOIL SAMPLE LOCATION
- WW-SV-01 — SOIL VAPOR POINT
- WW-TP-01 — TEST PIT LOCATION
- WW-IA-01 — INDOOR AIR SAMPLE LOCATION
- WW-OA-01 — OUTDOOR AIR SAMPLE LOCATION
- WW-SED-01 — SEDIMENT SAMPLE LOCATION

PROPOSED SAMPLES

- WW-SB-38 — SOIL BORING LOCATION

NOTES:

1. THE LOCATION OF WW-SB-35 WAS NOT SURVEYED AND IS APPROXIMATE.
2. SURFACE SOIL SAMPLE LOCATIONS ARE APPROXIMATE.

0 80 160

SCALE, FEET

SOURCES:

1. PHOTOGRAPH OBTAINED FROM BLUE SKY INTERNATIONAL LTD. ALL RIGHTS RESERVED. COPYRIGHT 2007.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM http://www.oasisnyc.net, ACCESSED JANUARY 2008.
4. SURVEY OF WILLIAMSBURG WORKS BOUNDARIES, EXISTING CONDITIONS, AND SAMPLE LOCATIONS CONDUCTED BY GEI CONSULTANTS, INC. SURVEYED BY NEW YORK STATE-LICENSED LAND SURVEYOR No. 050146.

REMEDIAL INVESTIGATION WORK PLAN ADDENDUM
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

PROJECT 093060-1-1106

GEI Consultants
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CONNECTICUT 06033

SAMPLE LOCATIONS

December 2009 Plate 1

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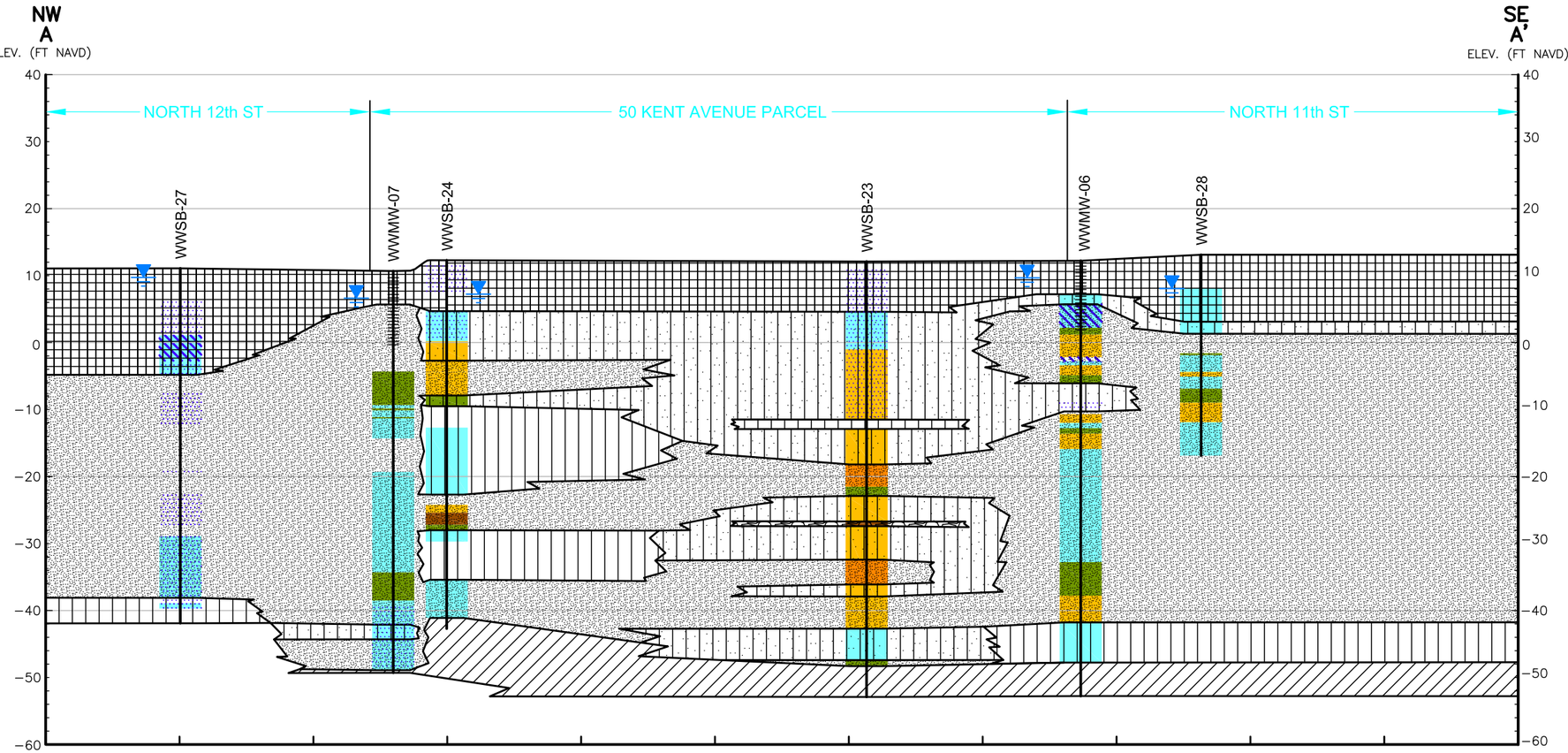

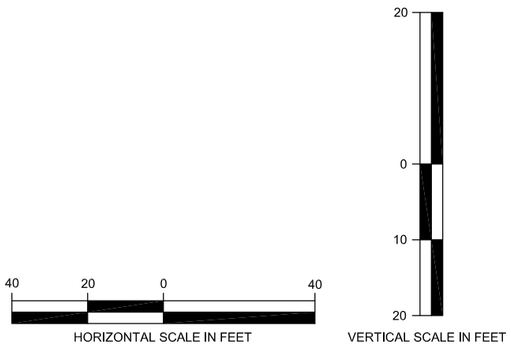

NOTE: VERTICAL EXAGGERATION = 2X

LEGEND

- CONTACT
- INFERRED CONTACT
- OBSERVED APPARENT GROUNDWATER TABLE
- WW-SB-27 — SOIL BORING/ MONITORING WELL IDENTIFICATION
- SOIL BORING
- WELL SCREEN INTERVAL

- FILL
- GRAVEL
- SAND
- SILT
- CLAY
- SILTY SAND

PHYSICAL OBSERVATIONS

- TAR SATURATED
- LENSES WITH TAR SATURATION AND TAR/NAPHTHA ODORS
- BLEBS, GLOBS, LENSES, COATINGS, SHEENS AND TAR/ NAPTHA ODORS
- TAR STAINING, SHEEN AND TAR/NAPHTHA ODORS
- TAR/ NAPHTHALENE-LIKE ODORS
- PETROLEUM SHEEN/ STAINING ODORS
- PETROLEUM ODORS

REMEDIAL INVESTIGATION WORK PLAN ADDENDUM
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

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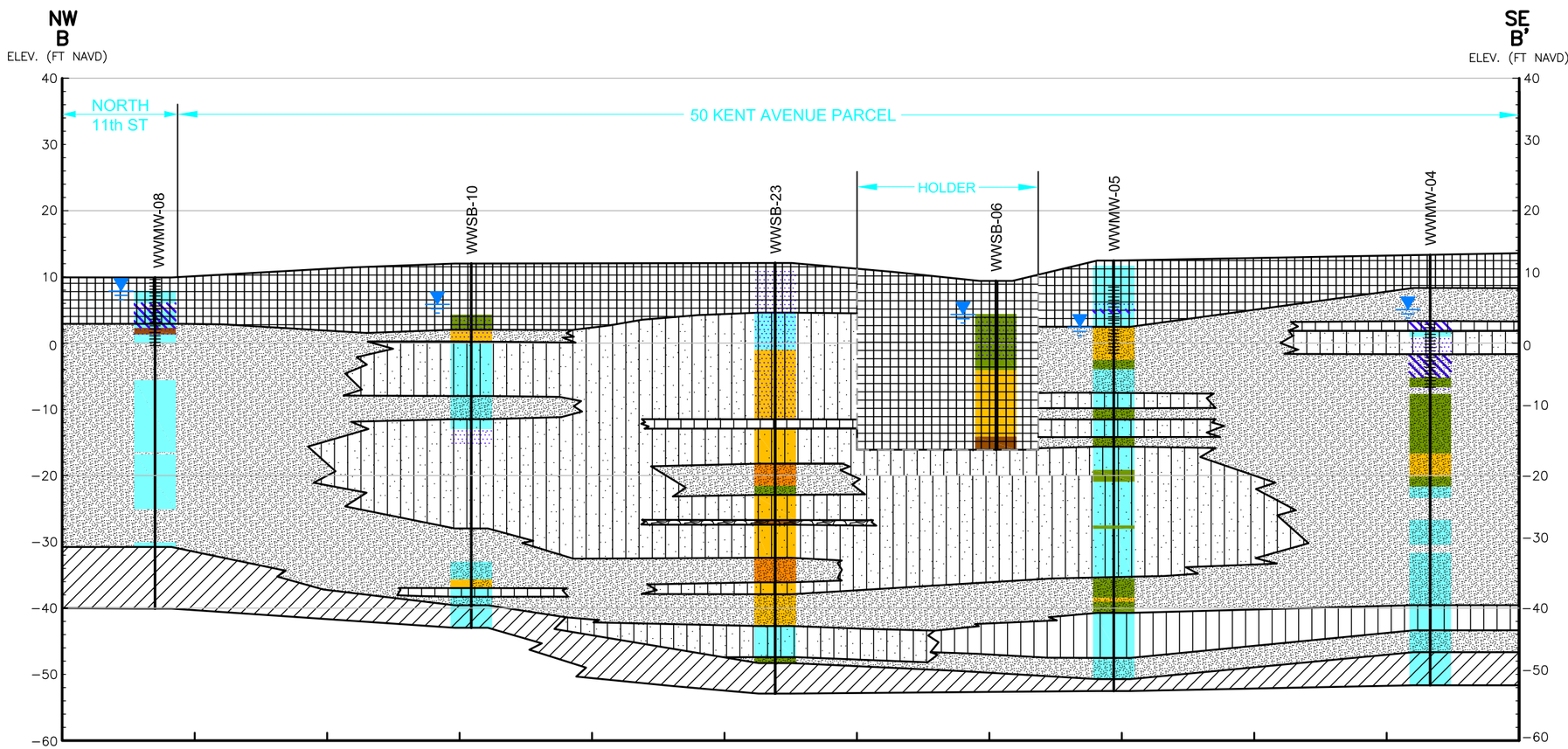
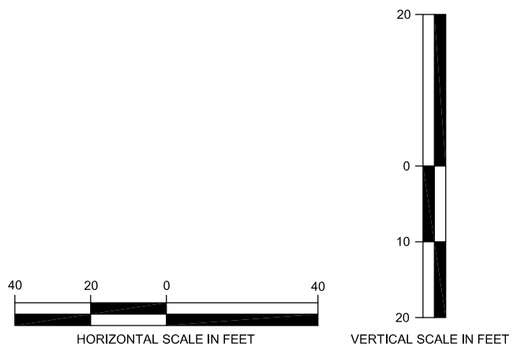
GEI Consultants

CROSS SECTION A-A'

Project 093060-1-1106 | December 2009 | Figure 1





NOTE: VERTICAL EXAGGERATION = 2X

LEGEND

- CONTACT
- INFERRED CONTACT
- OBSERVED APPARENT GROUNDWATER TABLE
- WW-SB-27 — SOIL BORING/ MONITORING WELL IDENTIFICATION
- SOIL BORING
- WELL SCREEN INTERVAL

- FILL
- GRAVEL
- SAND
- SILT
- CLAY
- SILTY SAND

PHYSICAL OBSERVATIONS

- TAR SATURATED
- LENSES WITH TAR SATURATION AND TAR/NAPHTHA ODORS
- BLEBS, GLOBS, LENSES, COATINGS, SHEENS AND TAR/ NAPTHA ODORS
- TAR STAINING, SHEEN AND TAR/NAPHTHA ODORS
- TAR/ NAPHTHALENE-LIKE ODORS
- PETROLEUM SHEEN/ STAINING ODORS
- PETROLEUM ODORS

REMEDIAL INVESTIGATION WORK PLAN ADDENDUM
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

GEI Consultants

CROSS SECTION B-B'

Project 093060-1-1106 | December 2009 | Figure 2

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG
PAGE 1 of 3
WWMW-04

GROUND SURFACE ELEVATION (FT): 13.34 **LOCATION:** 50 Kent Ave
NORTHING: 688733.54 **EASTING:** 642033.04 **TOTAL DEPTH (FT):** 65.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/14/2009 - 6/15/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 8.20 6/15/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0									(0'- 0.5') ASPHALT. (0.5'- 5') CONCRETE; ~80% concrete, ~20% medium to coarse gravel, FILL, hand cleared.
5	S1	5.0	1.42	37.1				WWMW-04 (5-10)	(5'- 10') WIDELLY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moist to wet, brown to gray.
▽									
10	S2	5.0	5	1635			PLO		(10'- 11.5') SILT WITH GRAVEL (ML); ~65% fines, low plasticity, ~20% gravel, fine to coarse, ~15% sand, fine to coarse; max. size 1 in., moderate petroleum-like odor, wet, black, sheen.
							NLO		(11.5'- 12.4') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, medium plasticity; moderate naphthalene-like odor, wet, gray.
							PLO		(12.4'- 15') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines, non plastic; moderate petroleum-like odor, wet, brown, gray, and black interbeds.
15	S3	5.0	3.33	1440			NLO		(15'- 15.8') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate naphthalene-like odor, brown, black staining, moderate fuel-like odor.
							PLO		(15.8'- 18.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., slight petroleum-like odor, brown, black petroleum-like staining.
							PLO		(18.5'- 20') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate petroleum-like odor, brown and black,
20									

NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC = RECOVERY LENGTH OF SAMPLE
PID = PHOTOIONIZATION DETECTOR READING (JAR HEADSPACE)
ppm = PARTS PER MILLION
IN. = INCHES
FT. = FEET
NLO = NAPHTHALENE LIKE ODOR
PLO = PETROLEUM LIKE ODOR
TLO = TAR LIKE ODOR
CLO = CHEMICAL LIKE ODOR
ALO = ASPHALT LIKE ODOR
CrLO= CREOSOTE LIKE ODOR
OLO = ORGANIC LIKE ODOR
SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

GEI Consultants

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

WWMW-04

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S4	5.0	3.33				PLO		moderate fuel-like odor, tar-like staining.
				1795			NLO		(20'- 21') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight petroleum-like odor, reddish brown, slight fuel-like odor. (21'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, tar-like staining; moderate petroleum-like odor.
25	S5	5.0	3.25	7860			NLO		(25'- 27.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, tar-like staining.
							PLO		(27.1'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate petroleum-like odor, brown, tar-like staining.
30	S6	5.0	2.58	> 9999			NLO	WWMW-04 (31-33)	(30'- 33.5') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating.
							NLO		(33.5'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, sheen.
35	S7	5.0	3.42				NLO		(35'- 36.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.
									(36.7'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.
40	S8	5.0	3.5	1845			NLO		(40'- 43.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.

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BORING LOG
PAGE 3 of 3
WWMW-04

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
							NLO		(43.8'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.
45	S9	5.0	2.58	58.5			NLO		(45'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.
50	S10	5.0	3.58	78.9			NLO		(50'- 51.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, reddish brown.
							NLO		(51.3'- 52.2') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight naphthalene-like odor, reddish brown.
							NLO		(52.2'- 52.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.
55	S11	5.0	1.92	56.9			NLO		(52.9'- 56.7') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine to medium; slight naphthalene-like odor, brown.
							NLO	WWMW-04 (58-59)	(56.7'- 60') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.
60	S12	5.0	3.58	194			NLO		(60'- 65') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; slight naphthalene-like odor, red.
65									Bottom of borehole at 65.0 feet.

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BORING LOG
PAGE 1 of 3
WWMW-05

GROUND SURFACE ELEVATION (FT): 12.48 **LOCATION:** 50 Kent Ave
NORTHING: 688775.73 **EASTING:** 641946.36 **TOTAL DEPTH (FT):** 65.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/10/2009 - 6/11/0209
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 10.00 6/10/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		377			NLO	WWMW-05 (0.75-5)	(0'- 0.75') ASPHALT. (0.75'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate naphthalene-like odor, dry, brown, hand cleared.
5	S2	5.0	4.67	>9999			NLO NLO NLO		(5'- 7.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, dry, brown, organics/wood fragments, lense of black color with sulfur/petroleum-like odor from 6.5 t0 6.7 ft. (7.4'- 7.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, dry, brown, organics/wood fragments, sheen.
▽ 10	S3	5.0	5	>9999			NLO NLO	WWMW-05 (12-13)	(7.9'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, dry, brown, organics/wood fragments. (10'- 11.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, wet, brown, organics/wood fragments, sheen, tar-like blebs, faint sulfur-like odor. (11.7'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, wet, brown, organics/wood fragments, sheen with interbedded layers of tar-like staining and coating.
15	S4	5.0	1.83	973			NLO NLO		(15'- 16.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate naphthalene-like odor, brown, organics/wood fragments, sheen, tar-like staining. (16.4'- 20') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight naphthalene-like odor, brown, organics/wood fragments.
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG

WWMW-05

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	2.92				NLO		(20'- 22.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, reddish brown.
				>9999			NLO		(22.3'- 24') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like staining.
							NLO		(24'- 25') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, reddish brown.
25	S6	5.0	3				NLO		(25'- 26.7') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, reddish brown.
				479			NLO		(26.7'- 28.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like staining.
							NLO		(28.1'- 30') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, reddish brown.
30	S7	5.0	2.42				NLO		(30'- 31.6') SILTY SAND WITH GRAVEL (SM); ~35% sand, fine to coarse, ~35% fines, ~30% gravel, fine; max. size 0.5 in., moderate naphthalene-like odor, brown, dense.
				2891			NLO		(31.6'- 33.4') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to coarse, ~25% gravel, ~15% fines; max. size 0.75 in., strong naphthalene-like odor, brown, tar-like staining.
							NLO		(33.4'- 35') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to coarse, ~25% gravel, ~15% fines; max. size 0.75 in., strong naphthalene-like odor, brown.
35	S8	5.0	2.5	575			NLO		(35'- 40') SILTY SAND WITH GRAVEL (SM); ~35% sand, fine to coarse, ~35% fines, ~30% gravel, fine; max. size 0.5 in., moderate naphthalene-like odor, brown, dense.
40	S9	5.0	1.75	877			NLO		(40'- 40.5') SILTY SAND WITH GRAVEL (SM); ~60% sand, fine to coarse, ~25% gravel, ~15% fines; max. size 0.75 in., strong naphthalene-like odor, brown, tar-like staining.
							NLO		(40.5'- 45') SILTY SAND WITH GRAVEL (SM); ~40% fines, ~30% gravel, fine to coarse, ~30% sand, fine to medium; max. size 1 in., moderate naphthalene-like odor, brown.

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BORING LOG
PAGE 3 of 3
WWMW-05

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
							NLO		
45	S10	5.0	2.67				NLO		(45'- 48') SILTY SAND WITH GRAVEL (SM); ~40% fines, ~30% gravel, fine to coarse, ~30% sand, fine to medium; max. size 1 in., moderate naphthalene-like odor, brown.
				4673			NLO		(48'- 50') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25 in., strong naphthalene-like odor, brown with reddish brown, tar-like staining.
50	S11	5.0	3.25				NLO		(50'- 50.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25 in., strong naphthalene-like odor, brown with reddish brown, tar-like staining.
				3595			NLO		(50.9'- 51.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25 in., strong naphthalene-like odor, brown with reddish brown, tar-like coating.
							NLO		(51.5'- 53.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25 in., strong naphthalene-like odor, brown with reddish brown, tar-like staining.
55	S12	5.0	2.08				NLO		(53.2'- 54.9') SILT (ML); ~90% fines, ~5% gravel, fine, ~5% sand, fine; moderate naphthalene-like odor, brown gray, dense.
				218			NLO		(54.9'- 55') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines; max. size 0.25 in., strong naphthalene-like odor, brown with reddish brown.
									(55'- 60') SILT (ML); ~90% fines, ~5% gravel, fine, ~5% sand, fine; slight naphthalene-like odor, brown gray, dense.
60	S13	5.0	2.58	10.4			NLO		(60'- 63.2') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.25 in., slight naphthalene-like odor, brown.
								WWMW-05 (63-64)	(63.2'- 65') LEAN CLAY (CL); ~95% fines, ~5% sand, fine; red and gray.
65									Bottom of borehole at 65.0 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG
PAGE 1 of 3
WWMW-06

GROUND SURFACE ELEVATION (FT): 12.23 **LOCATION:** North 11th Street
NORTHING: 688730.17 **EASTING:** 641823.66 **TOTAL DEPTH (FT):** 65.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/17/2009 - 6/18/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 2.50 6/17/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		0.4				WWMW-06 (0.5-1.5)	(0'- 5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., brown, hand cleared.
▽									
5	S2	5.0	5				NLO		(5'- 6.5') SILTY SAND (SM); ~80% sand, fine to coarse, ~20% fines, non plastic; slight naphthalene-like odor, brown.
							NLO		(6.5'- 10') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., moderate naphthalene-like odor, brown, black stained interbeds, lenses of petroleum-like odor.
				581					
10	S3	5.0	4.42				NLO		(10'- 11') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, brown, sheen.
							NLO		(11'- 13') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like blebs, staining, and pockets of coating.
				1601			NLO		(13'- 14.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating.
							PLO		(14.4'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong petroleum-like odor, black, sheen, black petroleum-like staining.
15	S4	5.0	3				NLO		(15'- 15.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, moderate petroleum and sulfur-like odor.
							NLO		(15.6'- 17.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating.
				3194			NLO		(17.1'- 18.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like staining.
							OLO		(18.3'- 19.3') SILTY SAND (SM); ~80% sand, fine, ~20% fines, non plastic; slight organic-like odor, brown, slight burnt/sulfur-like
20							OLO		

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BORING LOG

WWMW-06

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	3	2567			SLO		odor. (19.3'- 20') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight organic-like odor, brown, slight burnt/sulfur-like odor. (20'- 21') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; slight sulfur-like odor, brown, slight burnt-like odor. (21'- 21.9') SILTY SAND (SM); ~80% sand, fine, ~20% fines, non plastic; slight petroleum-like odor, brown. (21.9'- 22.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., slight petroleum-like odor, brown, slight sulfur-like odor. (22.5'- 22.9') WIDELY GRADED GRAVEL (GW); fine to coarse; orange and reddish brown. (22.9'- 23.1') WIDELY GRADED GRAVEL (GW); fine to coarse; strong naphthalene-like odor, orange and reddish brown, tar-like coating. (23.1'- 24.2') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating. (24.2'- 25') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown. (25'- 25.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong naphthalene-like odor, brown, bands of tar-like staining. (25.8'- 28.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like coating. (28.1'- 30') SILTY SAND (SP); ~70% sand, fine to medium, ~30% fines, medium plasticity; strong naphthalene-like odor, brown. (30'- 40') SILTY SAND (SP); ~70% sand, fine to medium, ~30% fines, medium plasticity; strong naphthalene-like odor, brown, dense.
							PLO		
							PLO		
							NLO		
							NLO		
							NLO		
25	S6	5.0	4.42	2310			NLO		
							NLO		
							NLO		
30	S7	5.0	3.75	2205			NLO		
35	S8	5.0	2.25	1300			NLO		
40	S9	5.0	1.92	286			NLO		(40'- 45') SILTY SAND (SP); ~70% sand, fine to medium, ~30% fines, medium plasticity; strong naphthalene-like odor, brown.

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BORING LOG
PAGE 3 of 3
WWMW-06

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
							NLO		
45	S10	5.0	1.33	9316			NLO		(45'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like staining.
50	S11	5.0	4.17	>9999			NLO	WWMW-06 (50-52)	(50'- 54') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, lense of fine sand from 53.3 to 53.6 ft, tar-like coating.
							NLO		(54'- 55') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; strong naphthalene-like odor, brown.
55	S12	5.0	2.25				NLO		(55'- 57.6') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; moderate naphthalene-like odor, brown.
				94.9			NLO	WWMW-06 (58-60)	(57.6'- 59.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
							NLO		(59.1'- 59.8') SILT (ML); ~90% fines, medium plasticity, ~10% sand, fine; moderate naphthalene-like odor, brown.
60	S13	5.0	2.25	0.0			NLO		(59.8'- 60') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; moderate naphthalene-like odor, reddish brown. (60'- 65') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish brown.
65									Bottom of borehole at 65.0 feet.

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FT. = FEET

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SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG
PAGE 1 of 3
WWMW-07

GROUND SURFACE ELEVATION (FT): 10.69 **LOCATION:** North 12th Street
NORTHING: 688889.72 **EASTING:** 641970.87 **TOTAL DEPTH (FT):** 60.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/22/2009 - 6/23/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 4.00 6/22/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		2.3				WWMW-07 (4-5)	(0'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., wet, brown, hand cleared.
▽									
5	S2	5.0	0						(5'- 10') no recovery.
10	S3	5.0	0						(10'- 15') no recovery.
15	S4	5.0	5				NLO		(15'- 16.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, medium plasticity; moderate naphthalene-like odor, wet, gray, sheen.
							NLO		(16.8'- 19.1') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, medium plasticity; moderate naphthalene-like odor, gray, lense of widely graded sand from 17.6 to 17.8 ft, tar-like staining, moderate petroleum-like odor.
				> 9999			NLO		(19.1'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, medium plasticity; strong naphthalene-like
20									

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BORING LOG
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WWMW-07

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	1.67	3372			NLO		odor, wet, gray, sheen, tar-like staining.
							NLO		(20'- 20.5') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, dense.
							NLO		(20.5'- 20.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, dense, tar-like staining.
							NLO		(20.8'- 21.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, dense.
25	S6	5.0	4.67	784			NLO		(21.8'- 22') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, dense, tar-like staining.
									(22'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown, dense.
									(25'- 30') WIDELY GRADED SAND WITH SILT (SP-SM); ~85% sand, fine to coarse, ~10% fines, medium plasticity, ~5% gravel, fine; max. size 0.5 in., brown, dense, slight solvent/ burnt-like odor.
30	S7	5.0	4.67	1982			NLO		(30'- 31.9') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% fines, medium plasticity, ~5% gravel, fine; max. size 0.5 in., moderate naphthalene-like odor, brown, dense.
							NLO		(31.9'- 35') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., slight naphthalene-like odor, brown.
35	S8	5.0		565			NLO		(35'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
40	S9	5.0		401					

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BORING LOG
PAGE 3 of 3
WWMW-07

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45							NLO		
	S10	5.0	4.42	> 9999			NLO	WWMW-07 (48.5-49.5)	(45'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, strong petroleum-like odor from 46.3 to 49.4 ft, tar-like staining.
50							NLO		(49.2'- 50') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown.
	S11	5.0	3.83	1269			NLO		(50'- 52.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, moderate petroleum-like odor.
							NLO		(52.8'- 54.1') SILTY SAND (SM); ~85% sand, fine, ~15% fines, medium plasticity; slight naphthalene-like odor, brown, slight petroleum-like odor.
55							NLO NLO		(54.1'- 54.3') WIDELY GRADED SAND (SW); fine to coarse; moderate naphthalene-like odor, brown, moderate petroleum-like odor.
	S12	5.0	4	0.0			NLO		(54.3'- 55') SILTY SAND (SM); ~85% sand, fine, ~15% fines, medium plasticity; slight naphthalene-like odor, brown, slight petroleum-like odor.
							PLO		(55'- 57.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, slight pertoleum-like odor.
									(57.1'- 59.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, wet, brown.
60								WWMW-07 (59-60)	(59.6'- 59.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, slight solvent-like odor.
									(59.8'- 60') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red gray.
									Bottom of borehole at 60.0 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
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BORING LOG
PAGE 1 of 3
WWMW-08

GROUND SURFACE ELEVATION (FT): 9.93 **LOCATION:** North 11th Street
NORTHING: 688854.11 **EASTING:** 641670.88 **TOTAL DEPTH (FT):** 50.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/19/2009 - 6/19/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 2.00 6/19/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0		2.0							(0'- 2') FILL, hand cleared.
▽	S1	3.0	1.58	540			NLO	WWMW-08 (2-5)	(2'- 3.9') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., moderate naphthalene-like odor, brown, FILL, brick fragments, hand cleared.
							PLO		(3.9'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., moderate petroleum-like odor, brown, black staining, hand cleared.
5	S2	5.0	4.17				NLO		(5'- 7') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., moderate naphthalene-like odor, brown, black staining from 5 to 5.9 ft, wood fragments from 6.8 to 7 ft, moderate petroleum-like odor.
							NLO		
				3038			NLO	WWMW-08 (7.5-8.5)	(7'- 7.6') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, brown, petroleum-like odor.
							NLO		(7.6'- 8.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like saturation, petroleum-like odor.
10	S3	5.0	0						(8.6'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, brown.
									(10'- 15') No Recovery.
15	S4	5.0	2.67	197					(15'- 15.5') SILTY SAND (SM); black.
							NLO		(15.5'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown.
20									

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BORING LOG
PAGE 2 of 3
WWMW-08

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	1.58	221			NLO		(20'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown, color change at 22.9 ft to brown.
25	S6	5.0	2.75	56.2			NLO NLO NLO NLO		(25'- 25.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown. (25.8'- 26.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown. (26.4'- 26.7') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish brown, 0.5 inch of widely graded fine to medium sand lense. (26.7'- 27.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown.
30	S7	5.0	2.67	178			NLO		(27.3'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown, color change at 28.9 ft to blackish brown. (30'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown, silty lenses up to 0.5 inch throughout sample.
35	S8	5.0	2.67	0.1					(35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; light brown and brown, silty lenses up to 1 inch throughout sample, varved clay from 36.7 to 37 ft.
40	S9	5.0	1.92				NLO	WWMW-08 (40-45)	(40'- 40.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, light brown and brown. (40.7'- 45') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red, gray silt varves, 2 inches of the clay has ~30% fine sand content.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG

WWMW-08

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S10	5.0	1.58						(45'- 50') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; red, gray silt varves, higher silt content 5 to 15 inches.
50									Bottom of borehole at 50.0 feet.

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BORING LOG
PAGE 1 of 3
WWMW-17

GROUND SURFACE ELEVATION (FT): 11.62 **LOCATION:** 50 Kent Ave
NORTHING: 688916.75 **EASTING:** 641757.91 **TOTAL DEPTH (FT):** 60.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/8/2009 - 6/9/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT):

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		2.1				WWMW-17 (1-2)	(0'- 0.33') CONCRETE. (0.3'- 5') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; brown, hand cleared.
5	S2	5.0	2				NLO	WWMW-17 (7-8)	(5'- 8.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., slight naphthalene-like odor, brown.
				868			NLO		(8.3'- 10') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., moderate naphthalene-like odor, brown, sheen, tar-like staining.
10	S3	5.0	4.08	349			NLO		(10'- 12.9') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., slight naphthalene-like odor, brown, sand and gravel lenses.
									(12.9'- 15') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., brown, sand and gravel lenses.
15	S4	5.0	3.75	1281			NLO NLO NLO		(15'- 15.2') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., slight naphthalene-like odor, black, organics. (15.2'- 15.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., slight naphthalene-like odor, black, organics, tar-like coating. (15.3'- 17') SILTY SAND (SM); ~80% sand, ~15% fines, non plastic, ~5% gravel; max. size 2 in., slight naphthalene-like odor, black, organics, sandy silt lense from 16.3 to 16.7 ft. (17'- 17.6') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., slight naphthalene-like odor, black, organics, sheen.
							NLO NLO		
20									

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BORING LOG

WWMW-17

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	2.92	71.3			NLO		(17.6'- 18.2') SILTY SAND (SM); ~55% sand, fine, ~45% fines, low plasticity; slight naphthalene-like odor, black. (18.2'- 20') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; gray, shells from 19.2 to 20 ft. (20'- 23.3') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine to coarse; max. size 2 in., slight naphthalene-like odor, brown. (23.3'- 25') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; brown gray.
25	S6	5.0	1.58	0					(25'- 30') SILTY SAND (SM); ~60% sand, fine to coarse, ~30% fines, non plastic, ~10% gravel, fine to coarse; max. size 2 in., brown.
30	S7	5.0	3.67	0					(30'- 35.3') SILTY SAND (SM); ~70% sand, fine to coarse, ~20% fines, non plastic, ~10% gravel, fine to coarse; max. size 2 in., brown, gravel layer from 43.9 to 44.4 ft.
35	S8	5.0	3.92	0					(35.3'- 36.1') WIDELY GRADED GRAVEL WITH SAND (GW); ~50% gravel, fine to coarse, ~45% sand, fine to coarse, ~5% fines, non plastic; max. size 2 in., gray. (36.1'- 38') SILTY SAND (SM); ~70% sand, fine to coarse, ~20% fines, non plastic, ~10% gravel, fine to coarse; brown, 1" lense of fine to coarse gravel at 37.9 ft. (38'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown.
40	S9	5.0	3.42	6.2			OLO		(40'- 41.6') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines, non plastic; moderate organic-like odor, brown.
							NLO		(41.6'- 46.8') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, black, lense of brown silty sand from 43.9 to 44.4 ft, organic odor.

NOTES:

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ppm = PARTS PER MILLION
IN. = INCHES
FT. = FEET

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CrLO= CREOSOTE LIKE ODOR
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SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

GEI Consultants

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Glastonbury, CT 06033
(860) 368-5300

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PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

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WWMW-17

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S10	5.0	3.25	11.6			NLO		(46.8'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown, silty sand lenses.
50	S11	5.0	3.17	55			NLO NLO NLO NLO NLO	WWMW-17 (54-55)	(49.2'- 50') SILT (ML); ~80% fines, non plastic, ~20% sand, fine; brown. (50'- 50.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown. (50.3'- 50.7') SILTY SAND (SM); ~70% sand, fine, ~30% fines, non plastic; slight naphthalene-like odor, gray. (50.7'- 51.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown. (51.8'- 52.4') SANDY SILT (ML); ~60% fines, non plastic, ~40% sand, fine; slight naphthalene-like odor, gray. (52.4'- 54.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown. (54.7'- 55') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; slight naphthalene-like odor, reddish brown. (55'- 60') LEAN CLAY (CL); ~95% fines, medium plasticity, ~5% sand, fine; brown, reddish brown varves.
55	S12	5.0	1.67	1.4			NLO		
60									Bottom of borehole at 60.0 feet.

NOTES:

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG
PAGE 1 of 2
WWSB-03

GROUND SURFACE ELEVATION (FT): 14.12 **LOCATION:** 50 Kent Ave
NORTHING: 688655.67 **EASTING:** 641952.51 **TOTAL DEPTH (FT):** 22.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/14/2009 - 7/14/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▼ 7.50 7/14/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0									(0'- 3') hand cleared.
	S1	2.0	1.25	7.3				WWSB-03 (3-5)	(3'- 4.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~89% sand, fine to medium, ~10% fines, low plasticity fines, ~1% gravel, fine; max. size 0.5 in., dry, brown, FILL, brick fragments, hand cleared. (4.1'- 4.3') CONCRETE; FILL, crushed concrete, hand cleared.
5	S2	5.0	1.5				NLO		(4.3'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~89% sand, fine to medium, ~10% fines, low plasticity fines, ~1% gravel, fine; max. size 0.5 in., dry, brown, FILL, brick fragments, hand cleared. (5'- 7.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~89% sand, fine to medium, ~10% fines, low plasticity fines, ~1% gravel, fine; max. size 0.5 in., slight naphthalene-like odor, dry, brown, FILL, brick fragments.
▼							NLO		(7.5'- 10') BRICK; moderate naphthalene-like odor, wet, FILL, crushed brick with sand.
				769					
10	S3	5.0	1.83						(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, ~25% sand, ~5% fines; ~20% brick fragments, max. size 2 in., strong naphthalene-like odor, wet, brown to black, FILL.
				1089			NLO		
15	S4	5.0	3.33						(15'- 20') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 1.5 in., strong naphthalene-like odor, wet, brown to black, FILL, brick fragments, sheen, tar-like staining, trace tar-like blebs.
				1777			NLO		
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

WWSB-03

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	2.0	1.75	3949			NLO NLO NLO	WWSB-03 (20-22)	(20'- 21') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to medium, ~5% fines; max. size 1.5 in., strong naphthalene-like odor, wet, brown to black, FILL, heavy tar-like staining, glass, coal ash, and brick fragments. (21'- 21.8') WIDELY GRADED GRAVEL WITH SILT (GW-GM); ~80% gravel, angular, ~10% sand, ~10% fines; max. size 2 in., strong naphthalene-like odor, wet, FILL, brick and concrete fragments, tar-like staining. (21.8'- 22') WIDELY GRADED GRAVEL WITH SILT (GW-GM); ~80% gravel, angular, ~10% sand, ~10% fines; max. size 2 in., strong naphthalene-like odor, wet, FILL, tar-like saturation. Refusal at 22.0 feet. Bottom of borehole at 22.0 feet.

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BORING LOG
PAGE 1 of 2
WWSB-04

GROUND SURFACE ELEVATION (FT): 13.8 **LOCATION:** 50 Kent Ave
NORTHING: 688696.34 **EASTING:** 641988.23 **TOTAL DEPTH (FT):** 20.00
DRILLED BY: Zebra Environmental / Quincy Brandt **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 10/5/2009 - 10/5/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.00 10/5/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		2.9				WWSB-04 (2-4)	(0'- 0.5') ASPHALT. (0.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., dry, brown, FILL, hand cleared.
▽ 5	S2	5.0	1.33	299			NLO		(5'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~60% gravel, fine to coarse, ~35% sand, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate naphthalene-like odor, wet, brown, FILL.
10	S3	5.0	2.17	1245			NLO		(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~75% gravel, fine to coarse, ~20% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5 in., moderate naphthalene-like odor, wet, brown, FILL, sheen.
15	S4	5.0	2.83	1601			NLO	WWSB-02 (18-20)	(15'- 20') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., strong naphthalene-like odor, wet, brown, FILL, tar-like staining.
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG

WWSB-04

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
									Refusal at 20.0 feet. Bottom of borehole at 20.0 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG
PAGE 1 of 2
WWSB-05

GROUND SURFACE ELEVATION (FT): 13.38 **LOCATION:** 50 Kent Ave
NORTHING: 688734.96 **EASTING:** 641857.09 **TOTAL DEPTH (FT):** 24.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/14/2009 - 7/14/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 4.50 7/14/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0									(0'- 3') CONCRETE; hand cleared.
	S1	2.0	0.92	283				WWSB-05 (3-5)	(3'- 4.5') CONCRETE; FILL, crushed concrete, hand cleared.
▽							NLO		(4.5'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.75 in., slight naphthalene-like odor, wet, FILL, brick/coal fragments, hand cleared.
5	S2	5.0	1.58	2324			NLO		(5'- 10') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, angular, ~25% sand, fine to coarse, ~5% fines; strong naphthalene-like odor, wet, FILL, black staining.
10	S3	5.0	1.17	3486			NLO		(10'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, angular, ~25% sand, fine to coarse, ~5% fines; strong naphthalene-like odor, wet, FILL, tar saturated.
15	S4	5.0	1.92	3051			NLO		(15'- 24') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW); ~75% sand, fine to coarse, ~15% gravel, fine to coarse, angular, ~10% fines; max. size 1 in., strong naphthalene-like odor, black, FILL, tar saturated.
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG

WWSB-05

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	4.0	3.83	4567			NLO	WWSB-05 (20-24)	

Refusal at 24.0 feet.
Bottom of borehole at 24.0 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG
PAGE 1 of 2
WWSB-06

GROUND SURFACE ELEVATION (FT): 9.4 **LOCATION:** 50 Kent Ave
NORTHING: 688764.65 **EASTING:** 641905.16 **TOTAL DEPTH (FT):** 25.50
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/16/2009 - 7/16/2006
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.00 7/16/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		11.9				(0'- 0.7') CONCRETE. (0.7'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, fine to coarse, ~30% gravel, subangular to angular, ~5% fines; max. size 1.5 in., brown, FILL, hand cleared.
▽ 5	S2	5.0	1.58	852			NLO	(5'- 12.2') WIDELY GRADED GRAVEL WITH SILT AND SAND (GW-GM); ~70% gravel, subrounded to angular, ~20% sand, medium to coarse, ~10% fines; ~5% brick and wood fragments, max. size 1.5 in., moderate naphthalene-like odor, wet, black, FILL, heavy sheen, petroleum-like odor.
10	S3	5.0	2.83	5558			NLO	(12.2'- 13.5') BRICK; ~95% sand, medium to coarse, ~5% gravel; ~80% brick fragments, strong naphthalene-like odor, wet, black, FILL, tar-like staining.
							NLO	(13.5'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, subrounded to subangular, ~20% sand, medium to coarse; ~5% wood and paper-like debris, max. size 1.5 in., strong naphthalene-like odor, black, FILL, tar-like coating.
15	S4	5.0	1.25	> 9999			NLO	(15'- 23.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, ~20% sand, fine to coarse; ~15% brick fragments, max. size 1 in., strong naphthalene-like odor, FILL, heavy tar-like coating.
20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
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BORING LOG

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WWSB-06

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	2	> 9999			NLO	
							NLO	(23.5'- 25.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~80% gravel, ~20% sand, fine to coarse; ~15% brick fragments, max. size 1 in., strong naphthalene-like odor, FILL, tar saturated.
25	S6	0.5	0.04	> 9999				Refusal at 25.5 feet.
								Bottom of borehole at 25.5 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG
PAGE 1 of 2
WWSB-07

GROUND SURFACE ELEVATION (FT): 12.24 **LOCATION:** 50 Kent Ave
NORTHING: 688810.17 **EASTING:** 641917.83 **TOTAL DEPTH (FT):** 22.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/15/2009 - 7/15/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 3.00 7/15/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0									(0'- 3') hand cleared.
▽	S1	2.0		5.6			PLO	WWSB-07 (3-5)	(3'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.75 in., slight petroleum-like odor, wet, FILL, asphalt and brick fragments, hand cleared.
5	S2	5.0	3				OLO		(5'- 7.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; slight organic-like odor, brown, FILL.
				8056			NLO		(7.4'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, angular, ~5% fines; max. size 0.75 in., moderate naphthalene-like odor, wet, FILL, wood fragments, tar-like staining, slight petroleum-like odor.
10	S3	5.0	3						(10'- 15') BRICK AND CONCRETE; ~70% sand, fine to coarse, ~30% gravel; ~60% brick and concrete fragments, max. size 0.25 in., wet, FILL, sheen, tar-like staining and blebs.
				> 9999					
15	S4	5.0	2.25						(15'- 20') BRICK AND CONCRETE; ~70% sand, fine to coarse, ~30% gravel; ~60% brick and concrete fragments, max. size 0.25 in., wet, FILL, wood fragments, heavy tar-like staining, tar-like blebs and partial coating.
				> 9999				WWSB-07 (19-22)	
20									

NOTES:

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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455 Winding Brook Road
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CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

WWSB-07

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	2.0	2	> 9999					(20'- 22') BRICK AND CONCRETE; ~70% sand, fine to coarse, ~30% gravel; ~60% brick and concrete fragments, max. size 0.25 in., wet, FILL, tar-like coating with partial tar saturation.
									Refusal at 22.0 feet. Bottom of borehole at 22.0 feet.

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BORING LOG
PAGE 1 of 2
WWSB-08

GROUND SURFACE ELEVATION (FT): 11.8 **LOCATION:** 50 Kent Ave
NORTHING: 688829.09 **EASTING:** 641958.38 **TOTAL DEPTH (FT):** 24.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/15/2009 - 7/15/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 3.00 7/15/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		457				(0'- 3') CONCRETE; crushed concrete and asphalt, hand cleared.
▽							PLO	(3'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 1.5 in., slight petroleum-like odor, wet, dark gray, FILL, brick/rubber fragments, slight organic-like odor, hand cleared.
5	S2	5.0	2.58				NLO	(5'- 8') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 2 in., moderate naphthalene-like odor, wet, dark gray, FILL, brick fragments, tar-like coating.
				3929			NLO	(8'- 10') BRICK AND CONCRETE; ~100% sand, fine to coarse; ~90% brick and concrete fragments, strong naphthalene-like odor, wet, FILL, tar-like coating.
10	S3	5.0	2.83	1904			NLO	(10'- 11') WIDELY GRADED SAND WITH GRAVEL (SW); ~85% sand, fine to coarse, ~10% gravel, ~5% fines; strong naphthalene-like odor, wet, dark gray, FILL, tar-like coating. (11'- 13') WIDELY GRADED SAND WITH GRAVEL (SW); ~65% sand, ~30% gravel, ~5% fines; max. size 2 in., wet, dark gray, FILL, tar-like coating.
							NLO	(13'- 15') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~15% gravel, ~15% fines; max. size 1 in., strong naphthalene-like odor, moist, light brown to gray, FILL, partial tar-like staining.
15	S4	5.0	3				NLO	(15'- 17') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, ~5% fines; moderate naphthalene-like odor, dark gray to black, FILL, tar saturated.
				>9999			NLO	(17'- 20') WIDELY GRADED GRAVEL WITH SAND (GW); ~95% sand, fine to coarse, ~5% fines; ~60% gravel and concrete fragments, ~5% wood fragments, strong naphthalene-like odor, wet, FILL, tar saturated.
20								

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BORING LOG

PAGE 2 of 2

WWSB-08

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	SOIL / BEDROCK DESCRIPTION
20	S5	4.0	3	9965			CrLO	(20'- 24') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, ~5% fines; slight creosote-like odor, wet, dark gray to black, FILL, wood fragments and fuzzy paper-like material 22.5-23 feet, tar-like coating.
								Refusal at 24.0 feet. Bottom of borehole at 24.0 feet.

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BORING LOG
PAGE 1 of 3
WWSB-09

GROUND SURFACE ELEVATION (FT): 12.28 **LOCATION:** 50 Kent Ave
NORTHING: 688912.53 **EASTING:** 641906.47 **TOTAL DEPTH (FT):** 55.00
DRILLED BY: Boart Longyear / Fred Lavoie **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/25/2009 - 7/13/2009
DRILLING DETAILS: Sonic Coring
WATER LEVEL DEPTHS (FT): ▽ 5.00 7/13/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		2.1				WWSB-09 (2-4)	(0'- 1') WIDELY GRADED SAND WITH GRAVEL (SW); ~55% sand, fine to coarse, ~40% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 3 in., brown, FILL, fragments of coal, brick, and glass, hand cleared. (1'- 2') CONCRETE; FILL. (2'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 1 in., brown, FILL, fragments of brick and coal, hand cleared.
▽ 5	S2	10.0	7.25	2.2			PLO		(5'- 7.3') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% sand, fine to coarse, ~15% gravel, fine to coarse, ~10% fines, non plastic; max. size 2 in., slight petroleum-like odor, brown, FILL, fragments of coal and brick.
							PLO		(7.3'- 8.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to medium, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 3 in., moderate petroleum-like odor, gray brown.
10				1805			NLO		(8.4'- 10.5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% sand, fine to coarse, ~20% gravel, fine to coarse, ~10% fines, non plastic; max. size 3 in., strong naphthalene-like odor, gray brown, tar-like staining.
							NLO	WWSB-09 (11-12)	(10.5'- 11.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown gray, sheen.
							NLO		(11.8'- 15') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown gray.
15	S3	10.0	7.25	644			NLO		(15'- 17.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, low plasticity; moderate naphthalene-like odor, gray.
							NLO		(17.4'- 18.1') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, low plasticity; moderate naphthalene-like odor, gray, sheen, tar-like staining.
							NLO		(18.1'- 19.3') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate naphthalene-like odor, gray brown, sheen,
20									

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BORING LOG

WWSB-09

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20				1297			NLO		tar-like staining. (19.3'- 20.6') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 2 in., slight naphthalene-like odor, brown, sheen. (20.6'- 25') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines, non plastic; max. size 2 in., brown.
25	S4	5.0	3.83	6.8					(25'- 30') WIDELY GRADED SAND WITH CLAY AND GRAVEL (SW-SC); ~80% sand, fine to medium, ~15% gravel, fine to coarse; max. size 1.5 in., gray.
30	S5	5.0	1	0.1					(30'- 32.5') Bolder. (32.5'- 37.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, low plasticity; gray.
35	S6	5.0	4.17	104					(37.8'- 40') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to coarse, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 2.5 in., brown, dense, iron oxide bands.
40	S7	5.0	5	642			NLO		(40'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, brown.

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BORING LOG

PAGE 3 of 3

WWSB-09

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
				592			NLO		
45	S8	10.0	6.5	3159			NLO		(45'- 47.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
							NLO		(47.3'- 51.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, sheen, tar-like staining, lenses of tar-like coating.
50				2435			NLO	WWSB-09 (53-54)	(51.4'- 54') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong naphthalene-like odor, gray brown, sheen, tar-like staining and blebs.
									(54'- 55') SILT (ML); ~80% fines, medium plasticity, ~20% sand, fine; gray.
55									Bottom of borehole at 55.0 feet.

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BORING LOG
PAGE 1 of 3
WWSB-10

GROUND SURFACE ELEVATION (FT): 12.02 **LOCATION:** 50 Kent Ave
NORTHING: 688817.52 **EASTING:** 641755.8 **TOTAL DEPTH (FT):** 55.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 6/25/2009 - 7/14/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 6.10 7/13/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		5.6					(0'- 0.3') CONCRETE. (0.3'- 0.7') ASPHALT. (0.7'- 5') WIDELY GRADED SAND WITH GRAVEL (SW); ~70% sand, fine to coarse, ~25% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 2 in., brown, FILL, coal and brick fragments, hand cleared.
5	S2	5.0	2					WWSB-10 (2-3)	(5'- 7.7') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.5 in., dry, tan, FILL, brick and shale fragments.
▽									
				8623			NLO	WWSB-10 (9-10)	(7.7'- 10') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.5 in., moderate naphthalene-like odor, wet, tan, wood fragments, tar-like staining and blebs, petroleum-like odor.
10	S3	5.0	4.17	3350			NLO		(10'- 11.8') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, ~5% fines; max. size 0.5 in., moderate naphthalene-like odor, tan, sheen, tar-like blebs, petroleum-like odors.
							NLO		(11.8'- 15') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic fines; moderate naphthalene-like odor, wet, brown.
15	S4	5.0	2.58	426			NLO		(15'- 20') SILTY SAND (SM); ~70% sand, ~30% fines, non plastic fines; moderate naphthalene-like odor, wet, brown to gray.
20									

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BORING LOG

WWSB-10

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	4.42	455			NLO		(20'- 23.5') WIDELY GRADED SAND (SW); ~94% sand, fine to medium, ~5% fines, ~1% gravel; slight naphthalene-like odor, wet, brown.
							NLO		(23.5'- 25') SANDY SILT (ML); ~60% fines, ~40% sand, fine to medium; slight naphthalene-like odor, dry, brown.
25	S6	3.0	1.33	0.0			PLO		(25'- 27.4') SILTY SAND (SM); ~70% sand, fine to medium, ~30% fines, non plastic; slight petroleum-like odor, gray.
									(27.4'- 28') possible bolder.
	S7	2.0	2	0.0					(28'- 28.9') possible bolder.
									(28.9'- 29.8') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., brown.
30	S8	5.0	0						(29.8'- 30') possible bolder. (30'- 35') no recovery, bolder plugged sampler.
35	S9	10.0	10	435					(35'- 40') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., brown.
40				173					(40'- 45') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.5 in., brown.

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BORING LOG

WWSB-10

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S10	10.0	7.83				NLO		(45'- 47.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.5 in., moderate naphthalene-like odor, brown.
							NLO		(47.7'- 49') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; strong naphthalene-like odor, brown, tar-like staining and coating.
				9999			NLO		(49'- 51') SANDY SILT (ML); ~60% fines, low plasticity, ~40% sand, fine; moderate naphthalene-like odor, gray.
50				2553			NLO	WWSB-10 (51-52)	(51'- 51.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown.
							NLO		(51.6'- 55') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; slight naphthalene-like odor, reddish gray.
55									Bottom of borehole at 55.0 feet. Geoprobe refusal at 26' with Zebra Environmental, boring completed by Boart Longyear using sonic drilling methods.

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BORING LOG
PAGE 1 of 3
WWSB-11

GROUND SURFACE ELEVATION (FT): 11.12 **LOCATION:** 50 Kent Ave
NORTHING: 688995.13 **EASTING:** 641798.81 **TOTAL DEPTH (FT):** 65.00
DRILLED BY: Boart Longyear / Fred Lavoie **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 6/25/2009 - 7/14/2009
DRILLING DETAILS: Sonic Coring
WATER LEVEL DEPTHS (FT): ▽ 14.00 7/14/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		1.0			WWSB-11 (1-2)	(0'- 0.3') WIDELY GRADED SAND WITH GRAVEL (SW); ~55% sand, fine to coarse, ~40% gravel, fine to coarse, ~5% fines, non plastic; max. size 3 in., brown, FILL, coal, brick, and glass fragments, hand cleared. (0.3'- 1') CONCRETE; FILL. (1'- 5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 1 in., brown, FILL, coal fragments, hand cleared.
5	S2	10.0	4	1.8				(5'- 7.9') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 3 in., reddish brown, FILL. (7.9'- 9.4') FILL, layer of brick.
10				114				(9.4'- 11') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW); ~65% sand, fine to coarse, ~25% gravel, fine to coarse, ~10% fines, non plastic; max. size 2 in., black, wood pieces, odor possibly related to wood preservitive. (11'- 13.3') CONCRETE.
▽						PLO		(13.3'- 15') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, ~25% sand, fine to coarse, ~5% fines, non plastic; max. size 2.5 in., slight petroleum-like odor, wet, gray brown.
15	S3	10.0	6.92	150		NLO		(15'- 16.2') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, brown. (16.2'- 17.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; brown. (16.8'- 20.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to medium, ~10% gravel, fine to coarse, ~10% fines, non plastic; max. size 1 in., gray, layer of wood fragments.
20								

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

WWSB-11

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20				34.9				(20.1'- 21.4') WIDELY GRADED SAND WITH GRAVEL (SW); ~75% sand, fine to medium, ~20% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., gray brown. (21.4'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; light brown.
25	S4	10.0	8.42	0.9		PLO		(25'- 27.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, light brown.
						PLO		(27.3'- 30.3') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, light brown.
30						PLO		(30.3'- 35') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight petroleum-like odor.
35	S5	10.0	8.58	2.5		PLO		(35'- 36.5') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, ~5% fines; slight petroleum-like odor, wet, orange brown.
								(36.5'- 39.4') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, fine to medium, ~10% fines; max. size 2 in., gray with red, dense.
40								(39.4'- 40.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, ~5% fines; wet, orange brown. (40.1'- 42.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; slight naphthalene-like odor, gray brown.
				125		NLO		
						NLO		(42.3'- 52.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; moderate naphthalene-like odor, gray brown.

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BORING LOG
PAGE 3 of 3
WWSB-11

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S6	10.0	8.92					
50				546		NLO	WWSB-11 (50-51)	
						NLO		(52.2'- 55') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight naphthalene-like odor, brown.
55	S7	10.0	8.67	0.2				(55'- 60') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; gray.
60				0.3				(60'- 63.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown.
							WWSB-11 (63-64)	(63.7'- 65') LEAN CLAY (CL); ~90% fines, medium plasticity, ~10% sand, fine; reddish gray.
65								Bottom of borehole at 65.0 feet.

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BORING LOG
PAGE 1 of 3
WWSB-17

GROUND SURFACE ELEVATION (FT): 14.77 **LOCATION:** Kent Ave
NORTHING: 688591.23 **EASTING:** 641925.35 **TOTAL DEPTH (FT):** 48.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 8/12/2009 - 8/13/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 6.00 8/12/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		0.0				WWSB-17 (2-4)	(0'- 0.5') CONCRETE. (0.5'- 5') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; dry, brown, FILL, hand cleared.
5	S2	5.0	4.67	0.0					(5'- 7.3') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; brown, FILL, wet at 6 ft. (7.3'- 8.7') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; wet, gray, FILL, iron oxide mottling. (8.7'- 10') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, subangular, ~5% fines, non plastic; max. size 0.5 in., wet, orange brown to gray, FILL.
10	S3	5.0	5						(10'- 12') NARROWLY GRADED SAND (SP); ~95% sand, fine to medium, ~5% fines, non plastic; dry, brown, FILL. (12'- 16.6') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, subangular, ~5% fines, non plastic; max. size 1 in., wet, brown to gray brown, FILL, lense of cobble from 13.2 to 13.4 ft.
15	S4	2.0	4.25	0.1					
	S4B	3.0	0						(16.6'- 16.8') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, fine to coarse, subangular, ~25% sand, fine to medium, ~5% fines, non plastic; max. size 1.5 in., wet, reddish brown, FILL. (16.8'- 17') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, subangular, ~10% fines, non plastic; max. size 0.5 in., wet, dark gray, FILL. (17'- 20') FILL, no recovery.
20									

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BORING LOG
PAGE 2 of 3
WWSB-17

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	5	4.7					(20'- 20.8') NARROWLY GRADED SAND (SP); ~90% sand, fine to medium, ~5% gravel, fine, subangular, ~5% fines, non plastic; max. size 0.5 in., moist, light brown, FILL. (20.8'- 21.1') WIDELY GRADED GRAVEL WITH SAND (GW); ~75% gravel, fine to coarse, subangular, ~20% sand, fine to coarse, ~5% fines, non plastic; max. size 1.25 in., gray, FILL, possible cobble fragments. (21.1'- 25') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, low plasticity, ~5% gravel, fine, subangular; max. size 0.75 in., moist, dark gray, FILL, cinders, brick, coal fragments.
25	S6	5.0	3.67	1099			NLO		(25'- 28.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown to black, moderate sheen.
							NLO		(28.9'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, brown to black, moderate tar-like staining,.
30	S7	5.0	4.83	8326			NLO		(30'- 33') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, wet, dark brown, sheen, tar-like staining, lenses of tar-like coating.
							NLO	WWSB-17 (32-33)	(33'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, wet, dark brown.
35	S8	5.0	4	8.2			NLO		(35'- 38.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.
									(38.6'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moist, brown.
40	S9	5.0	4.83	166			NLO		(40'- 43.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown.

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BORING LOG

WWSB-17

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
							NLO		(43.4'- 45') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown to reddish brown.
45	S10	3.0	4.75	385			NLO	WWSB-17 (45-46)	(45'- 46.8') SANDY SILT (ML); ~65% fines, low plasticity, slow dilatancy, ~35% sand, fine; slight naphthalene-like odor, wet, grayish brown, lenses of silty sand.
									(46.8'- 48') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; wet, brown, lense of sandy silt from 47.2 to 47.4 ft.
									Refusal at 48.0 feet.
									Bottom of borehole at 48.0 feet.

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BORING LOG
PAGE 1 of 3
WWSB-23

GROUND SURFACE ELEVATION (FT): 12.1 **LOCATION:** 50 Kent Ave
NORTHING: 688786.9 **EASTING:** 641842.33 **TOTAL DEPTH (FT):** 65.00
DRILLED BY: Boart Longyear / Fred Lavoie **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/16/2009 - 7/17/2009
DRILLING DETAILS: Sonic Coring
WATER LEVEL DEPTHS (FT):

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	4.5	4	188			PLO	WWSB-23 (1-4)	(0'- 0.7') CONCRETE. (0.7'- 4.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~70% sand, fine to coarse, ~20% gravel, ~10% fines; ~5% brick and wood fragments, max. size 2 in., slight petroleum-like odor, light brown and brown, FILL, hand cleared.
5	S2	10.0	5.33	1081			PLO		(4.5'- 5') Rock. (5'- 7.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~15% fines, ~5% gravel, subangular; max. size 0.5 in., strong petroleum-like odor, FILL, asphalt fragments.
10							NLO		(7.5'- 13.1') SILTY SAND (SM); ~75% sand, fine to medium, ~20% fines, ~5% gravel, subrounded; max. size 0.5 in., strong naphthalene-like odor, brown to dark gray, slight petroleum-like odor.
15	S3	10.0	2.92	1076			NLO		(13.1'- 23.6') SILTY SAND (SM); ~75% sand, fine to medium, ~20% fines, ~5% gravel, subrounded; max. size 0.5 in., strong naphthalene-like odor, brown to dark gray, lenses of tar-like staining and blebs, slight petroleum-like odor.
20									

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BORING LOG

WWSB-23

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20							NLO		
									(23.6'- 25') SANDY SILT (ML); ~60% fines, ~40% sand, medium to coarse; dark gray, burnt-like odor.
25	S4	10.0	8.58				NLO		(25'- 27.9') SILTY SAND (SM); ~65% sand, fine to medium, ~35% fines; strong naphthalene-like odor, moist, blue and gray, tar-like blebs.
							NLO		(27.9'- 29.3') SILTY SAND (SM); ~85% sand, fine to coarse, ~15% fines; strong naphthalene-like odor, moist, brown to gray, tar-like coating.
30							NLO		(29.3'- 30.3') SILTY SAND (SM); ~80% sand, fine to medium, ~20% fines; strong naphthalene-like odor, tar-like staining, partial tar-like coating.
				452			NLO	WWSB-23 (31-33)	(30.3'- 33.6') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; strong naphthalene-like odor, brown, tar-like coating, partially tar saturated.
							NLO		(33.6'- 35') WIDELY GRADED SAND (SW); ~100% sand, fine to coarse; strong naphthalene-like odor, brown, tar-like stained.
35	S5	15.0	12.5	9259			NLO		(35'- 38.8') SILTY SAND□WELL GRADED GRAVEL WITH SAND□SILTY SAND (SM); ~84% sand, fine, ~15% fines, ~1% gravel; strong naphthalene-like odor, moist, gray, dense, tar saturated seams.
									(38.8'- 39.5') WIDELY GRADED GRAVEL WITH SAND (GW); ~70% gravel, coarse, ~30% sand, fine to coarse; max. size 5 in., tar saturated.
40							NLO		(39.5'- 44.5') SILTY SAND (SM); ~84% sand, fine, ~15% fines, ~1% gravel; strong naphthalene-like odor, moist, gray, dense, tar saturated seams.

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BORING LOG
PAGE 3 of 3
WWSB-23

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45							NLO		(44.5'- 48.2') WIDELY GRADED SAND (SW); ~100% sand; gray, tar-like coating, lenses of tar-like saturation.
							NLO		(48.2'- 50') SILTY SAND□WELL GRADED GRAVEL WITH SAND□SILTY SAND (SM); ~84% sand, fine, ~15% fines, ~1% gravel; strong naphthalene-like odor, moist, gray, dense, tar saturated seams.
50	S6	15.0	10.83						(50'- 54.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; moderate naphthalene-like odor, brown, tar saturated lenses.
							NLO		
55				>9999			NLO		(54.8'- 59.5') SILTY SAND (SW-SM); ~85% sand, fine to coarse, ~15% fines; strong naphthalene-like odor, lense of sand from 59.2 to 59.7 ft.
							NLO		(59.5'- 60.4') WIDELY GRADED SAND (SW); ~100% sand, medium to coarse; strong naphthalene-like odor, wet, brown, sheen.
60							OLO	WWSB-23 (62-63)	(60.4'- 65') LEAN CLAY (CL); ~95% fines, ~5% sand; moderate organic-like odor, wet, red, dense, sand pocket at 61 ft.
65									Bottom of borehole at 65.0 feet.

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BORING LOG
PAGE 1 of 3
WWSB-24

GROUND SURFACE ELEVATION (FT): 12.3 **LOCATION:** 50 Kent Ave
NORTHING: 688883.82 **EASTING:** 641934.45 **TOTAL DEPTH (FT):** 55.00
DRILLED BY: Boart Longyear / Fred Lavoie **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Sarah Hay **DATE START / END:** 7/16/2009 - 7/16/2009
DRILLING DETAILS: Sonic Coring
WATER LEVEL DEPTHS (FT): ▽ 5.00 7/16/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		5.5				WWSB-24 (4-5)	(0'- 0.5') CONCRETE.
							PLO		(0.5'- 5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, angular, ~10% fines, non plastic; max. size 2 in., slight petroleum-like odor, moist, brown, FILL, slight organic-like odor, hand cleared.
▽ 5	S2	10.0	6.5						(5'- 7.6') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, angular to rounded, ~10% fines, non plastic; max. size 2 in., wet, dark gray, FILL, asphalt and brick fragments.
									(7.6'- 12.1') SILTY SAND (SM); ~70% sand, fine to medium, ~25% fines, ~5% gravel, subangular; slight naphthalene-like odor, dark gray to brown, lenses of sand with petroleum-like odor.
10							NLO		
				8959			NLO		(12.1'- 15') SILTY SAND (SM); ~70% sand, fine to medium, ~25% fines, ~5% gravel, subangular; moderate naphthalene-like odor, brown, light tar-like staining, trace tar-like blebs.
15	S3	10.0	8						
				6418			NLO		(15'- 16.7') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, rounded, ~5% fines; max. size 0.25 in., strong naphthalene-like odor, dark gray, shells, tar-like staining, tar-like seam.
									(16.7'- 20.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, angular to rounded, ~10% fines; max. size 2.5 in., light brown to dark brown, tar-like staining and blebs.
20									

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

WWSB-24

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20							NLO		(20.2'- 21.8') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines; moderate naphthalene-like odor, light brown, sheen.
				1326					(21.8'- 25') SANDY SILT (ML); ~60% fines, ~35% sand, fine to medium, ~5% gravel; moist, light brown to orange, dense.
25	S4	10.0	5						(25'- 35') SANDY SILT (ML); ~60% fines, ~35% sand, fine to medium, ~5% gravel; slight naphthalene-like odor, moist, light brown to orange, very dense, likely marine deposited.
30							NLO		
35	S5	10.0	10						(35'- 36.5') WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~75% sand, fine to coarse, ~15% gravel, subrounded, ~10% fines; max. size 1 in., wet, brown, shale fragments, dense.
				>9999				WWSB-24 (38-40)	(36.5'- 37.7') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, subrounded, ~5% fines, non plastic; max. size 1 in., tar-like staining and blebs. (37.7'- 39.5') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, subrounded, ~5% fines, non plastic; max. size 1 in., tar saturated.
40									(39.5'- 40.3') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, subrounded, ~5% fines, non plastic; max. size 1 in., tar-like staining. (40.3'- 42') SANDY ELASTIC SILT (ML); ~70% fines, ~30% sand, fine; slight naphthalene-like odor, gray, dense.
							NLO		(42'- 47.7') SANDY SILT (ML); ~70% fines, ~30% sand, fine to medium; moist, gray, occational sand lenses, slight burnt-like odor.

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BORING LOG

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WWSB-24

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S6	10.0	9.17	31.8			NLO	WWSB-24 (53-55)	(47.7'- 53.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, subangular, ~10% fines; moderate naphthalene-like odor, wet, brown, moderate organic-like odor.
50									(53.4'- 55') LEAN CLAY (CL); ~95% fines, ~5% sand; red, very small sand lenses.
55									Bottom of borehole at 55.0 feet.

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BORING LOG
PAGE 1 of 3
WWSB-25

GROUND SURFACE ELEVATION (FT): 9.67 **LOCATION:** North 12th Street
NORTHING: 689045.29 **EASTING:** 641848.68 **TOTAL DEPTH (FT):** 55.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Kari Weber **DATE START / END:** 7/28/2009 - 7/29/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.60 7/28/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		1.9				WWSB-25 (1-3)	(0'- 5.6') SILTY SAND (SM); ~80% sand, fine to coarse, ~15% fines, ~5% gravel, fine; max. size 0.5 in., dry, brown, FILL, brick and coal fragments, hand cleared to 5 ft.
5 ▽	S2	5.0	5						(5.6'- 7.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
							PLO		(7.5'- 8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
							OLO		(8'- 8.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight organic-like odor, wet, brown.
				1894			PLO		(8.7'- 8.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
							PLO		(8.8'- 9.3') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
10	S3	5.0	0						(9.3'- 9.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate petroleum-like odor, wet, brown, sheen.
									(9.7'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight petroleum-like odor, wet, brown.
									(10'- 15') no recovery.
15	S4	5.0	5	4143			NLO		(15'- 15.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong naphthalene-like odor, wet, brown, seams of tar-like staining, slight petroleum-like odor.
							NLO		(15.5'- 16.6') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown, slight petroleum-like odor.
							OLO		(16.6'- 17.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
							OLO		(17.9'- 18.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight organic-like odor, wet, brown.
20									

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BORING LOG

WWSB-25

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	4.33	586			NLO		(18.1'- 18.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; wet, brown.
							NLO		(18.7'- 19.4') SANDY ORGANIC SOIL (OL); low plasticity, fine to medium; moderate organic-like odor, dark gray.
							NLO		(19.4'- 20') WIDELY GRADED SAND (SW); ~95% sand, ~5% fines, low plasticity; wet, brown.
							NLO		(20'- 21.3') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen, seams of tar and petroleum-like staining, strong petroleum-like odor.
25	S6	5.0	4.75	3197			NLO		(21.3'- 21.6') WIDELY GRADED SAND (SW); ~85% sand, fine to medium, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75 in., moderate naphthalene-like odor, light brown to brown, very dense, sheen, moderate petorleum-like odor.
							NLO		(21.6'- 23.7') WIDELY GRADED SAND (SW); ~85% sand, fine to medium, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75 in., slight naphthalene-like odor, light brown to brown, very dense, slight petroleum-like odor.
							NLO		(23.7'- 25') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown, slight petroleum-like odor.
							NLO		(25'- 25.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, strong petroleum-like odor.
30	S7	5.0	2.33				NLO		(25.9'- 26.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen and tar-like blebs, strong petroleum-like odor.
							NLO		(26.6'- 26.8') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, strong petroleum-like odor.
							NLO		(26.8'- 30') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown.
				>15000			NLO	WWSB-25 (34-35)	(30'- 33.9') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, sheen.
35	S8	5.0	1.67	116.6			NLO		(33.9'- 35') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; strong naphthalene-like odor, wet, brown, heavy tar-like coating.
							NLO		(35'- 40') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown gray.
40	S9	5.0	2.5	180.7			NLO		(40'- 45') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown gray.

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BORING LOG

PAGE 3 of 3

WWSB-25

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
							NLO		
45	S10	5.0	4.17	57.9			NLO		(45'- 48.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, wet, brown gray, lenses of silty sand.
							NLO		(48.6'- 50') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; slight naphthalene-like odor, brown gray, dense.
50	S11	5.0	3.75	76.1			NLO		(50'- 52') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; slight naphthalene-like odor, wet, brown, occational gray sand lenses, slight petorleum-like odor.
								WWSB-25 (52-53)	(52'- 54.1') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.5 in..
									(54.1'- 55') LEAN CLAY (CL); medium plasticity; moist, red and gray.
55									Bottom of borehole at 55.0 feet.

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG
PAGE 1 of 2
WWSB-26

GROUND SURFACE ELEVATION (FT): 10.37 **LOCATION:** North 12th Street
NORTHING: 688964.85 **EASTING:** 641944.61 **TOTAL DEPTH (FT):** 42.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 7/29/2009 - 7/30/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.00 7/29/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0		>15000			PLO	WWSB-26 (1-4)	(0'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate petroleum-like odor, dry, brown, FILL, coal and brick fragments, hand cleared.
▽ 5	S2	5.0	4.25	>15000					(5'- 5.7') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; moist, brown, FILL.
							PLO		(5.7'- 7.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, FILL, black petroleum-like staining.
							PLO		(7.1'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, FILL.
10	S3	5.0	2.58	>15000			PLO	WWSB-26 (12-13)	(10'- 13.4') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, FILL, sheen.
							PLO		(13.4'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; strong petroleum-like odor, brown, FILL.
15	S4	5.0	4.25	44.5			PLO		(15'- 15.9') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight petroleum-like odor, wet, brown, FILL.
							PLO		(15.9'- 17') SILTY SAND (SM); ~85% sand, fine, ~15% fines; moderate petroleum-like odor, wet, gray, FILL.
							PLO		(17'- 18.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines; slight petroleum-like odor, wet, gray brown, FILL.
									(18.7'- 19.5') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75 in., brown, FILL.
20									

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BORING LOG
PAGE 2 of 2
WWSB-26

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	4.58	10223			NLO		(19.5'- 20') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.75 in., brown, FILL, petroleum-like staining.
							NLO		(20'- 21.5') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; strong naphthalene-like odor, wet, brown, FILL, tar-like blebs and lenses of coating.
							NLO		(21.5'- 24.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, ~5% gravel, fine; max. size 0.75 in., moderate naphthalene-like odor, FILL, moderate petroleum-like odors.
							NLO		(24.1'- 24.4') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines; strong naphthalene-like odor, FILL, tar-like coating.
25	S6	5.0	2.92	9853			NLO		(24.4'- 25') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.25 in., slight naphthalene-like odor, FILL, dense, slight petroleum-like odors.
							NLO		(25'- 27.6') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine to coarse, ~5% fines; max. size 1.25 in., strong naphthalene-like odor, wet, brown, FILL, sheen, tar-like blebs and lenses of tar-like coating.
							NLO		(27.6'- 30') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines; max. size 0.75 in., moderate naphthalene-like odor, wet, brown, FILL, petroleum-like odors.
30	S7	5.0	4.92	1083			NLO		(30'- 31.4') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate naphthalene-like odor, brown, FILL, dense, brick fragments, moderate petroleum and burnt-like odor.
							NLO		(31.4'- 35') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., slight naphthalene-like odor, brown, FILL, dense, brick fragments, slight petroleum and burnt-like odor.
35	S8	5.0	4.42	6.5			NLO		(35'- 37') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight naphthalene-like odor, dry, gray brown, dry, very dense.
							PLO		(37'- 40') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight petroleum-like odor, dry, gray brown, dry, very dense, slight burnt-like odor.
40	S9	2.0	3.92	338.2			NLO		(40'- 42') SILTY SAND (SM); ~70% sand, fine to coarse, ~25% fines, ~5% gravel; max. size 0.5 in., strong naphthalene-like odor, brown, dense from 41.1 to 42 ft, pockets and seams of tar coating.
									Refusal at 42.0 feet. Bottom of borehole at 42.0 feet.

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MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG
PAGE 1 of 3
WWSB-27

GROUND SURFACE ELEVATION (FT): 11.09 **LOCATION:** North 12th Street
NORTHING: 688923.46 **EASTING:** 641999.09 **TOTAL DEPTH (FT):** 53.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 8/3/2009 - 8/5/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 1.30 8/3/2009

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0	2.83	84.3				WWSB-27 (4-5)	(0'- 4.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., brown, FILL, dry brick, wet at 1.3 ft, hand cleared.
5	S2	5.0	4.5	958			PLO PLO PLO		(4.7'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., slight petroleum-like odor, wet, brown, FILL, hand cleared. (5'- 6.5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., moderate petroleum-like odor, wet, brown, FILL. (6.5'- 10') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate petroleum-like odor, moist, brown, FILL, dense.
10	S3	5.0	3.08	2045			NLO		(10'- 13.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown, FILL, loose, sheen, moderate petroleum-like odor.
15	S4	5.0	4.42	8.4			NLO PLO PLO	WWSB-27 (14-15)	(13.8'- 15.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, FILL, brick fragments from 15 to 15.9 ft, moderate petroleum-like odor. (15.9'- 17.7') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; brown gray, moderate sweet/fruity-like odor. (17.7'- 18.4') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; greenish gray, moderate sweet/fruity-like odor. (18.4'- 18.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, black,
20									

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BORING LOG
PAGE 2 of 3
WWSB-27

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	4.92	3.6			PLO		odor is sweet/fruity-like. (18.9'- 20') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, brown, odor is sweet/fruity-like. (20'- 23.1') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, medium plasticity; slight petroleum-like odor, light brown, odor is sweet/fruity-like.
							PLO		(23.1'- 23.7') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight petroleum-like odor, brown, dense, odor is sweet/fruity-like. (23.7'- 25') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., brown, dense.
25	S6	5.0	4.83	5.0			PLO		(25'- 25.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, wet, brown, loose, odor is sweet/fruity-like. (25.9'- 30') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., dry, brown, dense, iron oxide staining.
30	S7	5.0	4.92				PLO		(30'- 30.6') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., slight petroleum-like odor, moist, brown, iron oxide staining. (30.6'- 33.5') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 2 in., brown, dry, dense, iron oxide staining.
				17.5			PLO		(33.5'- 35') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., slight petroleum-like odor, moist, brown, odor is sweet/fruity-like.
35	S8	5.0	2.75				PLO		(35'- 38.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight petroleum-like odor, moist, dark brown.
				79.4					(38.6'- 40') WIDELY GRADED SAND WITH GRAVEL (SW); ~80% sand, fine to coarse, ~15% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., brown, dry, dense, iron oxide staining.
40	S9	5.0	3.33	229			NLO		(40'- 49.2') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown, moderate petroleum-like odor.

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BORING LOG

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WWSB-27

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S10	5.0	4.17	407			NLO		
							PLO		(49.2'- 50') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; slight petroleum-like odor, dry, brown.
50	S11	3.0	5	149			NLO		(50'- 50.8') WIDEY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; slight naphthalene-like odor, moist, brown, slight petroleum-like odor.
									(50.8'- 53') SANDY SILT (ML); ~70% fines, low plasticity, ~30% sand, fine; dry, brown.
									Refusal at 53.0 feet.
									Bottom of borehole at 53.0 feet.

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BORING LOG
PAGE 1 of 2
WWSB-28

GROUND SURFACE ELEVATION (FT): 13.13 **LOCATION:** North 11th Street
NORTHING: 688687.48 **EASTING:** 641805.87 **TOTAL DEPTH (FT):** 30.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 8/14/2009 - 8/19/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.00 8/14/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0	S1	5.0	2.25	18.9					(0'- 0.5') CONCRETE.
							OLO	WWSB-28 (3-5)	(0.5'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight organic-like odor, moist, dark gray, FILL, hand cleared.
▽ 5	S2	5.0	2	948			NLO		(5'- 8.8') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to medium, ~10% fines, non plastic, ~5% gravel, fine to coarse, subangular; max. size 1 in., slight naphthalene-like odor, wet, dark gray, FILL.
							NLO		(8.8'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, ~10% fines, non plastic, ~5% gravel; max. size 1 in., moderate naphthalene-like odor, FILL, trace pottery fragments.
10	S3	5.0	3.17	238			NLO		(10'- 11.8') SILTY SAND (SM); ~80% sand, fine to medium, ~15% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., slight naphthalene-like odor, moist, dark gray.
									(11.8'- 14.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moist, gray.
15	S4	5.0	4.67	1633			NLO		(14.7'- 15') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, moist, gray, slight tar-like staining.
							NLO		(15'- 17.5') WIDLEY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight naphthalene-like odor, wet, brown gray.
							NLO		(17.5'- 18.2') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; moderate naphthalene-like odor, wet, brown gray, sheen, moderate tar-like staining and coating.
							NLO		(18.2'- 20') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines, non plastic; slight
20									

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BORING LOG

WWSB-28

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	3.92	>9999			NLO	WWSB-28 (22-23)	naphthalene-like odor, wet, brown. (20'- 22.1') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight naphthalene-like odor, wet, brown, slight tar-like staining.
							NLO		(22.1'- 23.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight naphthalene-like odor, wet, brown, moderate tar-like staining and coating.
							NLO		(23.7'- 25') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to medium, ~10% fines; slight naphthalene-like odor, wet, brown, tar-like staining with blebs and globs.
25	S6	5.0	2.42	384			NLO		(25'- 30') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.75 in., slight naphthalene-like odor, dry, brown, dense.
30									Refusal at 30.0 feet. Bottom of borehole at 30.0 feet. Sample shoe chipped with rock in shoe.

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BORING LOG
PAGE 1 of 2
WWSB-29

GROUND SURFACE ELEVATION (FT): 11.51 **LOCATION:** North 11th Street
NORTHING: 688759.89 **EASTING:** 641715.94 **TOTAL DEPTH (FT):** 28.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 8/18/2009 - 8/19/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.00 8/18/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0									(0'- 2') hand cleared.
	S1	3.0	1.75	101			PLO	WWSB-29 (2-5)	(2'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., slight petroleum-like odor, dry, brown, moist at 2.6 ft, hand cleared.
▽ 5	S2	5.0	0.75	423			NLO		(5'- 10') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight naphthalene-like odor, moist, brown, moderate petroleum-like odor.
10	S3	5.0	4.5	51.4			NLO		(10'- 14.7') WIDELY GRADED SAND WITH SILT (SW-SM); ~85% sand, fine to coarse, ~10% fines, non plastic, ~5% gravel, fine; max. size 0.5 in., slight naphthalene-like odor, wet, gray brown, loose, slight petroleum-like odor.
15	S4	5.0	4.92	1516			NLO NLO NLO NLO		(14.7'- 15') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1.5 in., moderate naphthalene-like odor, moist, brown, tar-like staining, pockets of tar-like coating. (15'- 16.6') WIDELY GRADED SAND (SW); ~95% sand, fine to medium, ~5% fines, non plastic; moderate naphthalene-like odor, moist, brown. (16.6'- 19.6') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., moderate naphthalene-like odor, moist, brown, sheen, pockets of tar-like coating and blebs.
20									(19.6'- 20') WIDELY GRADED SAND (SW); ~90% sand, fine to

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ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

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BORING LOG

PAGE 2 of 2

WWSB-29

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	VISUAL IMPACTS	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	4.92	96.1			NLO	WWSB-29 (20-22)	coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., strong naphthalene-like odor, moist, brown, sheen, pockets of tar-like coating and blebs.
							NLO		(20'- 21.9') WIDELY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., moderate naphthalene-like odor, moist, brown, sheen, tar-like blebs, and pockets of tar-like coating.
25	S6	3.0	1.33	315			NLO		(21.9'- 25') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine to coarse, ~5% fines, non plastic; max. size 1 in., moderate naphthalene-like odor, dry, reddish brown, very dense, sheen.
									(25'- 28') WIDELY GRADED SAND WITH SILT (SW-SM); ~80% sand, fine to coarse, ~10% gravel, fine, ~10% fines, non plastic; max. size 0.5 in., slight naphthalene-like odor, moist, brown, dense.
									Refusal at 28.0 feet. Bottom of borehole at 28.0 feet. Rock in sample shoe.

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BORING LOG
PAGE 1 of 3
WWSB-30

GROUND SURFACE ELEVATION (FT): 10.51 **LOCATION:** North 11th Street
NORTHING: 688819.1 **EASTING:** 641642.48 **TOTAL DEPTH (FT):** 50.00
DRILLED BY: Zebra Environmental / Luke Caballero **DATUM VERT. / HORZ.:** NAVD 88 / NAD83 NY East Zone
LOGGED BY: Maura MacLeod **DATE START / END:** 8/18/2009 - 8/20/2009
DRILLING DETAILS: Geoprobe
WATER LEVEL DEPTHS (FT): ▽ 5.90 8/18/2009

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
0								(0'- 2') Hand cleared.
	S1	3.0	2	562		PLO	WWSB-30 (2-5)	(2'- 5') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate petroleum-like odor, dry, brown, FILL, coal fragments, organics, roots, hand cleared.
5	S2	5.0	3.92	747		PLO	WWSB-30 (7-9)	(5'- 10') WIDELY GRADED SAND WITH SILT (SW-SM); ~90% sand, fine to coarse, ~10% fines, non plastic; moderate petroleum-like odor, dry, brown, FILL, brick and coal fragments, change to wet at 5.9 ft.
10	S3	5.0	0					(10'- 15') no recovery.
15	S4	5.0	5	63.5				(15'- 17.9') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; wet, light brown.
						PLO		(17.9'- 18.7') WIDELY GRADED SAND (SW); ~95% sand, fine to coarse, ~5% fines, non plastic; slight petroleum-like odor, light brown, lenses of silt.
						PLO		(18.7'- 19.4') SILTY SAND (SM); ~85% sand, fine to medium, ~15% fines, non plastic; slight petroleum-like odor, gray.
20						PLO		

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BORING LOG

WWSB-30

DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
20	S5	5.0	4.42	95.7		PLO		(19.4'- 20') WIDELY GRADED SAND (SW); ~85% sand, fine to coarse, ~10% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight petroleum-like odor, light brown. (20'- 22.3') SILTY SAND (SM); ~70% sand, fine to medium, ~20% fines, non plastic, ~10% gravel, fine; max. size 0.75 in., slight petroleum-like odor, wet, gray brown. (22.3'- 23.3') SILTY SAND (SM); ~70% sand, fine to medium, ~20% fines, non plastic, ~10% gravel, fine; max. size 0.75 in., wet, gray brown. (23.3'- 25') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., wet, brown.
25	S6	5.0	2.33	45				(25'- 32.4') WIDELY GRADED SAND (SW); ~90% sand, fine to medium, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.5 in., slight petroleum-like odor, wet, brown.
30	S7	5.0	5			PLO		
				113		PLO		(32.4'- 34.3') WIDEY GRADED SAND (SW); ~90% sand, fine to coarse, ~5% gravel, fine, ~5% fines, non plastic; max. size 0.75 in., slight petroleum-like odor, wet, brown to gray.
35	S8	5.0	4.33					(34.3'- 36.8') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; wet, brown, color change at 35 ft to gray brown.
								(36.8'- 37.9') SILT WITH SAND (ML); ~80% fines, low plasticity, ~20% sand, fine; wet, gray brown, lense of sand from 37.4 to 37.5 ft.
				3.1				(37.9'- 40.9') NARROWLY GRADED SAND (SP); ~95% sand, fine, ~5% fines, non plastic; wet, gray brown.
40	S9	5.0	2.25					
				9.9				(40.9'- 50') LEAN CLAY (CL); ~100% fines, medium plasticity; moist, red gray.

NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC = RECOVERY LENGTH OF SAMPLE
PID = PHOTOIONIZATION DETECTOR READING (JAR HEADSPACE)

ppm = PARTS PER MILLION
IN. = INCHES
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR
PLO = PETROLEUM LIKE ODOR
TLO = TAR LIKE ODOR
CLO = CHEMICAL LIKE ODOR
ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR
OLO = ORGANIC LIKE ODOR
SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

GEI Consultants

GEI Consultants, Inc.
455 Winding Brook Road
Glastonbury, CT 06033
(860) 368-5300

CLIENT: National Grid
PROJECT: Williamsburg MGP RI
CITY/STATE: Brooklyn, New York
GEI PROJECT NUMBER: 093060

BORING LOG

PAGE 3 of 3

WWSB-30

DEPTH FT.	SAMPLE INFO: TYPE and NO.	PEN FT.	REC FT.	PID (ppm)	STRATA	ODOR	ANALYZED SAMPLE ID	SOIL / BEDROCK DESCRIPTION
45	S10	5.0	5	10.1			WWSB-30 (45-50)	
50								Bottom of borehole at 50.0 feet.

NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC = RECOVERY LENGTH OF SAMPLE
PID = PHOTOIONIZATION DETECTOR READING (JAR HEADSPACE)

ppm = PARTS PER MILLION
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NLO = NAPHTHALENE LIKE ODOR
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OLO = ORGANIC LIKE ODOR
SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

ENVIRONMENTAL BORING LOG WILLIAMSBURG.GPJ GEI CONSULTANTS.GDT 12/7/09

nationalgrid

Donald Campbell
Project Manager

September 3, 2010

Mr. Henry Willems
Environmental Engineer
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

RE: Supplemental Remedial Investigation Work Plan
Williamsburg Works Former Manufactured Gas Plant (MGP) Site
Brooklyn, New York
Site No. 224055
Index No. A2-0552-0606

Dear Mr. Willems:

National Grid is submitting the following Supplemental Remedial Investigation (SRI) Work Plan to conduct SRI field activities adjacent to the Williamsburg Works former Manufactured Gas Plant (MGP) site in Brooklyn, New York (Site) which has been modified to meet the requirement in the September 1, 2010 conditional approval letter. National Grid has prepared this work plan in order to further evaluate the extent of dense non-aqueous phase liquid (DNAPL) tar impacts that have migrated off site, to locate the source of petroleum impacts, and to confirm extent of impacts described in the Metcalf & Eddy/AECOM June 2007 Cost to Cure Report. The Site and proposed sample locations are shown in Plate 1.

1.0 SRI SCOPE OF WORK

National Grid and its contractors have completed the Remedial Investigation (RI) sampling activities that were proposed as part of the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH)-approved RI Work Plan and addendums. These documents include the original work plan titled *Remedial Investigation Work Plan Williamsburg Works, Former Manufactured Gas Plan Site, Brooklyn, New York ACO Index No A2-0552-0606, Site # 224055*, dated May 2008 (the approved RI work plan), the 50 Kent Ave Addendum dated February 12, 2009, 35 Kent Ave Addendum dated November 19, 2008, and deeper borings at 50 Kent Ave Addendum dated December 7, 2009. The findings of the RI activities completed to date are provided in a separate deliverable *Draft Remedial Investigation Interim Data Summary, Williamsburg Works Former MGP Site* letter dated July 20, 2010.

Soil borings advanced as part of RI activities encountered tar impacts to the north, west, and south of the Site as deep as 60 feet below ground surface (bgs). All visual evidence of contamination, including site related tar impacts as well as potentially off-site related petroleum impacts were found above a confining clay layer at approximately 60 feet bgs. A previous Metcalf & Eddy/AECOM Cost to Cure Report dated June 2007 provides an extent of impacts figure. In this SRI Work Plan, the installation of soil borings, monitoring wells, and sediment cores are proposed to evaluate the extent of tar impacts in subsurface soil that have migrated off site, to locate the source of petroleum impacts, and to confirm extent of impacts described in the Metcalf & Eddy/AECOM June 2007 Cost to Cure Report (Plate 1).

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The SRI activities will be conducted in accordance with the approved RI work plan, including the Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP), and Field Sampling Plan (FSP). A Community Air Monitoring Plan (CAMP) will be implemented at the Site during intrusive field activities. The remainder of this letter describes the proposed soil borings, sediment cores, and monitoring wells, as well as their analyses.

1.1 Proposed Soil Borings

Eighteen soil borings (WW-SB-43 through WW-SB-55 and WW-MW-18 through WW-MW-22) are proposed at locations adjacent to the Site. The proposed soil boring locations are shown in Plate 1. Table 1 contains sample descriptions, rationale, and analysis. Actual drilling locations will be determined based upon the subsurface utility clearance activities, permanent above ground structures, and property owner requirements. The borings will be installed with a sonic drill rig or hollow stem auger rig in accordance with drilling methods and procedures in the FSP and RI Work Plan. Each boring location will be hand cleared for utilities to 5 feet bgs.

Soil samples will be collected and logged continuously from each boring. Seventeen of the borings will be advanced to the clay layer present at approximately 60 feet bgs. One soil boring (WW-SB-49) will be advanced to approximately 10 feet below the clay layer. If tar is present below the clay layer, the boring will be advanced to 10 feet below the bottom of observed tar or top of bedrock. The borings will be advanced using rotosonic or hollow stem auger techniques.

If DNAPL tar impacts are observed near the top of the clay layer in the proposed deep boring, 7-inch casing will be advanced to the top of clay to isolate the contaminated zone. The 7-inch casing will be seated in a 5-foot-thick column of bentonite slurry placed at the top of clay. The bentonite slurry will be used to mitigate downward migration of the contamination along the walls of the casing. Once the 7-inch casing has been seated in the bentonite, soil sampling will continue below the casing. Six-inch casing will be advanced after collection of each sample to case the borehole below the bottom of the seven-inch casing.

After completing each borehole, the 6-inch casing will be removed incrementally as the boring is grouted. If 7-inch isolation casing is used, once the grout has reached the bottom depth of the 7-inch casing, the 6-inch casing will be completely removed. Grouting will then proceed with incremental removal of the 7-inch casing.

Up to three soil samples per boring will be selected for chemical analysis. One will be collected from the depth interval indicating the greatest apparent degree of contamination from beneath the pavement and road base to approximately 5 feet bgs. A sample will also be collected during boring advancement at the depth interval indicating the greatest degree of impacts. The greatest degree of impacts will be identified by field screening of the borings with a Photoionization Detector (PID), and by visual and olfactory observations. If soils within a particular boring appear un-impacted, then a sample will be collected from the observed groundwater table. A sample will be collected beneath impacts, if present, at the completion of the boring. Each sample will be analyzed for volatile organic compounds (VOCs) by EPA Method 8260B, semivolatile organic compounds (SVOCs) by EPA Method 8270C, target analyte list (TAL) metals by EPA Method 6000/7000 series, and free cyanide by extraction by EPA

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Method 9013A and analysis by microdiffusion in accordance with the RI work plan. One sample within the fill at each location will also be analyzed for herbicides by EPA Method 8151A, pesticides by EPA Method 8081A, and polychlorinated biphenyls (PCBs) by EPA Method 8082. Three samples of the clay layer will also be analyzed for permeability and Atterberg limits. The RI work plan and QAPP detail the quality assurance/quality control (QA/QC) samples that will be collected.

Drilling and sampling equipment will be decontaminated between each sample location as described in the FSP. Soil cuttings and decontamination fluids will be contained within United States Department of Transportation (USDOT) 55-gallon drums and disposed of at a National Grid-approved disposal facility.

1.2 Proposed Monitoring Wells

Five of the proposed soil borings (WW-MW-18 through WW-MW-22) will be completed as permanent monitoring wells. The proposed well locations are shown in Plate 1. Table 1 provides sample description, rationale, and analysis. The wells will be installed using rotosonic methods in accordance with drilling methods and procedures in the FSP and RI Work Plan.

Each proposed monitoring well will be screened in the uppermost portion of the water table aquifer. Each monitoring well will be constructed with an approximate 10-foot length of 2-inch inner diameter (ID) 0.010 inch slotted monitoring well screen and finished with 2-inch ID poly vinyl chloride (PVC) riser pipe to the surface and a 2-foot sump. Each well screen will extend approximately 2 feet above the water table. The annular space between the well screen and borehole wall will be backfilled with chemically inert sand to promote sufficient groundwater flow to the well and to minimize the passage of any fine-grained formational material into the well. A bentonite clay seal will be placed above the sand pack. The remaining annular space will be filled to grade with cement/bentonite grout. Each monitoring well will be fitted with a lockable cap and finished with a flush-mounted curb box secured with cement.

Each newly installed monitoring well will be developed by alternatively surging and pumping until the turbidity is less than 50 nephelometric turbidity units (NTUs) or until a maximum of 10 well volumes of water has been removed. A field turbidity meter will be used to monitor the NTU levels. Well development will be completed in general accordance with the FSP.

Each of the newly installed monitoring wells will be sampled after a minimum of two weeks following completion of well development. Prior to sampling, two synoptic rounds of groundwater level measurements will be recorded for the 16 existing and six newly installed monitoring wells and the established surface water measuring point in the East River; the groundwater will be gauged at both the low and high tidal levels.

The six newly installed monitoring wells will be purged and sampled using low flow groundwater sampling procedures and in accordance with the FSP. Each groundwater sample will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270C, TAL metals by EPA Method 6000/7000 series, herbicides by EPA Method 8151A, pesticides by EPA Method 8081A, PCBs by EPA Method

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8082 and, total cyanide by EPA Method 9012B. The RI work plan and QAPP detail the QA/QC samples that will be collected.

Purge water generated during the installation and sampling of monitoring wells will be collected in 55-gallon USDOT drums or frac tank and will be disposed of at a National Grid-approved disposal facility.

1.3 Proposed Sediment Cores

Ten sediment boring locations (WW-SED-08 through WW-SED-17) are proposed for installation within the East River adjacent to the Site. The proposed sediment boring locations are shown on Plate 1. Table 1 provides sample description, rationale, and analysis. The borings will be installed using a resonant sonic drilling rig that will be staged on a barge or floating drilling platform in accordance with resonant sonic drilling methods and procedures described in the FSP. Resonant sonic methods are proposed because of the depth of the borings. The barge will be equipped with oil absorbent booms and other spill control materials in the event that any oily residue is generated during the sampling process.

Sediment samples will be collected and logged continuously. Cores will be advanced to the top of the clay layer present at approximately 50 feet below the sediment surface. Core locations will be surveyed using Global Positioning System (GPS) equipment and referenced to New York State Plane Coordinate System and North American Vertical Datum (NAVD).

Up to three sediment samples per core location will be selected for chemical analysis. The first sediment sample will be collected from 0 to 6 inches. A sample will also be collected at the depth interval indicating the greatest degree of impacts. The greatest degree of impacts will be identified by field screening of the cores with a PID, and by visual and olfactory observations. If no impacts are observed, analytical samples will be collected from the sediments at the interface of the sediment deposits and the native material. A sample will also be collected beneath the tar impacts, if present, or at the completion of the boring. Drilling and sampling equipment will be decontaminated between each sample location as described in the FSP.

Each sample will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA Method 8270C, TAL metals by EPA Method 6000/7000 series, and free cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion ASTM Method D4282-02]. The sample collected from 0 to 6 inches will also be analyzed for total organic carbon (TOC) by EPA Method 9060, herbicides by EPA Method 8151A, PCBs by EPA Method 8082 and pesticides by EPA Method 8081A. The RI work plan and QAPP detail the quality assurance/quality control (QA/QC) samples that will be collected.

1.4 Survey

The sample locations will be surveyed by a New York State Licensed Land Surveyor. The elevation of each sample location will be determined to ±0.01 foot and will be tied into the Site benchmark. All

locations and elevations will be referenced to the New York State Plane Eastern Zone North American Datum 1983 and North American Vertical Datum 1988.

1.5 Data Validation and Management

The soil and groundwater samples will be analyzed by a NYSDOH environmental lab approval program accredited laboratory. Analytical results will be provided in a New York State Category B data deliverable format. The data will be validated in accordance with New York State Analytical Service Protocols, and a data usability summary report will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any quality control non-compliance issues or limitations on the use of the data.

2.0 REPORT PREPARATION

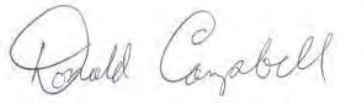
The information collected as part of this SRI will be used to refine the site conceptual model and will be incorporated into the RI report, as described in the Final RI Work Plan.

3.0 SCHEDULE

Field activities can commence following access to private properties and contractor availability. The work is projected to last approximately two months. A schedule will be developed once property access is granted.

If you have any questions or require additional information, please feel free to contact me at (718) 963-5453 or by e-mail at donald.campbell@us.ngrid.com.

Sincerely,



Donald Campbell
Project Manager

Attachments

c: B. Callaghan, NYSDOH (1 Copy)
T. Bell, National Grid
F. Murphy, National Grid
D. Terry, GEI
M. Felter, GEI

MF/ah:H:\WPROC\Project\KEYSPAN\Williamsburg\Remedial Investigation\SRI WP August 2010 to NYSDEC\Final 9-3-2010\Williamsburg SRIWP Sept 2010.docx

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Table 1
Sample Location Rationale
Supplemental Remedial Investigation Work Plan
Former Williamsburg Works MGP Site
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Approximate Completion Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[1]	Herbicides (EPA 8151A)[2]	PCBs (EPA 8082)[2]	Pesticides (EPA 8081A)[2]	TOC (EPA 9060)[3]
				Soil	GW								
Soil Borings and Monitoring Wells													
WW-MW-18	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-46 (within Bayside Fuel Oil Co.) if present. Confirm extent of impacts described in the Metcalf & Eddy/AECOM June 2007 Cost to Cure Report. Evaluate groundwater flow and potential impacts within shallow groundwater zone (water table) north of the Site.	Top of Clay	3	1	X	X	X	X	X	X	X	
WW-MW-19	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Evaluate soil quality downgradient of a former tar tank. Evaluate groundwater flow and potential impacts within shallow groundwater zone (water table) north of the Site.	Top of Clay	3	1	X	X	X	X	X	X	X	
WW-MW-20	Kent Avenue, south of the Site.	Delineate visual impacts southwest of WW-SB-01 (within N 11th Street) where petroleum sheen and staining was encountered from 9 to 16.5 feet. Evaluate groundwater flow and potential impacts within shallow groundwater zone (water table) south of the Site.	Top of Clay	3	1	X	X	X	X	X	X	X	
WW-MW-21	32 North 10th Street, adjacent to North 10th Street, south of the Site.	Delineate visual impacts southwest of WW-SB-28 and WW-SB-29 (within N 11th Street) where tar staining and blebs were encountered between 14.7 and 25 feet. Evaluate groundwater flow and potential impacts within shallow groundwater zone (water table) south of the Site.	Top of Clay	3	1	X	X	X	X	X	X	X	
WW-MW-22	86 Kent Avenue, adjacent to North 10th Street and the East River, south of the Site.	Delineate visual impacts southwest of WW-SB-31 and WW-SB-32 (within N 11th Street) where petroleum sheen and staining, and tar staining were encountered to depths of 17.9 and 22.6 feet. Evaluate groundwater flow and potential impacts within shallow groundwater zone (water table) south of the Site.	Top of Clay	3	1	X	X	X	X	X	X	X	
WW-SB-43	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts north of WW-SB-18 (within Kent Avenue) where petroleum sheen and staining, and tar staining were encountered between 6.9 and 25.7 feet. Confirm extent of impacts described in the Metcalf & Eddy/AECOM June 2007 Cost to Cure Report.	Top of Clay	3	0	X	X	X	X	X	X	X	

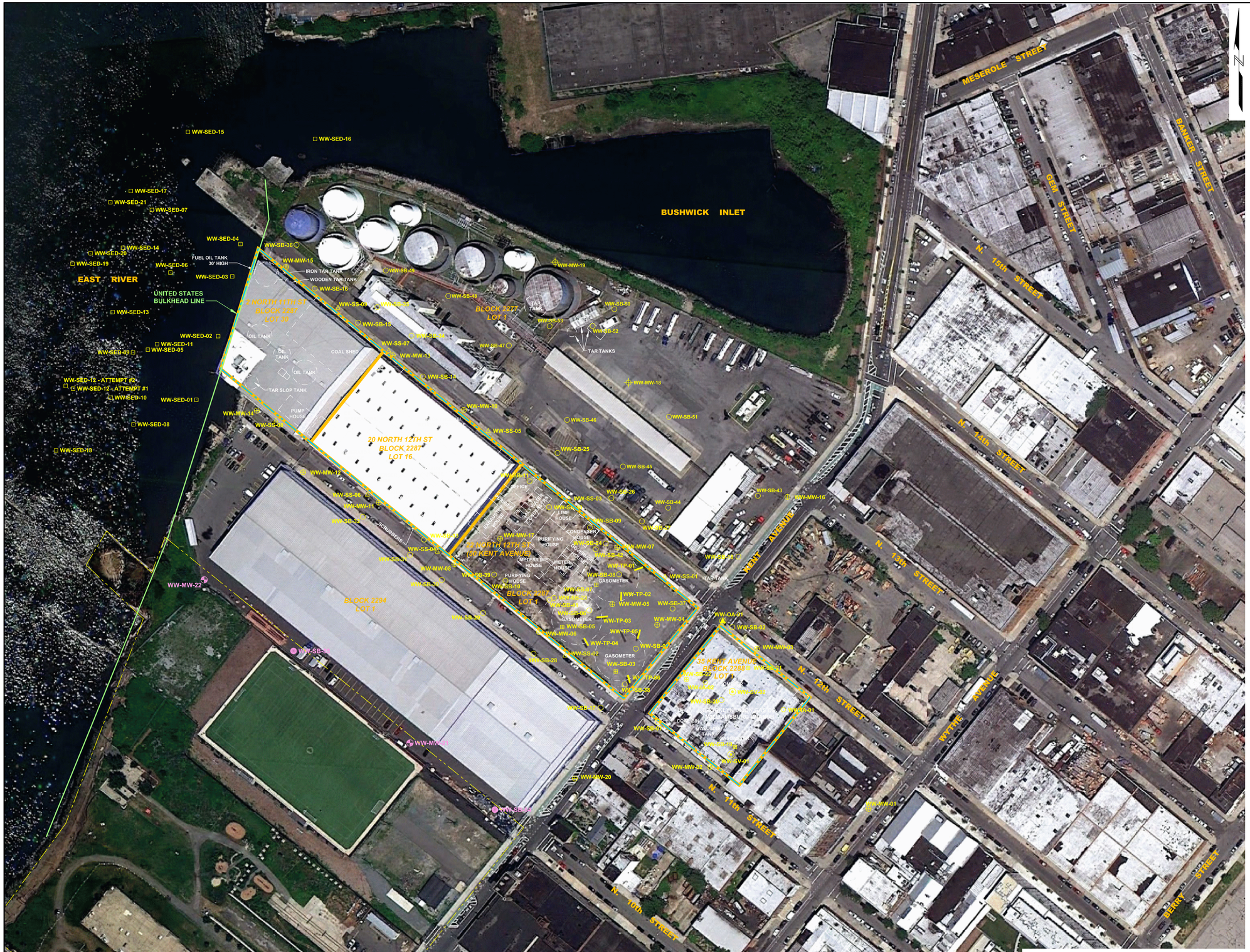
Table 1
Sample Location Rationale
Supplemental Remedial Investigation Work Plan
Former Williamsburg Works MGP Site
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Approximate Completion Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[1]	Herbicides (EPA 8151A)[2]	PCBs (EPA 8082)[2]	Pesticides (EPA 8081A)[2]	TOC (EPA 9060)[3]
				Soil	GW								
WW-SB-44	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-27 (within N 12th Street) where petroleum sheen was encountered from 10 to 13.8 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-45	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-26 (within N 12th Street) where petroleum sheen and staining, and tar blebs were encountered between 10 and 42 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-46	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-25 (within N 12th Street) where petroleum sheen, tar staining and blebs were encountered between 9.5 and 33 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-47	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-MW-10 (within N 12th Street) where tar staining and blebs were encountered from 4 to 12.2 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-48	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-34 (within N 12th Street) where petroleum sheen and staining, and tar blebs were encountered between 5 and 15.6 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-49	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-16 (within N 12th Street) where petroleum sheen and staining, and tar staining and blebs were encountered between 0.6 and 25 feet.	10 Feet Below Bottom of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-50	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Evaluate soil quality downgradient of a former tar tank.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-51	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Delineate visual impacts northeast of WW-SB-45 (within Bayside Fuel Oil Co.) if present. Confirm extent of impacts described in the Metcalf & Eddy/AECOM June 2007 Cost to Cure Report. Evaluate groundwater flow and potential impacts within shallow groundwater zone (water table) north of the Site.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-52	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Evaluate soil quality within a former tar tank.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-53	Within Block 2277 Lot 1 (Bayside Fuel Oil Co.), north of the Site	Evaluate soil quality within a former tar tank.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-54	40 North 10th Street, adjacent to North 10th Street and Kent Avenue, south of the Site.	Delineate visual impacts southwest of WW-SB-17 (within N 11th Street) where tar staining and blebs were encountered from 25 to33 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	
WW-SB-55	Block 2301 Lot 50, adjacent to North 10th Street, south of the Site.	Delineate visual impacts southwest of WW-SB-31 and WW-SB-32 (within N 11th Street) where petroleum sheen and staining and tar staining and blebs were encountered to 17.9 and 22.6 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	

Table 1
Sample Location Rationale
Supplemental Remedial Investigation Work Plan
Former Williamsburg Works MGP Site
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Approximate Completion Depth	Number of Samples		VOCs (EPA 8260B)	SVOCs (EPA 8270C)	TAL Metals (6000/7000)	Cyanide[1]	Herbicides (EPA 8151A)[2]	PCBs (EPA 8082)[2]	Pesticides (EPA 8081A)[2]	TOC (EPA 9060)[3]
				Soil	GW								
Sediment Borings													
WW-SED-08	East River, west of the Site	Delineate visual impacts south of WW-SED-01 where tar staining was encountered between 1.2 and 10 feet. Evaluate sediment quality above the clay layer.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-09	East River, west of the Site	Delineate visual impacts west and downgradient of WW-MW-14 (within N 11th Street) where tar staining and blebs were encountered between 15 and 43.9 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-10	East River, west of the Site	Delineate visual impacts south of WW-SED-05 where petroleum sheen and tar blebs were encountered as deep as 17.3 feet. Evaluate sediment quality above the clay layer.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-11	East River, west of the Site	Delineate visual impacts northwest and downgradient of WW-MW-14 (within N 11th Street) and WW-SED-01 where tar staining and blebs were encountered to 43.9 and 17.3 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-12	East River, west of the Site	Evaluate sediment quality northwest and downgradient of WW-SED-10.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-13	East River, west of the Site	Delineate visual impacts northwest and downgradient of WW-SED-05 where petroleum sheen and tar blebs were encountered as deep as 17.3 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-14	East River, west of the Site	Delineate visual impacts northwest and downgradient of WW-SED-06 where tar coating and saturation were encountered as deep as 10 feet.	Top of Clay	3	0	X	X	X	X	X	X	X	X
WW-SED-15	East River, west of the Site	Evaluate sediment quality northwest and downgradient of the Bayside Fuel Oil Co.	Top of Clay	3	0	X	X	X	X				
WW-SED-16	East River, north of the Site	Evaluate sediment quality above the clay layer.	Top of Clay	3	0	X	X	X	X				
WW-SED-17	East River, west of the Site	Evaluate sediment quality above the clay layer.	Top of Clay	3	0	X	X	X	X	X	X	X	X

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA TO-15 analysis will include VOCs and naphthalene
EPA - Environmental Protection Agency
VOC - volatile organic compounds
SVOC - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
TOC - total organic carbon
1 - Soils will be analyzed by Free Cyanide [extraction by EPA Method 9013A and analysis by Microdiffusion American Society for Testing and Materials (ASTM)], water will b analyzed by Total Cyanide EPA Method 9012B
2 - One soil sample of the fill in each boring will be sampled for PCBs, pesticides, and herbicides
3 - The shallow sediment sample will be sampled for TOC



LEGEND

- APPROXIMATE PARKS PROPERTY BOUNDARY
- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MANUFACTURED GAS PLANT (MGP) SITE
- HISTORIC STRUCTURE

PROPOSED SAMPLES

- WW-MW-20 — PROPOSED SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI) MONITORING WELL LOCATION
- WW-SB-54 — PROPOSED SRI SOIL BORING LOCATION

EXISTING SAMPLES

- WW-MW-05 — REMEDIAL INVESTIGATION (RI) MONITORING WELL LOCATION
- WW-SB-01 — RI SOIL BORING LOCATION
- WW-SB-03 — SOIL BORING WITH TEMPORARY GROUNDWATER SAMPLE LOCATION
- WW-SS-01 — SURFACE SOIL SAMPLE LOCATION
- WW-SV-01 — SOIL VAPOR POINT
- WW-TP-01 — TEST PIT LOCATION
- WW-IA-01 — INDOOR AIR SAMPLE LOCATION
- WW-OA-01 — OUTDOOR AIR SAMPLE LOCATION
- WW-SED-01 — SEDIMENT SAMPLE LOCATION
- WW-MW-19 — SUPPLEMENTAL REMEDIAL INVESTIGATION (SRI) MONITORING WELL LOCATION
- WW-SB-50 — SRI SOIL BORING LOCATION
- WW-SED-08 — SRI SEDIMENT SAMPLE LOCATION

NOTES:

1. THE LOCATION OF WW-SB-35 WAS NOT SURVEYED AND IS APPROXIMATE.
2. SURFACE SOIL SAMPLE LOCATIONS ARE APPROXIMATE.

0 80 160

SCALE, FEET

SOURCES:

1. PHOTOGRAPH OBTAINED FROM GOOGLE EARTH™ ©2009, IMAGE ©2010 DIGITAL GLOBE, ACCESSED ON 10/20/10.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996),
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM http://www.oasisnyc.net, ACCESSED JANUARY 2008.
4. SURVEY OF WILLIAMSBURG WORKS BOUNDARIES, EXISTING CONDITIONS, AND SAMPLE LOCATIONS CONDUCTED BY GEI CONSULTANTS, INC. SURVEYED BY NEW YORK STATE-LICENSED LAND SURVEYOR No. 050146.

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN
WILLIAMSBURG WORKS FORMER MGP SITE
BOROUGH OF BROOKLYN, NEW YORK

nationalgrid

PROJECT 093060-1-1108

GEI Consultants
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CONNECTICUT 06033

SAMPLE LOCATIONS

March 2011 Plate 1

I:\Project\National Grid\Williamsburg\SRI WP\ Williamsburg MGP-Proposed Samples 3-11.dwg \Mar 21, 2011

WORK PLAN CHANGE ORDER / FIELD DECISION
CONSENT FORM

DATE: August 31, 2009
Project: Williamsburg Works Former MGP Site
GEI Project No. 093060-1-1102
Site Location: 50 Kent Avenue, Brooklyn, NY

The following change to the approved Remedial Investigation Work Plan Addendum for the above-referenced project has been agreed to by the signatories listed below.

DESCRIBE IN DETAIL THE CHANGE ORDER / FIELD DECISION AGREED UPON:

Six monitoring wells (WW-MW-10 through WW-MW-15) proposed in the approved May 2008 RI work plan are adjacent to Citistorage properties. Due to adjacent property owner concerns about vibrations caused by hollow stem auger drilling, these monitoring wells will be installed using Geoprobe drilling methods. The monitoring wells will be constructed of an approximate 10-foot length of pre-packed 3.4-inch outer diameter (OD), 2.0-inch inner diameter (ID), 0.010-inch slotted monitoring well screens. Each pre-pack screen will be finished with 2.0-inch ID poly vinyl chloride (PVC) riser pipe to the surface.

Name	Company/Agency	Signature	Date
Donald Campbell	National Grid	Donald Campbell	08-31-2009
Hank Willems	NYSDEC		
Melissa Felter	GEI	Melissa Felter	8-31-2009

WORK PLAN CHANGE ORDER / FIELD DECISION
CONSENT FORM

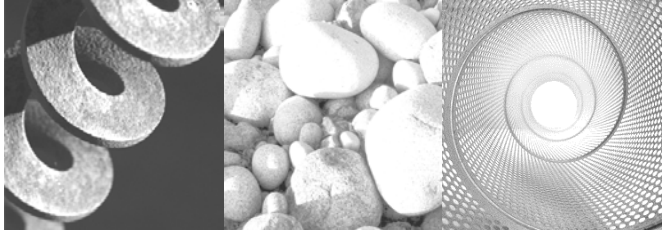
DATE: August 12, 2009
Project: Williamsburg Works Former MGP Site
GEI Project No. 093060-1-1102
Site Location: 50 Kent Avenue, Brooklyn, NY

The following change to the approved Remedial Investigation Work Plan Addendum for the above-referenced project has been agreed to by the signatories listed below.

DESCRIBE IN DETAIL THE CHANGE ORDER / FIELD DECISION AGREED UPON:

As discussed on July 21, 2009 at the Williamsburg Former MGP Site, surface soils will be collected at the locations provided in the approved May 2008 RI work plan. Surface soil locations were adjusted based on the demolition of the Department of Sanitation building as part of the February 2009 work plan addendum. Because the building slab was not removed surface soils cannot be collected at the February 2009 proposed locations. Specifically, WW-SS-03 will be collected at N. 12th Street, WW-SS-04 will be collected at N. 11th Street, and WW-SS-10 through WW-SS-12 will not be collected. Plate 1 shows the proposed surface soil sample locations.

Name	Company/Agency	Signature	Date
Donald Campbell	National Grid	Donald Campbell	08-31-2009
Hank Willems	NYSDEC		
Melissa Felter	GEI	Melissa J Felter	8-31-2009



GEI Consultants

Consulting
Engineers and
Scientists

Remedial Investigation Work Plan Addendum - Parcels 3 and 4 Portion of K - Williamsburg Works Site

Brooklyn, New York
Index # TBD
Site ID: Portion of Site 224055

Prepared for:
National Grid
One MetroTech Center
Brooklyn, New York 11201

Prepared by:
GEI Consultants, Inc., P.C.
455 Winding Brook Drive
Glastonbury, CT 06033
860-368-5300

July 2021
Project 093060-1-1115

Melissa J. Felter, P.G., LEP
Project Manager

Jeff Parillo, P.E.
Sr. Project Engineer

Qualified Environmental Professional's Certification

I, Melissa J. Felter, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Work Plan Addendum was prepared in accordance with applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Date: July 30, 2021

Melissa J. Felter, P.G., LEP
GEI Consultants, Inc., P.C.

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Executive Summary

By way of an Order on Consent (Order), The Brooklyn Union Gas Company d/b/a National Grid NY (National Grid), while preserving its rights to seek reimbursement from any responsible parties, has agreed to complete delineation of the nature and extent of the contamination at, and emanating from the K - Williamsburg Works site, site #224055 in Brooklyn, Kings County, New York (the Site). Pursuant to that Order, National Grid has further agreed to implement this Remedial Investigation Work Plan Addendum (Work Plan Addendum), attached to the Order as Exhibit B, in accordance with the Work Plan Addendum's schedule.

A remedial investigation (RI) was previously performed (2009-2012 RI) in accordance with the RI Work Plan dated May 2008, and a RI Report was submitted to the NYSDEC in January 2015 (2015 RI Report). For ease of discussion, the 2015 RI Report the RI study area was divided into six parcels identified as Parcels 1 through 6 as shown in the table below and in Figure 2.

Parcel ID	Address	Current Owner	Block	Lot
Within Former Williamsburg Works MGP Footprint (*i.e.*, Within the Site)				
Parcel 1	35 Kent Avenue Brooklyn, NY	North 12th Associates	2288	1
Parcel 2	50 Kent Avenue, Brooklyn, NY	NYC Department of Parks and Recreation	2287	1
Parcel 3	20 North 12th Street Brooklyn, NY	NYC Department of Parks and Recreation	2287	16
Parcel 4	2 North 12th Street Brooklyn, NY	NYC Department of Parks and Recreation	2287	30
Outside Former Williamsburg Works MGP Footprint (*i.e.*, Outside the Site)				
Parcel 5	16 North 11th Street Brooklyn, NY	NYC Department of Parks and Recreation	2294	1
	33 North 10th Street Brooklyn, NY	NYC Department of Parks and Recreation	2294	5
Parcel 6	26 North 12th Street Brooklyn, NY	NYC Department of Parks and Recreation	2277	1
Source: New York City Oasis Map http://www.oasisnyc.net/map.aspx accessed 12/10/2020				

This work plan is an addendum to the 2008 RI Work Plan and includes Parcels 3 and 4 and adjacent street rights-of-way (the Investigation Area). This Work Plan Addendum has been prepared by GEI Consultants, Inc. (GEI), on behalf of National Grid, and in general accordance with the New York State Department of Environmental Conservation (NYSDEC) *DER-10 Technical Guidance for Site Characterization and Remedial Investigation,* dated May 2010.

The Site is adjacent to property located at 26th North 12th Street and at 16 North 11th Street, where a large-scale oil refining and storage facility (Pratt Works) was operated on Blocks 2277 and 2294, respectively, by Standard Oil and its predecessors (now collectively ExxonMobil)

from the 1860s until 1949, generally contemporaneous with the operation of the Williamsburg Works. Both the Williamsburg Works and ExxonMobil operations, as well as onsite and adjacent operations by Bayside Fuel Oil Depot Co, Motiva Enterprises LLC., Buckeye Partners, L.P., Sunoco, Inc., and Chevron U.S.A. Inc. (ChevTex), included the storage and use of petroleum and petroleum products. Parcels 3 and 4 are currently vacant and comprise a portion of one of five blocks that have been or will be redeveloped by the New York City Department of Parks and Recreation (NYCDPR) as part of Bushwick Inlet Park.

In this Work Plan Addendum, the installation of soil borings, monitoring wells, soil vapor points, and test pits, to evaluate the nature and extent of impacts in subsurface soil and groundwater at the Investigation Area, is described. National Grid reserves the right to amend/add to this Work Plan Addendum scope to incorporate and or consider sampling data from the ExxonMobil and NYC site characterization. Data generated during this Work Plan Addendum investigation will be used to evaluate the nature and extent of impacts and update the conceptual site model (CSM) and will be incorporated into the 2015 RI Report, including tables and figures, to create a RI report that is comprehensive for at least Parcels 2, 3, and 4. An Alternatives Analysis (AA) that develops, evaluates, and recommends a remedy to address MGP wastes for the Site, or at least the administrative portion of the Site that includes Parcels 2, 3 and 4, will be prepared and submitted to NYSDEC within 60 days following their approval of the Final RI Report.

1. Introduction

By way of an Order on Consent (Order), The Brooklyn Union Gas Company d/b/a National Grid NY (National Grid), while preserving its rights to seek reimbursement from any responsible parties, has agreed to complete delineation of the nature and extent of the contamination at, and emanating from the K - Williamsburg Works site, site #224055 which is approximately 5.5 acres in area and consists of the following properties located in Brooklyn, Kings County, New York (the Site).

Tax Map/Parcel No.	**Address**
Block 2287 Lot 1	50 Kent Avenue (aka 41 North 11th Street), Brooklyn, NY
Block 2287, Lot 16	20 North 12th Street, Brooklyn, NY
Block 2287, Lot 30	2 North 12th Street, Brooklyn, NY
Block 2288, Lot 1	35 Kent Avenue, Brooklyn, NY

The Site location is shown in Figure 1. Pursuant to the Order, National Grid has further agreed to implement this Remedial Investigation Work Plan Addendum (Work Plan Addendum), attached to the Order as Exhibit B, in accordance with the Work Plan Addendum's schedule. This Work Plan Addendum is an addendum to the *Remedial Investigation Work Plan, Williamsburg Works Former Manufactured Gas Plant, Brooklyn, New York* dated May 2008.

In February 2007, prior to the execution of the Order, National Grid entered into Order on Consent and Administrative Settlement, Index # A2-0552-0606, with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate Manufactured Gas Plant (MGP) wastes associated with several sites in Kings, Queens, Nassau, and Suffolk counties, New York (the Multi-Site Order). The former Williamsburg Works was added to the Multi-Site Order in August of 2007. In November 2016, National Grid exercised its unilateral right to terminate the Williamsburg Works site from the Multi-Site Order. NYSDEC disputed the termination. In November 2017, a stipulation and order of settlement and discontinuance resolved the disputed termination in favor of National Grid. *See* The Brooklyn Union Gas Company v. New York State Department of Environmental Conservation, Supreme Court of the State of New York, County of Albany, Index No. 903754-17.

While the Site was under the Multi-Site Order, a remedial investigation (RI) was performed (2009-2012 RI), and a RI Report was submitted to NYSDEC in January 2015 (2015 RI Report).

For ease of discussion, the 2015 RI Report the RI study area was divided into six parcels identified as Parcels 1 through 6 as shown in the table below and in Figure 2.

Parcel ID	Address	Current Owner	Block	Lot
Within Former Williamsburg Works MGP Footprint (*i.e.*, Within the Site)				
Parcel 1	35 Kent Avenue Brooklyn, NY	North 12th Associates	2288	1
Parcel 2	50 Kent Avenue, Brooklyn, NY	NYC Department of Parks and Recreation	2287	1
Parcel 3	20 North 12th Street Brooklyn, NY	NYC Department of Parks and Recreation	2287	16
Parcel 4	2 North 12th Street Brooklyn, NY	NYC Department of Parks and Recreation	2287	30
Outside Former Williamsburg Works MGP Footprint (*i.e.*, Outside the Site)				
Parcel 5	16 North 11th Street Brooklyn, NY	NYC Department of Parks and Recreation	2294	1
	33 North 10th Street Brooklyn, NY	NYC Department of Parks and Recreation	2294	5
Parcel 6	26 North 12th Street Brooklyn, NY	NYC Department of Parks and Recreation	2277	1
Source: New York City Oasis Map http://www.oasisnyc.net/map.aspx accessed 12/10/2020				

The Site is adjacent to property located at 26th North 12th Street and at 16 North 11th Street, where a large-scale oil refining and storage facility (Pratt Works) was operated on Blocks 2277 and 2294, respectively, by Standard Oil and its predecessors (now collectively ExxonMobil) from the 1860s until 1949, generally contemporaneous with the operation of the Williamsburg Works. Both the Williamsburg Works and ExxonMobil operations as well as on-site and adjacent operations by Bayside Fuel Oil Depot Co; Motiva Enterprises LLC.; Buckeye Partners, L.P.; Sunoco, Inc.; and Paragon Oil, Inc. and Texaco Inc., and Chevron U.S.A. Inc. (collectively ChevTex) included the storage and use of petroleum and petroleum products.

In this Work Plan Addendum, the installation of soil borings, monitoring wells, soil vapor points, and test pits is proposed to evaluate the nature and extent of impacts in subsurface soil and groundwater at Parcels 3 and 4 and adjacent street rights-of-way (the Investigation Area). Plate 1 shows the Investigation Area and proposed investigations; sample locations from prior investigations, including the 2009-2012 RI, are shown in Plate 2. Data generated during this Work Plan Addendum investigation will be used to evaluate the nature and extent of impacts and to update the 2015 RI Report, including the conceptual site model, with respect to the Investigation Area.

Parcels 3 and 4, currently vacant, were most recently used for document storage and, in addition to gas manufacture, were previously used for a railroad terminal (ChevTex), for lumber storage (Bridge Lumber Co.), and for parking (ChevTex). They comprise a portion of one of five blocks that have been or will be redeveloped by the New York City Department of Parks and Recreation

(NYCDPR) as part of Bushwick Inlet Park. Located on Lots 16 and 30 of Block 2287, Parcels 3 and 4 occupy 2.75 acres of park land.

This Work Plan Addendum has been prepared by GEI Consultants, Inc. (GEI), on behalf of National Grid, and in general accordance with the NYSDEC *DER-10 Technical Guidance for Site Characterization and Remedial Investigation,* dated May 2010. As such, this Work Plan Addendum includes an Investigation Area description and summary of history relevant to this Work Plan Addendum (Section 2) and a scope of work (Section 3). The Health and Safety Plan (HASP), Community Air-Monitoring Plan (CAMP), Field Sampling Plan (FSP), and Quality Assurance Project Plan (QAPP) have been updated in this Addendum to incorporate new information and changes to policy and industry practice since 2008 (*e.g.*, 2010 version of DER-10) and are provided as Appendices A through D, respectively. Historical documents are provided in Appendix E. National Grid reserves the right to amend/add to this Work Plan Addendum to incorporate and or consider recent sampling data from Block 2277.

2. Investigation Area Background

Parcels 3 and 4 are bordered by the East River to the west; North 11th and North 12th Streets to the south and north, respectively; and 41 N. 11th Street (aka 50 Kent Avenue) to the east. Parcel 1 is entirely covered by an occupied building. There are currently no buildings at Parcels 2, 3 and 4. The Investigation Area is located within a dense urban area of mixed commercial, industrial, and residential land use. Blocks 2277 and 2294, located adjacent to the Site footprint to the north and south, have a long history of industrial activity by ExxonMobil; Bayside Fuel Oil Depot Co.; Motiva Enterprises LLC.; Buckeye Partners, L.P.; Sunoco, Inc.; and ChevTex including oil refining, storage, and distribution. In addition to being part of the Williamsburg Works, 41 N. 11th Street, Parcel 2, has been used for sheet metal manufacturing and a New York City Department of Sanitation garage.

2.1 History

The history of the former Williamsburg Works, the ExxonMobil refinery, and the surrounding area has been developed through the review of selected historical maps, photographs, historic drawings from The Brooklyn Union Gas Company (BUG), available Ordnance Department of the War Department files, available Sanborn Fire Insurance (Sanborn) maps, historic periodicals, books, and information presented in previous reports. These documents are provided in Appendix E. Historic structures for 1887, 1905, 1916, and 1978 are shown in Figures 3 through 6. The Site and surrounding area history relevant to this Work Plan Addendum is summarized below. This history focuses on the similarity of contaminants of concern from the Williamsburg Works and other on-site and nearby operations. An in-depth history for the Williamsburg Works and surrounding area can be found in the *Construction Completion Report, 50 Kent Avenue Property Holder Area, Portion of NYSDEC Site Number 224055 and Brooklyn North 1 Garage, NYSDEC Site Number 224028, Brooklyn, Kings County, New York* dated March 2018.

2.1.1 Pre-Operational History

The Plan of the City of New York 1776map, surveyed in 1766 and 1767 depicted the former marsh and shorelines surrounding the Site and Bushwick Creek (Appendix E). According to this map, the Creek extended to the east along North 14th and North 15th Streets with the shoreline recessed to First Avenue (now Kent Avenue). As such, Parcels 3 and 4 were submerged.

An 1844 navigation map of the East River depicted a similar configuration of the historic shoreline and depth of water, over what was later developed into Parcels 3 and 4. Sometime between 1849 and 1855, approximately 20 feet of filling above the original sediment surface extended the land area westward into the East River (Colton, 1849 and Dripps, 1855). An 1868 insurance map shows the property to the north, Parcel 6, filled and reshaped, indicating that prior

to 1868, Bushwick Creek was filled and reshaped into what is now Bushwick Inlet. A basin at the end of North 12th Street was filled in between 1887 and 1898.

2.1.2 MGP Operational History

The Williamsburg Gas Light Company was the first known operator of the Williamsburg Works. It was incorporated in 1850 but as of 1851 had not started operations (Murphy, 1995). The Williamsburg Works was first shown on the 1868 Sanborn map. At that time, gas was produced using a coal carbonization process. On the 1868 Sanborn map, gas production facilities included a retort house, coal shed, and coal tar tank. The 1887 Sanborn map shows two exhauster houses, a generator house, condenser house, and multiple tanks. Gas storage and purification facilities included two tar tanks on the 1887 Sanborn map. In the 1800s it also appears that the MGP gas feedstock switched from coal to coal and naphtha, the latter supplied by ExxonMobil (Progressive Age, 1893). The old Loomis House shown on the 1908 BUG drawing is also evidence of the conversion to petroleum feed stock.

According to the 1905 Sanborn map, iron tanks, a pump house, a circular gas tank, a generator house, a condenser house, exhauster houses, purifying houses, blacksmith shop, and pipe shop had been added.

A 1908 BUG drawing shows an excavation plan for a pump house, settling tank, and oil separator to be built on the south-western portion of Parcels 3 and 4. Two pipelines, one labeled Oil Conduit and the other labeled Pratt Oil Conduit, are shown on Parcel 4. Based on its name and on the orientation of the Pratt Oil Conduit crossing the Site in the 1908 figure, it appears to connect to operations on Block 2277 as shown in Figure 4. The other conduit, based on its name and orientation, appears to connect the ExxonMobil operations to the Williamsburg Works by oil lines in N. 12th Street shown on a 1912 New York City drawing (Figures 4 through 6 and Plate 1).

By 1916, the Sanborn indicates the former Williamsburg Works continued carbureted water gas production as evidenced by the addition of generators and conversion of the retort house to a generator house. A pump house and oil separator, similar to those shown in the 1908 BUG drawing, as well as two additional oil tanks and a tar slop tank are also shown.

During World War I the United States government, acting through the Ordnance Department of the War Department, constructed a toluol manufacturing plant within and adjacent to the Williamsburg Works property. These operations occurred on at least Parcel 3 (BUG, 1921). The toluol plant began operations on October 8, 1918 and was discontinued 45 days thereafter, on November 21, 1918. The toluol plant was rated to scrub 16,000 million cubic feet of water gas per day. The estimated annual pure toluol production was 407,000 gallons, however, given the short period of operation actual production was 39,829 gallons.

In addition to toluol, other petroleum distillates were produced, as reported by the Ordnance Department, including light oil, crude benzol, crude toluol, and solvent naphtha.

During the period from 1932 to 1937, ExxonMobil refinery infrastructure, in the form of steam lines connecting Block 2277 to Block 2294, was installed over and across North 12th Street and North 11th Street and through the Williamsburg Works (City of New York, 1932, Plate 1). Removal of the steam lines from North 11th and North 12th Streets, in 1937, approximately coincides with the cessation of operations and demolition of The Williamsburg Works, after 1935 (City of New York, 1938).

The Williamsburg Works ceased operation and the structures were dismantled prior to 1941, as evidenced by the vacant lots shown in the 1941 Sanborn Map.

2.1.3 Post-MGP Operational History

Subsequent to dismantlement, the former Williamsburg Works property was subdivided and redeveloped for commercial, industrial and manufacturing uses. A brief history of the post-works use was developed from available BUG and Sanborn maps and is presented below by parcel (Appendix E).

United States Navy leased Parcels 3 and 4 beginning on July 1, 1945, with permission to stay until June 30, 1946, or six months after the end of the war. The use and activity, if any, by the United States Navy is unknown. Other subsequent operators and operations are described below:

- Parcel 3: The property was sold by The Brooklyn Union Gas Company to Havemeyer and Elder Inc. on January 31, 1947. Brooklyn Eastern District Terminal purchased the property September 8, 1948. ChevTex purchased the property from the Brooklyn Eastern District Terminal on August 14, 1958. The 1965 Sanborn depicts two railroad spurs, a repair shop, office, scale, and scrap metal storage on the property. By 1978, the property and buildings were vacant except for the office. ChevTex sold the property to Bridge Lumber Co. Inc. on May 24, 1982 which then sold the property to the New York City Industrial Development Agency on October 5, 1982. By 1983, as shown on the Sanborn map, the buildings had been demolished, and the property was used for parking. On March 26, 1987 the property was repurchased by the Bridge Lumber Co. Inc. which sold it to the R.A.R Realty Corp. on the same day. A warehouse building was constructed by 1986 and used for lumber storage from 1988 until 1995, according to Sanborn maps. On September 23, 1991, the property was purchased by The City of New York. On June 29, 1995, the property was purchased by Citipostal, Inc. On December 12, 2001, the property was purchased by 10th Street, LLC. On October 7, 2004 the property was purchased by New 10th Street LLC. CitiStorage used the building for document storage until January 31, 2015 when a fire destroyed the building. The remainder of the building was

demolished, and the parcel is currently vacant. On April 26, 2017, the property was repurchased by The City of New York.

- Block 2287 Parcel 4: According to a title search, the property was sold from the Brooklyn Union Gas Company to Havemeyer and Elder Inc. on January 31, 1947. Havemeyer & Elder purchased multiple properties along the East River to expand their railroad terminal, the Brooklyn Eastern District Terminal. The 1965 Sanborn figure depicted three railroad spurs extending into the property from the west. Brooklyn Eastern District Terminal sold the property to ChevTex on August 14, 1958. Sanborn maps depict oil truck parking operations occurred from at least 1978 until 1982. ChevTex sold the property to The Bridge Lumber Company Inc. on May 24, 1982. On March 26, 1987 the property was repurchased by the Bridge Lumber Co. Inc. which sold it to the R.A.R Realty Corp. on the same day. The property was used for lumber storage from at least 1988 until at least 1996, according to Sanborn maps and aerial photographs. On September 23, 1991, the property was purchased by The City of New York. On June 29, 1995, the property was purchased by Citipostal, Inc. The building on Parcel 3 was extended to Parcel 4 sometime after 1996. On December 12, 2001, the property was purchased by 10th Street, LLC. On October 7, 2004 the property was purchased by New 10th Street LLC. CitiStorage used the building for offices and document storage until January 31, 2015 when a fire destroyed the building. The remainder of the building was demolished, and the parcel is currently vacant. On April 26, 2017, the property was repurchased by The City of New York.

2.1.4 Surrounding Parcel Histories

The history of the properties surrounding Parcels 3 and 4 is important to understanding the environment at the Site. A brief history of the surrounding area was developed through the review of selected historical maps, photographs, historic drawings from BUG, available Sanborn maps, and information presented in previous reports.

Parcel 2

The parcel east of Parcel 3 was also occupied by the Williamsburg Works. Gas storage and purification facilities included three gas holders, a governor house, a purifying house, and scrubbers on the 1868 and 1887 Sanborn maps. Gas storage in holders continued on this parcel until after 1935.

During World War I the United States government, acting through the Ordnance Department of the War Department, constructed a toluol manufacturing plant within the Williamsburg Works property, including operations on this parcel. A survey made for Chemical Equipment Corporation dated September 10th, 1920 showed a tank and 3-story iron structure near the corner of N. 12th Street and Kent Avenue.

Gas production gradually decreased between 1932 and 1937 as production increased elsewhere. Operations ceased after 1935 and the structures were dismantled prior to 1941. Subsequent to dismantlement, the former Williamsburg Works property was subdivided and redeveloped for commercial, industrial and manufacturing uses.

BUG sold the property to Kent Industrial Corp. on July 22, 1946. A warehouse/industrial building was constructed by 1951 and was occupied by the Ferro-Co. Corp. for sheet metal product manufacturing. By 1965, the building was occupied by Commercial Corrugated Container Corp. On December 12, 1952, Kent Industrial Corp. sold Parcel 2 to Kenneth Carroad. On June 2, 1971, the property was sold to American Sandfill and Marine Corp. On December 31, 1986, the property was sold to The Carroad Family Partners. On May 8, 1989, the property was sold to Fifty Kent Avenue Associates, LP. By 1978, the property was leased by a New York City Department of Sanitation garage, which occupied the property until February 2009 when the building was demolished (GEI, 2015). New York City acquired the property by condemnation in 2007. An Interim Remedial Measure (IRM) was completed on this property from November 2015 until June 2017. Dense nonaqueous phase liquid (DNAPL) recovery wells were installed in 2014 and DNAPL recovery is ongoing. The property has no building and is currently a New York City park.

Additional information on Parcel 2 can be found in the *Construction Completion Report, 50 Kent Avenue Property Holder Area, Portion of NYSDEC Site Number 224055 and Brooklyn North 1 Garage, NYSDEC Site Number 224028, Brooklyn, Kings County, New York* dated March 2018.

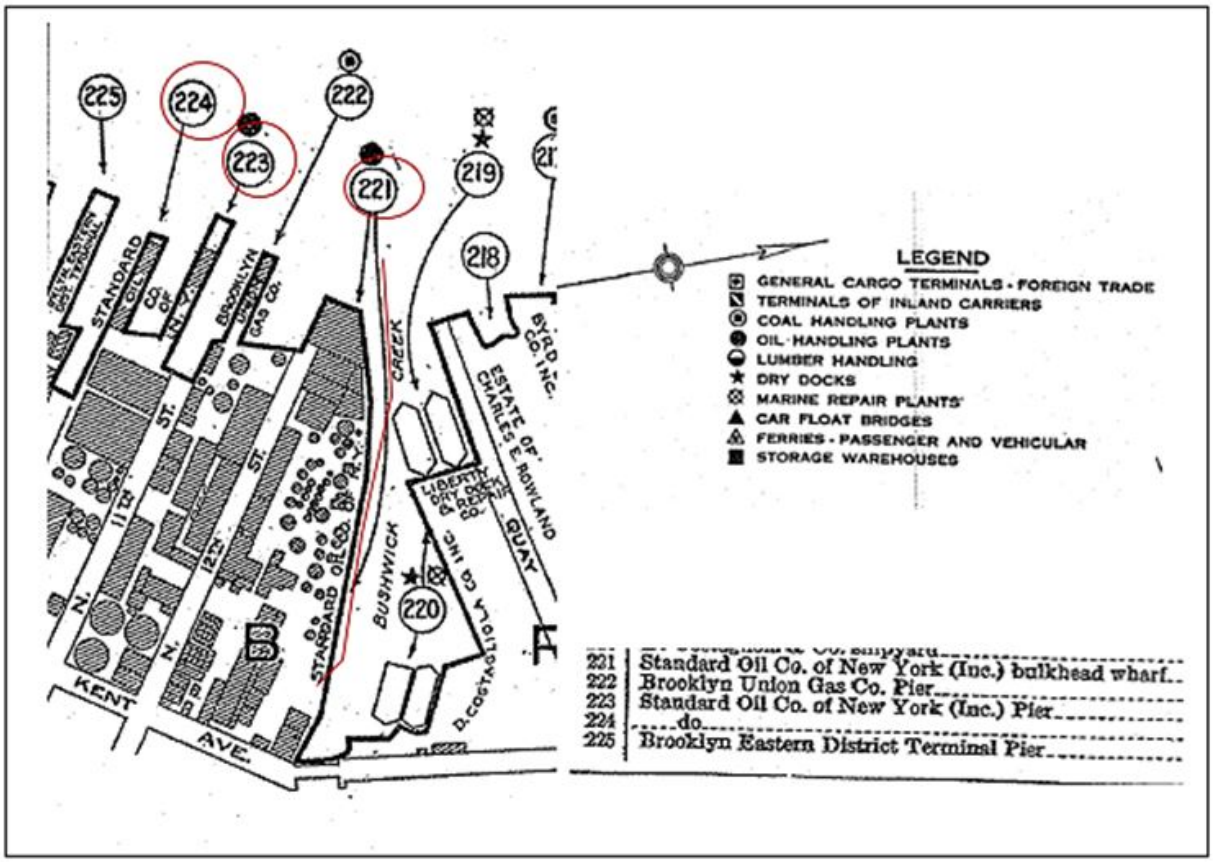
Parcel 5

The block south of the Site contained historic manufacturing and oil operations. 1868 Sanborn that shows C. Pratt & Co. Oil works onsite, with Lot 1 labeled “Oil Packing”. Multiple large tanks for refined oil storage and a filling house are depicted on the 1884 Sanborn map. Pratt Manufacturing occupied the property by at least 1887 (Sanborn map), with the exception of a row of residential buildings along Kent Avenue. A large section in the center of the property noted the storage of oil in barrels.

On the 1905 Sanborn map, the eastern portion of the property contains 11 tanks marked as refined oil storage ranging from 375 to 14,000 petroleum barrels (BBLS) and one unmarked iron tank. The Pratt Works portion of the property notes barrel storage, filling, and shipping, as well as barrel printing and storage. The 1916 Sanborn maps shows the unmarked iron tank have been removed and four more oil storage tanks are present. The storage capacity of the largest oil tank is 843,000 BBLS.

A 1932 Army Corps of Engineers report indicates that Standard Oil Co. of New York (Inc.) (now ExxonMobil) operated two piers for the receipt of petroleum products and drums/barrels on the East River (north of 10th St and south of 11th St) and a bulkhead wharf on Bushwick Creek and

East River associated with Pratt's 13th St plant operations, as shown in the in-text figure below. These were likely the loading locations for millions of gallons of oil per year.



1932 COE Port of New York: Standard Oil Pier and Wharf Locations

In 1937, ExxonMobil sold the property to Havermeyers and Elder, Inc. In 1938, Havermeyers and Elder, Inc. sold the property to the Brooklyn Eastern Terminal District. The 1941 Sanborn indicates the property was occupied by the Brooklyn Eastern District Terminal as a rail-marine terminal. The property was used primarily for bulk flour storage. One chemical storage building is depicted to the southwest of the property along North 10th Street.

By 1982, the Sanborn map shows additional railroad lines and spurs through the northern portion of the property into the former Williamsburg Works property. In 1987, the property was sold multiple times: from the Brooklyn Eastern District Terminal to NYD Properties, Inc., then to Oliver Carey, and then to Kent Terminal Corp. A warehouse was constructed on the property in the 1990s and has been since used by CitiStorage and Recall for document storage. USA Waste Services of NYC, Inc. bought the property in 1998. Jallco LLC and then Citipostal Inc. bought the property in 2000. 10th Street LLC bought the property in 2002. New 10th Street LLC bought the property in 2005. In April 2017, New York City acquired the property for its incorporation into Bushwick Inlet Park.

Parcel 6

The property north of the Site has also been used for manufacturing, as a refinery for various petroleum products including kerosene, gasoline, and naphtha, and as an oil terminal. Until recently, the property was used as an oil storage facility. This property has been operated by ExxonMobil, Bayside Fuel Oil Depot Co: Motiva Enterprises LLC.; Buckeye Partners, L.P.; Sunoco, Inc.; and Paragon Oil, Inc. and Texaco Inc., and Chevron U.S.A. Inc. (collectively ChevTex).

Charles Pratt and Company began operations at the Astral Oil Works (later known as Pratt Works), a kerosene refinery, in 1867 (Wilson, 1918). The refinery was located between N. 12th Street, 1st Avenue (now Kent Avenue), the East River and Bushwick Inlet (Explosion, 1880). Around 1875, barges delivered feedstock oil to the plant where it was pumped through pipes and into receiving tanks. The oil was then distilled leaving a solid residue byproduct (Forbes, 1959). By 1872, the plant was rated at a capacity of 1,500 barrels of oil per day, making it one of the three largest oil refineries around Manhattan. Circa 1883, oil was also delivered to the facility via a 12-inch pipeline from the Standard Oil (now ExxonMobil) Works on Newtown Creek (Brooklyn Daily Eagle, 1883). This pipeline is shown in Figures 3 through 6 and Plate 1.

The plant had the rated capacity of a daily output of illuminating oils in excess of 1,100 barrels, or about 1,200 barrels of refined oils of all kinds, including naphthas. The process yielded approximately 1.5 percent gasoline, 1 percent naphthas, and 66 percent kerosene in the form of either the highly refined "Astral" illuminating oil (kerosene) or ordinary grade illuminating oil. Acids and caustics were added to remove the impurities following the distillation. Six additional small, horizontal cylindrical stills also took charges of 50 barrels each. In addition, Pratt used several small steam stills which were used exclusively to refine gasoline and naphthas (Williamson et al, 1959). Around 1876 nineteen stills handled over 120,000 gallons of Crude Oil on a daily basis, and eventually the plant was expanded to thirty-five stills (primarily for the production of naphtha) (ExxonMobil, Undated and 1950).

The 1887 Sanborn map shows the northwestern section of the property was used primarily for manufacturing tin cans, boxes and barrels. The southeastern portion of the property contained the majority of the oil refining operations. At its peak, the facility handled over 50 million gallons of petroleum products per year including "Astral" oil, crude petroleum, refined oils, naphtha, benzene, gasoline, lubricating oils, and turpentine. There are several tanks depicted on the property, including: five labeled as tar tanks, others labeled as gasoline, oil, and others without labels. The five tar tanks include: three round tanks and one rectangular tank in the center of the property, and one round tank in the southeast corner of the property, near the intersection of North 12th Street and Kent Avenue. Depending on oil prices, plants were known to alternate between the use of coal and crude petroleum as feed stocks (Gesner, 1865). This coal distillation process is very similar to the MGP coal carbonization process, and the tar produced from both processes would be chemically similar (Scientific American, 1974). The tar

tanks may have been used as a result of coal distillation or as fuel to heat the boilers. Coal was also the source of heat for the refining process.

The December 1900 Standard Oil Co. of NY Pratt Works Business Analysis gives the following income breakdown: approximately 46 million gallons of crude oil sold, 9.5 million gallons of naphtha, 390,000 gallons of gas oil, 7.8 million gallons of tar (itemized separately from asphalt and pitch), and 316,000 gallons of acid oil (ExxonMobil, 1907). Several additional tanks are shown in the 1905 Sanborn map, including six iron tanks labeled "naphtha" at the corner of N. 12 Street and Kent Avenue.

Multiple newspaper articles dated between 1871 and 1910 document the occurrence of several fires at the plant that resulted in burning of tar and oil tanks and releases of product to the environment. On one occasion, the entire property was destroyed. The New York Times 1873 article titled "Great Fire" references constant bursting of stills with flames and sparks drifting toward the gas works facility. The New York Times Article published on May 10, 1910 documents several explosions followed by a catastrophic fire within the canning and filling building located on the western portion of the parcel, near the East River. Another article cites drainage from the Pratt plant of the Standard Oil Company (now ExxonMobil) as the source of fire on Bushwick Creek (New York Times, 1909).

A 1932 Army Corps of Engineers report indicates that ExxonMobil operated a bulkhead wharf on Bushwick Creek associated with Pratt's 13th St plant operations (in text figure above under Parcel 5). Astral oil was containerized in 5-gallon containers and millions of cans were shipped from the facility's Bushwick Creek Dock. All of the cans and cases, primarily tin, used for containerization and shipment were manufactured at the plant (ExxonMobil, 1944). Tin and lead were used in the canning process. Cans were filled in filling rooms located on the western end of the property, near the end of N. 12th Street.

The 1951 Sanborn map shows the plant as "not in use". A 1954 aerial photograph confirms the removal of the refining stills and equipment located in the southeastern portion of property. In 1951 ExxonMobil sold the property to ChevTex. From 1965 until 1988, ChevTex operated a bulk oil terminal at the property.

The 1965 Sanborn map depicts a substantial change in property structures and ownership. The property was used by ChevTex and all-but one formerly existing building appears to have been removed as well as all the former tanks. Ten new tanks were shown:

- Four 500,000-gallon tanks for gasoline,
- One 212,000-gallon tank for kerosene,
- One 1,050,000-gallon tank for No. 2 fuel oil,
- One 840,000-gallon tank for No. 4 fuel oil,

- Two 212,000-gallon tanks for diesel oil, and
- One 1,206,000-gallon tank for No. 6 fuel oil.

The 1978 Sanborn map notes the addition of a garage on the eastern portion of the property. In 1979, ChevTex received a Major Petroleum Facility License to operate a major oil storage facility (MOSF) at the property. In 1997 the property was acquired by Bayside Fuel. The ten tanks and the truck loading area were in use through 2016, until Bayside Fuel began dismantlement. The NYSDEC Bulk Storage Database lists Bayside Fuel as MOSF Site Number 2-1240. The site status is currently listed as inactive with an expiration date of 03/31/2018. Bayside Fuel is also listed as Chemical Bulk Storage (CBS) with site number 2-000222, which expired on 02/08/2004.

The property is currently vacant and was acquired by the New York City Department of Parks and Recreation in March 2016 for its incorporation into Bushwick Inlet Park.

3. Site Geology and Hydrogeology

This section describes the geology and hydrogeology beneath the Site and surrounding area based upon specific boring and monitoring well data collected during nearby investigations.

3.1 Surficial Geology

Four major stratigraphic units, in order of increasing depth, have been identified during nearby investigations: (1) fill, (2) alluvial, harbor, and marsh deposits, (3) glacial deposits [glacial till, glacial outwash, and glacial lacustrine (lake)], and (4) bedrock [Fordham Gneiss].

3.1.1 Fill

The former shoreline of the Bushwick Creek and East River was located east of Parcel 3, as shown on an 1844 *Map of New York Bay and Harbor and The Environs* included in Appendix E. The Site and surrounding area were landfilled as part of the development of the waterfront in the mid-1800s. Historically, a portion of the Site was in a marsh (possibly intertidal) area and submerged under 3 feet to more than 15 feet of water. The depth of the water increased to the west towards the East River. In the 1800s, the area was filled and developed. Fill has been observed up to 43 feet bgs [-39.1 feet NAVD] near the Site.

There is also a more recently placed wedge of soil/fill (the "fill wedge") above the historic industrial surface of Parcels 3 and 4. This fill wedge would have been placed on Parcels 3 and 4 to level the site for construction of the warehouses that were built on Parcel 3 circa 1985 and Parcel 4 between 1996 and 2001. The fill wedge is thin at the eastern side of Parcel 3 and becomes thicker towards the East River.

3.1.2 Alluvial, Harbor, and Marsh Deposits

Alluvial, harbor, and marsh deposits have been observed beneath the fill layer during nearby investigations. The alluvial deposits consist of sub-units of primarily sands with occasional silt and/or gravel. Harbor deposits consist of organic materials, including fine-grained soil such as organic soil. Marsh deposits consist of primarily silt, silt-clay, clay, and peat. Based on historical maps, these deposits are believed to be associated with a former marsh (possibly inter-tidal) located adjacent to Bushwick Creek and harbor deposits in the East River.

3.1.3 Glacial Deposits

Glacial deposits have been encountered beneath the fill and alluvial deposits and above bedrock during the Pre-Design Investigation (PDI) on Parcel 2 at a thickness of up to approximately 97 feet. The glacial deposits are categorized into three sub-units:

- glacial till,
- glaciolacustrine (glacial lake) clay, and
- glacial outwash.

Glacial outwash was the most predominant geologic unit observed. Sporadic layers of glacial till and a continuous glaciolacustrine layer are present within the glacial outwash. The glacial deposits encountered are consistent with glacial stratigraphy described by Merguerian (2003) and Moss and Merguerian (2005 and 2007). The sequence of deposits is likely associated with the advance of the Harbor Hill terminal moraine, damming of glacial meltwaters and forming of glacial lakes, and breaching of the Harbor Hill Terminal Moraine at The Narrows of New York Harbor and subsequent retreat of the glacier.

The glacial outwash sands are typically light brown, brown, loose, non-cohesive, well-sorted, fine to coarse sands with varied amounts of gravel, sporadic cobbles and trace silt. The glacial outwash deposits extend to the bedrock surface, which is located approximately 99 feet bgs [-87.27 feet NAVD,] on Parcel 2 during the PDI.

Sporadic layers of glacial till are present within the glacial outwash. Glacial till layers generally consist of silt-sand mixtures. The maximum observed thickness of glacial till material was 49 feet [bottom depth -36.26 feet NAVD] south of the Site; however, the observed glacial till thickness was generally less than 10 feet.

A consistent layer of glaciolacustrine clay (a glacial silt-clay unit) was encountered. This deposit consists of a cohesive, dense, red to brown to gray, clay with varying amounts of fine sand, with varves of silt and fine sand. The glacial silt-clay was encountered below the fill layer and inter-bedded with the glacial outwash. The glacial silt-clay was encountered as shallow as 36 feet bgs [-31.4 feet NAVD] south of the Site, and as deep as 90 feet bgs [-78.27 feet NAVD] on Parcel 2 during the PDI. The glacial silt-clay unit is likely glaciolacustrine in origin as evidenced by the varves of fine sand. Similar deposits within New York Harbor, described by Merguerian (2003), were inferred to be associated with damming of the ancient Hudson River by the Harbor Hill Terminal Moraine to the southwest.

3.1.4 Bedrock

Published bedrock information presented by Buxton, et al. (1981) indicates that bedrock in the vicinity of the Site is located at approximately -100 feet NAVD. Bedrock was encountered at 99 feet [-87.27 feet NAVD] on Parcel 2 during the PDI.

3.2 Hydrogeology

The Site hydrogeology will be discussed in terms of the closest surface water bodies (East River and Bushwick Inlet). The East River is located at the northwestern boundary of the Site. The Site and vicinity are underlain by an unconfined aquifer, the Upper Glacial Aquifer. Based upon previous investigations at and near the Site, the anticipated depth to groundwater is from approximately 6 to 8 feet bgs, depending on proximity to the East River, thickness of fill wedge, and tide level. The groundwater flow direction is northwest, towards the East River. Historic groundwater reversals, due to pumping for industrial and public water supply, between 1904 and 1947 have been documented (Buxton, 1981).

4. Scope of Work

The proposed activities will be conducted in accordance with the HASP (Appendix A), CAMP (Appendix B), QAPP (Appendix C), and FSP (Appendix D). The remainder of this Work Plan Addendum describes the proposed soil borings, monitoring wells, soil vapor points, and test pits, as well as analytical samples. National Grid reserves the right to amend/add to this Work Plan Addendum scope to incorporate and or consider sampling data from the ExxonMobil and NYC site characterization.

4.1 Soil Borings

Sixty-one soil borings (WW-SB-200 through WW-SB-254 and WW-MW-200 through WW-MW-205) are proposed for installation in the Investigation Area. The proposed soil boring locations are shown in Plate 1. Table 1 contains sample descriptions, rationale, and analysis. Actual drilling locations will be determined based upon the subsurface utility clearance activities, permanent above-ground structures, and property owner requirements. The borings will be installed with a sonic drill rig in accordance with drilling methods and procedures in the FSP and RI Work Plan. Each boring location will be hand-cleared for utilities to 5 feet bgs. Soil samples will be collected and logged continuously from each boring. It is anticipated that drilling will proceed approximately 10 feet into soils that appear to be un-impacted according to visual and PID assessment in the field. If no impacts are observed at a particular on-site boring location, the boring will terminate at 30 feet bgs. Borings will not be advanced through the clay layer present at approximately 60 feet bgs. After completing each borehole, the casing will be removed incrementally as the boring is grouted.

At least 10 borings (WW-MW-202 and WW-SB-207, 208, 212, 221, 227, 232, 235,237, and 251), spread throughout the Investigation Area, will be advanced to the top of the clay layer at approximately 60-feet to characterize the surface of the confining layer. These 10 borings target known areas of deep contamination, based on borings installed adjacent to Parcels 3 and 4 during the 2009-2012 RI and are spaced throughout Parcels 3 and 4 to provide adequate representation of the presumed confining layer.

Up to four soil samples per boring will be selected for chemical analysis, as follow.

- One sample will be collected from the depth interval indicating the greatest apparent degree of contamination in the top 5 feet bgs. If the fill wedge is present at the boring location and is at least 5-feet thick at the location, an additional shallow fill sample will be collected from the next 5-feet below the fill wedge.

- The next sample will be collected during boring advancement at the depth interval indicating the greatest degree of impacts between the shallow fill and completion depth

of boring. The greatest degree of impacts will be identified by field screening of the borings with a Photoionization Detector (PID), and by visual and olfactory observations. If soils within a particular boring appear un-impacted, then the sample will be collected from the observed groundwater table.

- The final sample will be collected beneath impacts, if present, or at the completion of the boring.

Each sample will be analyzed, at a minimum, for volatile organic compounds (VOCs) by the United States Environmental Protection Agency (EPA) Method 8260C, semi-volatile organic compounds (SVOCs) by EPA Method 8270D, target analyte list (TAL) metals plus tin by EPA Method 6000/7000 series, free cyanide by EPA Method 9014.

Samples from nine boring locations (WW-SB-204, 224, 227, 245, 246, 248, 249, 251, and 253) also will be analyzed for alkylated polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM, n-alkanes and isoprenoids by EPA Method 8015D Modified, and extractable petroleum hydrocarbon (EPH) by NJDEP EPH Method. The deepest sample from these nine boring locations will only be analyzed for these additional analyses if visual or olfactory impacts are observed at the completion depth of the boring. These methods will identify impacts that are common to both Williamsburg Works and ExxonMobil operations.

The shallowest sample collected at each location will be analyzed for an additional suite. Herbicides will be analyzed by EPA Method 8151A, pesticides will be analyzed by EPA Method 8081A, and polychlorinated biphenyls (PCBs) will be analyzed by EPA Method 8082. Six of the shallowest samples will also be analyzed for per- and polyfluoroalkyl substances (PFAS) by EPA Method 537. The QAPP details the quality assurance/quality control (QA/QC) samples that will be collected.

At least 11 samples will be collected from the fill wedge based on four samples per acre required by DER-10 paragraph 3.11. These samples will be collected from soil borings WW-SB-204, 205, 210, 214, 221, 224, 228, 233, 234, and 238, and WW-MW-200 and will be analyzed for VOCs by EPA Method 8260C, SVOCs by EPA Method 8270D, TAL metals plus tin by EPA Method 6000/7000 series, free cyanide by EPA Method 9014, herbicides by EPA Method 8151A, pesticides by EPA Method 8081A, Total Petroleum Hydrocarbons (TPH) by EPA Method 418.1, and PCBs by EPA Method 8082. The next shallowest sample will be analyzed for VOCs by EPA Method 8260C, SVOCs by EPA Method 8270D, TAL metals plus tin by EPA Method 6000/7000 series, and free cyanide by EPA Method 9014. If four samples are collected from borings WW-SB-204, 224, 227, 245, 246, 248, 249, 251, and 253 due to the thickness of the fill wedge, the sample from the fill wedge will not be analyzed for alkylated PAHs by EPA Method 8270D SIM, n-alkanes and isoprenoids by EPA Method 8015D Modified, and EPH by NJDEP EPH Method.

Drilling and sampling equipment will be decontaminated between each sample location as described in the FSP. Soil cuttings and decontamination fluids will be contained within properly labeled United States Department of Transportation (USDOT) 55-gallon drums or a lined roll-off and disposed of at a National Grid-approved disposal facility.

4.2 Monitoring Wells

Six of the proposed soil borings (WW-MW-200 through WW-MW-205) will be completed as permanent monitoring wells. The proposed well locations are shown in Plate 1. Table 1 provides sample description, rationale, and analysis. If potentially mobile NAPL is encountered at depth in a boring, additional deeper wells may be installed to assess the potential for NAPL recovery. The wells will be installed using rotosonic methods in accordance with drilling methods and procedures in the FSP.

Each proposed monitoring well will be screened in the uppermost portion of the regional unconfined aquifer. If deeper wells are installed to assess the potential for NAPL recovery, the wells will be screened in areas of NAPL saturation. Each monitoring well will be constructed with an approximate 10-foot length of 2-inch inner diameter (ID), 0.010-inch-slotted, monitoring well screen and finished with 2-inch ID poly vinyl chloride (PVC) riser pipe to the surface and a 2-foot sump. Each well screen will extend approximately two feet above the water table. The annular space between the well screen and borehole wall will be backfilled with chemically inert sand to promote sufficient groundwater flow to the well and to minimize the passage of any fine-grained formational material into the well. A bentonite clay seal will be placed above the sand pack. The remaining annular space will be filled to grade with cement/bentonite grout. Each monitoring well will be fitted with a lockable cap and finished with a flush-mounted curb box secured with cement.

Each newly installed monitoring well will be developed by alternatively surging and pumping until the turbidity is less than 50 nephelometric turbidity units (NTUs) or until a maximum of 10 well volumes of water has been removed. A field turbidity meter will be used to monitor the NTU levels. Well development will be completed in general accordance with the FSP.

Each of the newly installed monitoring wells will be sampled after a minimum of two weeks following completion of well development. Prior to sampling, two synoptic rounds of groundwater level measurements will be recorded for the existing and newly installed monitoring wells and the established surface water measuring point in the East River; the groundwater will be gauged at both the low and high tidal levels.

The newly installed monitoring wells will be purged and sampled using low flow groundwater sampling procedures and in accordance with the FSP unless NAPL is observed in the monitoring well. Each groundwater sample will be analyzed for VOCs by EPA Method 8260C, SVOCs by EPA Method 8270D, TAL metals and tin by EPA Method 6000/7000 series, herbicides by EPA

Method 8151A, pesticides by EPA Method 8081A, PCBs by EPA Method 8082, and total cyanide by EPA Method 9014. The QAPP details the QA/QC samples that will be collected.

Purge water generated during the installation and sampling of monitoring wells will be collected in 55-gallon USDOT drums or a fractionation tank and will be disposed at a National Grid-approved disposal facility.

4.3 Test Pits

A total of four test pits (WW-TP-200 through WW-TP-203) are proposed to be excavated at the Site. The proposed test pit excavation locations are shown in Plate 1, and the descriptions, rationale, and analysis are presented in Table 1. The test pits are proposed to assess the configuration and contents of former structures which may be present in the site subsurface. Actual test pit locations will be determined based upon the subsurface utility clearance activities, permanent above ground structures, and property owner requirements and may also be excavated perpendicular to the conduits. Test pits may be advanced in the ROWs adjacent to the Site to locate the conduits prior to finalizing the locations of on-site test pits, to avoid exploring through the wedge of fill. The test pits will be excavated in accordance with the methods and procedures in the FSP and RI Work Plan.

Each test pit will be photographed and logged during excavation. All material removed from the test pit will be placed on polyethylene sheeting separated by depth. Odor-suppressing foam and/or other appropriate means to mitigate odor (e.g. plastic sheeting) will be used to control odor emissions that may result if impacted soils are excavated. Test pits will be terminated at the approximate groundwater table or practical extent of the equipment, which is approximately 15 feet bgs. Field screening of soils will be conducted with a PID from the ground surface to the entire depth of the excavation. A minimum of one soil sample will be selected for analysis per each test pit. Samples will be selected from the area exhibiting the most prominent signs of apparent contamination. If no impacts or structures are observed a sample will be collected from the bottom of the test pit. Each sample will be analyzed for VOCs by EPA Method 8260C, SVOCs by EPA Method 8270D, alkylated PAHs by EPA Method 8270D SIM, TAL metals plus tin by EPA Method 6000/7000 series, n-alkanes and isoprenoids by EPA Method 8015D Modified, EPH by NJDEP EPH Method, and free cyanide by EPA Method 9014. The QAPP details the QA/QC samples that will be collected.

After the completion of each test pit, the test pit will be backfilled in reverse sequence in which it was excavated, so that materials removed from the bottom of the test pit are placed back at the bottom and materials removed from the top of the test pit are placed back at the top. The test pits will be backfilled in lifts and compacted. If test pits are excavated in paved areas, the pavement will be saw cut first and restored following completion of RI activities. Sampling equipment will be decontaminated between each sample location and excavation equipment will be decontaminated between each test pit location as described in the FSP. Excess soils and

decontamination fluids will be contained within USDOT 55-gallon drums or a lined roll-off and disposed of at a National Grid-approved disposal facility.

4.4 Soil Vapor Sample Collection

Six soil vapor samples (WW-SV-200 through WW-SV-205) are proposed for collection to assess the soil vapor conditions beneath the former building foundation. The soil vapor point locations were determined to evaluate subsurface soil vapors within the entirety of the Site. One ambient air soil vapor sample (WW-AA-200) will be taken to compare background ambient air concentrations to the subsurface soil vapor concentrations.

Each soil vapor point will be installed, and samples will be collected in general accordance with the New York State Department of Health's *"Guidance for Evaluating Soil Vapor Intrusion in the State of New York"* and National Grid's *"Draft Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State."*

Temporary soil vapor sample points will be advanced approximately 5 feet bgs, or 1 foot above the water table if the water table is shallower than 6 feet bgs. Temporary points will be constructed utilizing a stainless-steel screen that is fitted to Teflon or stainless-steel tubing secured with stainless steel fittings and caps to the ground surface. The annular space around the screen will be backfilled with inert silica to a minimum of 6 inches above the screen. A bentonite seal will be placed above the sand and the remainder of the annulus will be filled with soil cuttings. The sampling port will be sealed with a 2-inch layer of bentonite paste at the surface.

To ensure that the sampling tube is sealed from the ambient air aboveground, helium will be used as a tracer gas as described in the NYSDOH Soil Vapor Intrusion Guidance document. Each sample will be collected utilizing a SUMMA® canister with a laboratory calibrated flow controller that will not exceed 0.2 liters/minute. Each SUMMA® canister will be shipped to an approved-NYSDOH ELAP registered laboratory for analysis. The sample will be analyzed for VOCs and naphthalene by the EPA Method TO-15.

QA/QC procedures are detailed within the QAPP located in Appendix D. QA/QC samples will include one blind duplicate sample collected during each sampling event. An approved NYSDOH ELAP registered laboratory will perform the analyses.

4.4 Survey

Sample locations and test pit limits will be surveyed by a New York State Licensed Land Surveyor. The elevation of each sample location will be determined to ±0.01 foot and will be tied into the Site benchmark. All locations and elevations will be referenced to the New York State Plane Eastern Zone North American Datum 1983 and North American Vertical Datum 1988.

4.5 Data Validation and Management

Soil and groundwater samples will be analyzed by a NYSDOH environmental laboratory approval program accredited laboratory. Analytical results will be provided in a New York State Category B data deliverable format. The data will be validated in accordance with New York State Analytical Service Protocols, and a data usability summary report will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any quality control non-compliance issues or limitations on the use of the data.

5. RI and AA Report Preparation

5.1 Remedial Investigation Report

The information collected as part of this Work Plan Addendum will be used to update the conceptual site model (CSM) and will be incorporated into the 2015 RI Report, including tables and figures, to create a RI report that is comprehensive for at least Parcels 2, 3, and 4. The CSM and RI report developed using data collected as part of this Work Plan Addendum will build upon data already collected at the Site including the 2015 RI Report, 50 Kent Avenue PDI, and other data collected previously on the Site.

5.2 Alternatives Analysis Report

An Alternatives Analysis (AA) Report that develops, evaluates, and recommends a remedy to address MGP wastes for at least Parcels 2, 3, and 4 will be prepared in accordance with section 4.4 of DER-10.

6. Schedule

The Community Participation Plan (CPP) has been updated and submitted to NYSDEC for review in July 2021.

Field activities can commence two to four weeks following NYSDEC and NYSDOH approval of this Work Plan Addendum and access to private properties, pending contractor availability. The field work is projected to last approximately 6 weeks. The draft RI report will be submitted to NYSDEC for review approximately 20 weeks following the completion of field activities.

A draft AA will be submitted to NYSDEC within 60 days of approval of the Final RI Report for, at least, Parcels 2, 3, and 4.

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Table

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-200	Lot 16	Evaluate soil quality within the footprint of the former purifying house	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-201	Lot 16	Evaluate soil quality within the footprint of the former scrubbers	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-202	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-203	Lot 16	Evaluate soil quality within the footprint of the iron gas tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-204	Lot 16	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X	X	X	X	X
WW-SB-205	Lot 16	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-206	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-207	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-208	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-209	Lot 30	Evaluate soil quality within the footprint of former oil separators.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-210	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-211	Lot 30	Evaluate soil quality within the footprint of a former tar separating tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-212	Lot 30	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-213	Lot 30	Evaluate soil quality within a former separator.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-214	Lot 30	Evaluate soil quality within a former tar tank.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X			
WW-SB-215	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X				
WW-SB-216	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X				
WW-SB-217	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X				
WW-SB-218	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X				
WW-SB-219	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X				
WW-SB-220	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X				

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-221	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-222	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-223	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-224	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X	X	X	X	
WW-SB-225	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-226	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-227	Lot 30	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-228	Lot 30	Evaluate soil quality within a former iron tar tank	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-229	Lot 30	Evaluate soil quality within a former iron tar tank	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-230	Lot 30	Evaluate soil quality within a former wooden tar tank	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-231	Lot 30	Evaluate soil quality within a former wooden tar tank	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-232	Lot 30	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-233	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-234	Lot 30	Evaluate soil quality within the footprint of the former coal shed.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				X

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-235	Lot 30	Evaluate soil quality within the footprint of the former coal shed.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-236	Lot 16	Evaluate soil quality within the footprint of the former retort/ generator house	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-237	Lot 16	Evaluate soil quality within the footprint of the former retort/ generator house	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-238	Lot 16	Evaluate soil quality within the footprint of the former retort/ generator house	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-239	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-240	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-241	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-242	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-243	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-244	N 12th Street	Evaluate soil quality offsite.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-245	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-246	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-247	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-248	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-249	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-250	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-251	Lot 30	Evaluate soil quality at oil pipes.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-252	Lot 30	Evaluate soil quality at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-253	N 11th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-254	Lot 16	Evaluate soil quality within the footprint of the iron gas tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-200	Lot 16	Evaluate soil quality within the Site boundary. Evaluate shallow groundwater flow and quality within the Site boundary.	4	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

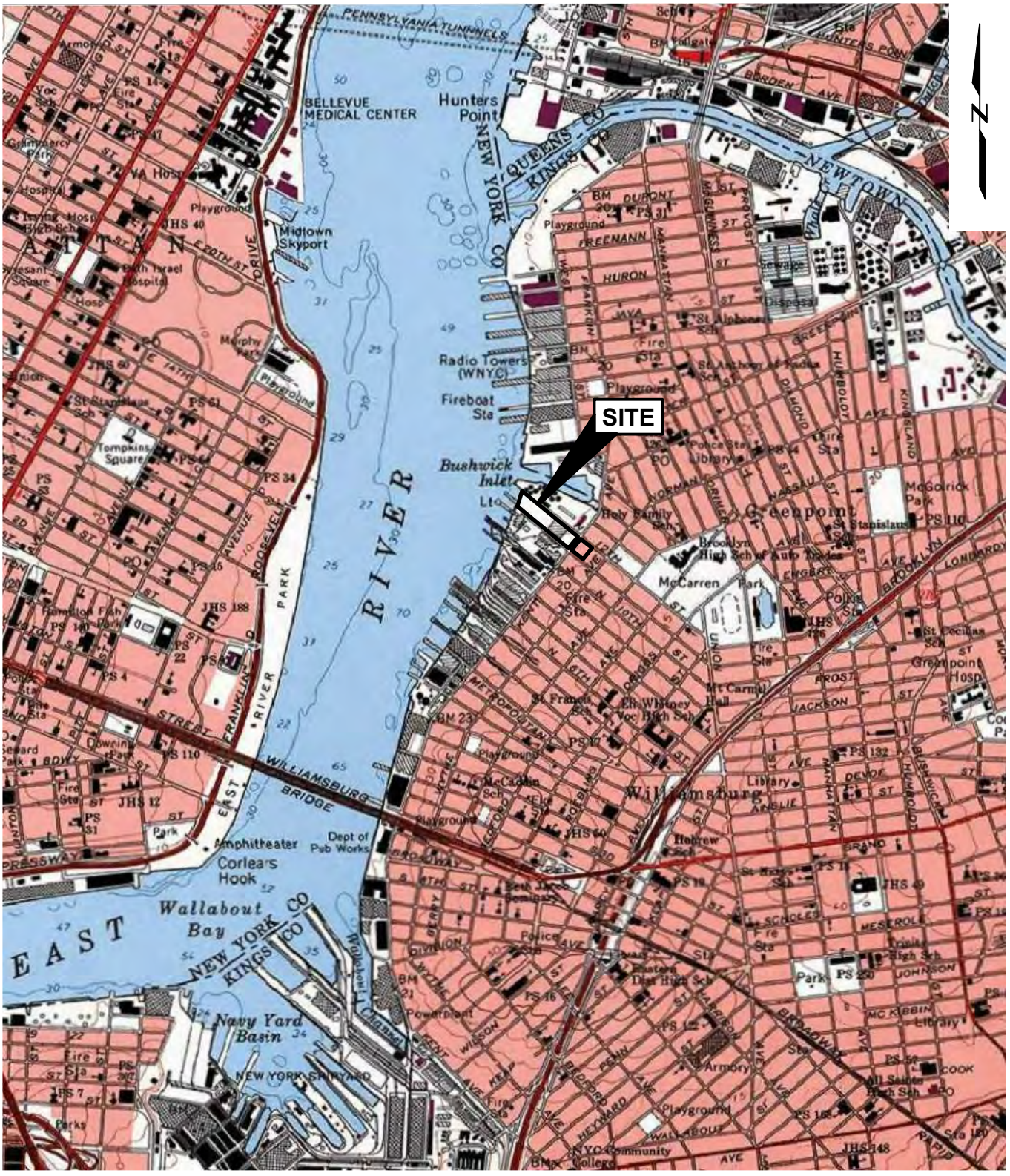
Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-MW-201	Lot 30	Evaluate soil quality within the Site boundary. Evaluate shallow groundwater flow and quality within the Site boundary.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-202	Lot 30	Evaluate soil quality within the Site boundary. Evaluate shallow groundwater flow and quality within the Site boundary.	3	1	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-203	Lot 30	Evaluate soil quality within the Site boundary near an off-site NAPL plume. Evaluate shallow groundwater flow and quality within the Site boundary and near an off-site NAPL plume.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-204	Lot 16	Evaluate soil quality within the footprint of the Site. Evaluate shallow groundwater flow and quality within the Site boundary and near an off-site NAPL plume.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-205	Lot 30	Evaluate soil quality within the footprint of a former settling tank. Evaluate shallow groundwater flow and quality within the Site boundary.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
Test Pits																				
WW-TP-200	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X						X	X	X	
WW-TP-201	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X						X	X	X	
WW-TP-202	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X						X	X	X	

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Test Pits																				
WW-TP-203	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X					X	X	X	
Soil Vapor Points																				
WW-SV-200	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-201	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-202	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-203	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-204	Lot 30	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-205	Lot 30	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA - Environmental Protection Agency
EPH - extractable petroleum hydrocarbon
PAH - polycyclic aromatic hydrocarbon
PCBs - polychlorinated biphenyls
PFAS - per- and polyfluoroalkyl substances
SVOC - semivolatile organic compounds
TAL - target analyte list
TPH - total petroleum hydrocarbons
VOC - volatile organic compounds
1 - Four soil samples will be collected from 11 borings where the fill wedge is present
2 - Soils will be analyzed by Free Cyanide, water will be analyzed by Total Cyanide
3 - One soil sample of the fill in each boring will be sampled for PCBs, pesticides, herbicides, and PFAS
4 - TPH will only be collected from the fill wedge
5 - Only soils will be analyzed for Alkylated PAHs, N-alkanes and Isoprenoids, EPH, and PFAS. If four samples are collected from a boring due to the fill wedge being sampled, only the shallowest soil sample will be analyzed for PFAS and the fill wedge will not be analyzed for forensic analyses.

Figures



SOURCE:

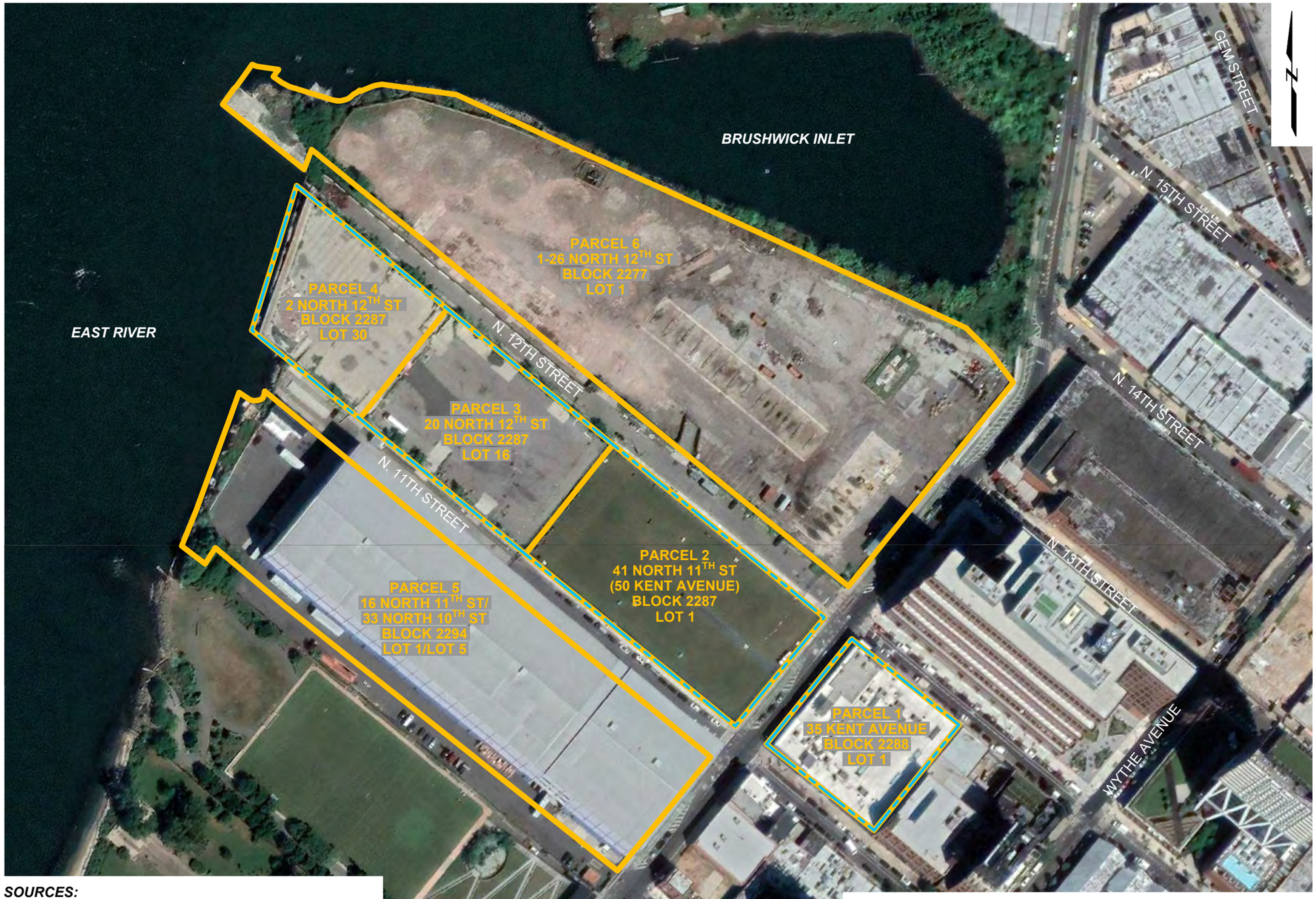
Map created with TOPO! ® ©2001 National Geographic (www.nationalgeographic.com/topo)

0 2000' 4000'

SCALE: 1" = 2000'

Remedial Investigation Work Plan Addendum - Parcels 3 and 4 Portion of Williamsburg Works Site Williamsburg Works Former MGP Site Borough of Brooklyn, New York	GEI Consultants	SITE LOCATION MAP
nationalgrid	Project 093060	July 2021 Fig. 1

\\Gtb-pzcc-1\ I:\Project\National Grid\Williamsburg\00_CAD\Figures\RIWPA_L1630\093060_RIWPA_SLM.dwg - 6/30/2021



LEGEND:

- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MGP PROPERTY

0 150 300

SCALE: 1" = 150'

SOURCES:

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, © 2020 GOOGLE LLC., IMAGERY DATE: 9/18/2019, ACCESSED ON 12/15/2020.
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM *HTTP://WWW.OASISNYC.NET* ACCESSED JANUARY 2008.
4. NEW YORK CITY DEPARTMENT OF CITY PLANNING, MAP PLUTO PARCELS.

Remedial Investigation Work Plan Addendum -
Parcels 3 and 4 Portion of Williamsburg Works Site
Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

nationalgrid

GEI Consultants

REMEDIAL INVESTIGATION
PARCEL IDENTIFICATION MAP

Project 093060 | July 2021 | Fig. 2

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LEGEND:

- REMEDIAL INVESTIGATION AREA
- HISTORIC TANKS
- PARCEL 6 CONDUITS
- OIL CONDUIT

SOURCE:

1. PLAN BASED ON 1887, 1905 AND 1916 SANBORN MAPS.
2. OIL CONDUIT LINE FROM DRAWING TITLED *EXHIBIT 11 - LONG ISLAND PIPE LINE CORP. SCHEMATIC DIAGRAM OF SHIPPERS LINE, LONG ISLAND CITY TERMINAL, 30-25 GREENPOINT AVE., LONG ISLAND CITY,* BUCKEY PARTNERS 104(e) RESPONSE, 8-24-2012.
3. OIL CONDUIT LINE TO NEWTOWN CREEK FROM: LIONEL PINCUS AND PRINCESS FIRYAL MAP DIVISION, THE NEW YORK PUBLIC LIBRARY. "BROOKLYN, VOL. 1, 2ND PART, DOUBLE PAGE PLATE NO. 33; PART OF WARDS 14, 15, 17, SECTION 8-9; [MAP BOUNDED BY MESEROLE AVE., JEWEL ST., NASAU AVE., HUMBOLDT ST., MEEKER AVE., RICHARDSON ST., INCLUDING UNION AVE., N. 9TH ST., EAST RIVER, GREENPOINT AVE., MANHATTAN AVE.]" THE NEW YORK PUBLIC LIBRARY DIGITAL COLLECTIONS. 1916. *(http://digitalcollections.nypl.org/items/69582cf7-d6cc-ba72-e040-e00a18065eba)*

BLOCK 2277
LOT 1

BLOCK 2287
LOT 30

BLOCK 2287
LOT 16

BLOCK 2294
LOT 1

BLOCK 2287
LOT 1

BLOCK 2294
LOT 5

PIPES IN BRICK CONDUIT (1905)

TUNNEL (1916)

PIPES IN BRICK CONDUIT UNDER PLANK WALK (1905)

BUCKEYE OIL PIPELINE TO NEWTOWN CREEK

Bushwick Inlet

N. TWELFTH STREET

N. ELEVENTH STREET

N. TENTH STREET

N. NINTH STREET

N. THIRTEENTH STREET

KENT AVE.

WALLABOUT CANAL

SCALE: 1" = 60'

Remedial Investigation Work Plan Addendum -
Parcels 3 and 4 Portion of Williamsburg Works Site
Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

nationalgrid

GEI Consultants

1887 HISTORICAL STRUCTURES

Project 093060 | July 2021 | Fig. 3

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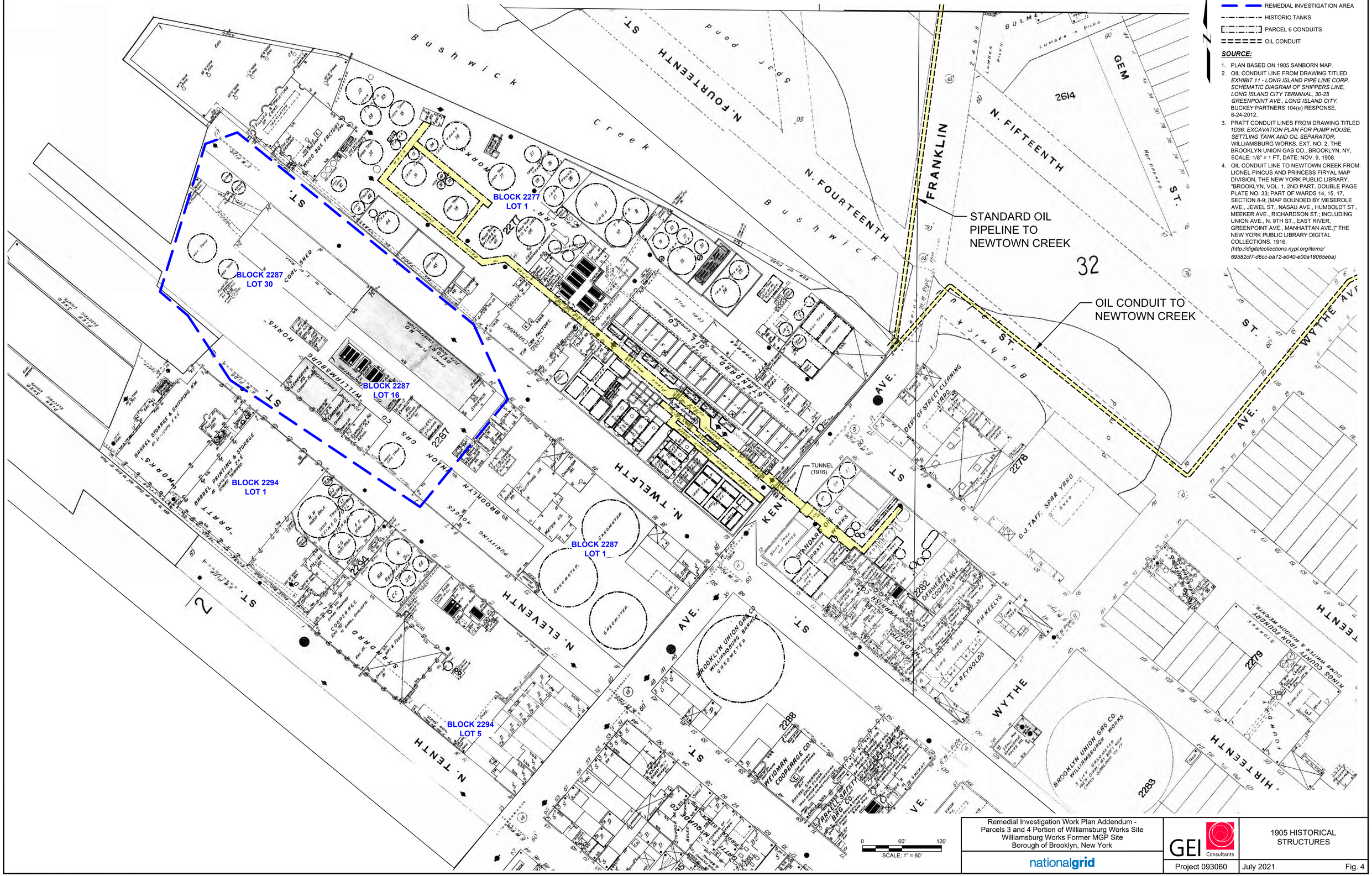

LEGEND:

- REMEDIAL INVESTIGATION AREA
- HISTORIC TANKS
- PARCEL 6 CONDUITS
- OIL CONDUIT

SOURCE:

1. PLAN BASED ON 1905 SANBORN MAP.
2. OIL CONDUIT LINE FROM DRAWING TITLED *EXHIBIT 11 - LONG ISLAND PIPE LINE CORP. SCHEMATIC DIAGRAM OF SHIPPERS LINE, LONG ISLAND CITY TERMINAL, 30-25 GREENPOINT AVE., LONG ISLAND CITY,* BUCKEY PARTNERS 104(e) RESPONSE, 8-24-2012.
3. PRATT CONDUIT LINES FROM DRAWING TITLED *1D36: EXCAVATION PLAN FOR PUMP HOUSE, SETTLING TANK AND OIL SEPARATOR,* WILLIAMSBURG WORKS, EXT. NO. 2, THE BROOKLYN UNION GAS CO., BROOKLYN, NY, SCALE: 1/8" = 1 FT, DATE: NOV. 9, 1908.
4. OIL CONDUIT LINE TO NEWTOWN CREEK FROM: LIONEL PINCUS AND PRINCESS FIRYAL MAP DIVISION, THE NEW YORK PUBLIC LIBRARY. "BROOKLYN, VOL. 1, 2ND PART, DOUBLE PAGE PLATE NO. 33; PART OF WARDS 14, 15, 17, SECTION 8-9; [MAP BOUNDED BY MESEROLE AVE., JEWEL ST., NASAU AVE., HUMBOLDT ST., MEEKER AVE., RICHARDSON ST.; INCLUDING UNION AVE., N. 9TH ST., EAST RIVER, GREENPOINT AVE., MANHATTAN AVE.]" THE NEW YORK PUBLIC LIBRARY DIGITAL COLLECTIONS. 1916. *(http://digitalcollections.nypl.org/items/69582cf7-d6cc-ba72-e040-e00a18065eba)*

Remedial Investigation Work Plan Addendum -
Parcels 3 and 4 Portion of Williamsburg Works Site
Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

nationalgrid

GEI Consultants

Project 093060

1905 HISTORICAL STRUCTURES

July 2021 Fig. 4

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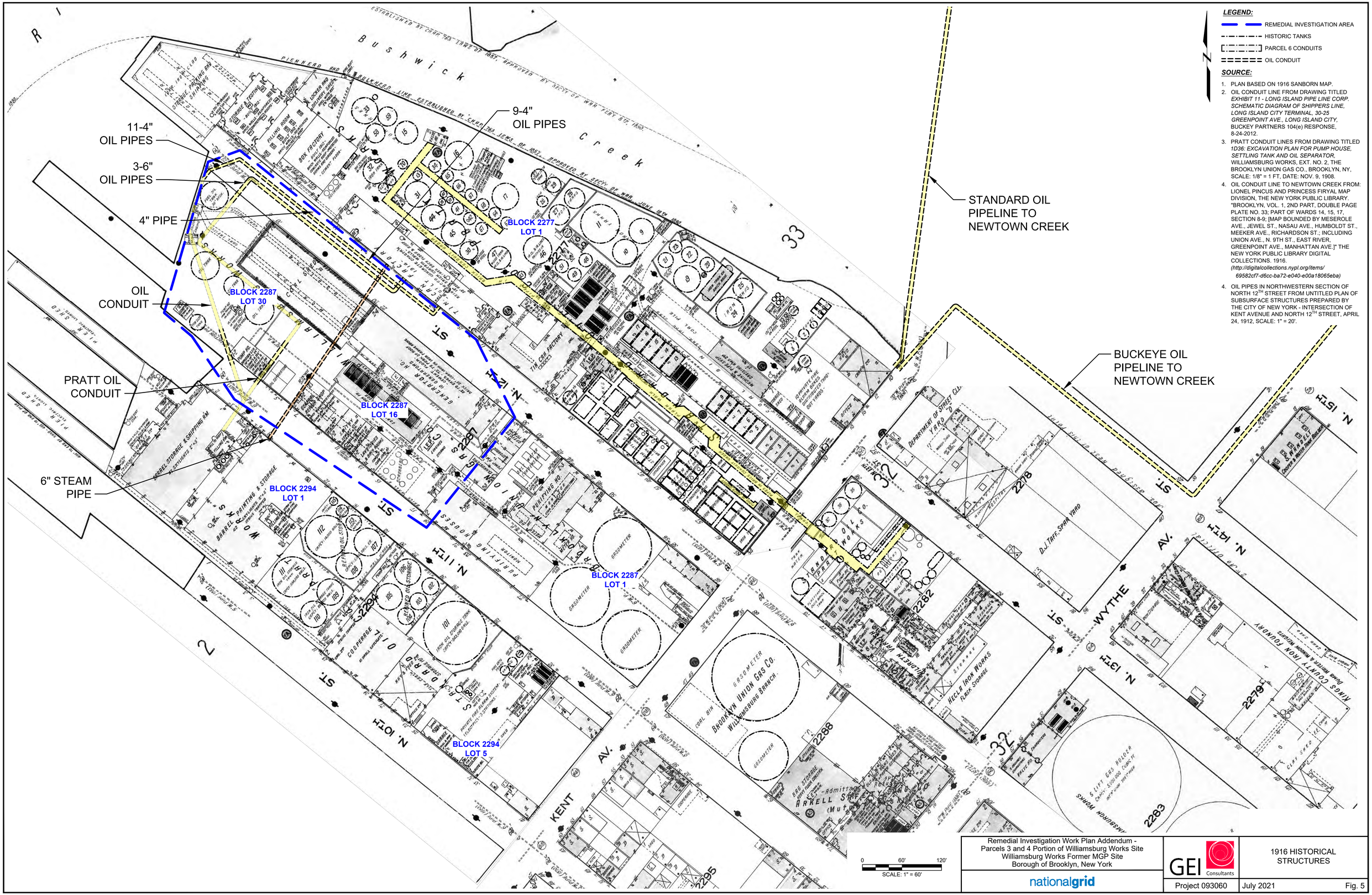

LEGEND:

- REMEDIAL INVESTIGATION AREA
- HISTORIC TANKS
- PARCEL 6 CONDUITS
- OIL CONDUIT

SOURCE:

1. PLAN BASED ON 1916 SANBORN MAP.
2. OIL CONDUIT LINE FROM DRAWING TITLED *EXHIBIT 11 - LONG ISLAND PIPE LINE CORP. SCHEMATIC DIAGRAM OF SHIPPERS LINE, LONG ISLAND CITY TERMINAL, 30-25 GREENPOINT AVE., LONG ISLAND CITY,* BUCKEY PARTNERS 104(e) RESPONSE, 8-24-2012.
3. PRATT CONDUIT LINES FROM DRAWING TITLED *1D36: EXCAVATION PLAN FOR PUMP HOUSE, SETTLING TANK AND OIL SEPARATOR,* WILLIAMSBURG WORKS, EXT. NO. 2, THE BROOKLYN UNION GAS CO., BROOKLYN, NY, SCALE: 1/8" = 1 FT, DATE: NOV. 9, 1908.
4. OIL CONDUIT LINE TO NEWTOWN CREEK FROM: LIONEL PINCUS AND PRINCESS FIRYAL MAP DIVISION, THE NEW YORK PUBLIC LIBRARY. "BROOKLYN, VOL. 1, 2ND PART, DOUBLE PAGE PLATE NO. 33; PART OF WARDS 14, 15, 17, SECTION 8-9; [MAP BOUNDED BY MESEROLE AVE., JEWEL ST., NASAU AVE., HUMBOLDT ST., MEEKER AVE., RICHARDSON ST.; INCLUDING UNION AVE., N. 9TH ST., EAST RIVER, GREENPOINT AVE., MANHATTAN AVE.]" THE NEW YORK PUBLIC LIBRARY DIGITAL COLLECTIONS. 1916. *(http://digitalcollections.nypl.org/items/69582cf7-d6cc-ba72-e040-e00a18065eba)*
4. OIL PIPES IN NORTHWESTERN SECTION OF NORTH 12TH STREET FROM UNTITLED PLAN OF SUBSURFACE STRUCTURES PREPARED BY THE CITY OF NEW YORK - INTERSECTION OF KENT AVENUE AND NORTH 12TH STREET, APRIL 24, 1912, SCALE: 1" = 20'.

Remedial Investigation Work Plan Addendum -
Parcels 3 and 4 Portion of Williamsburg Works Site
Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

nationalgrid

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Project 093060

1916 HISTORICAL STRUCTURES

July 2021 Fig. 5

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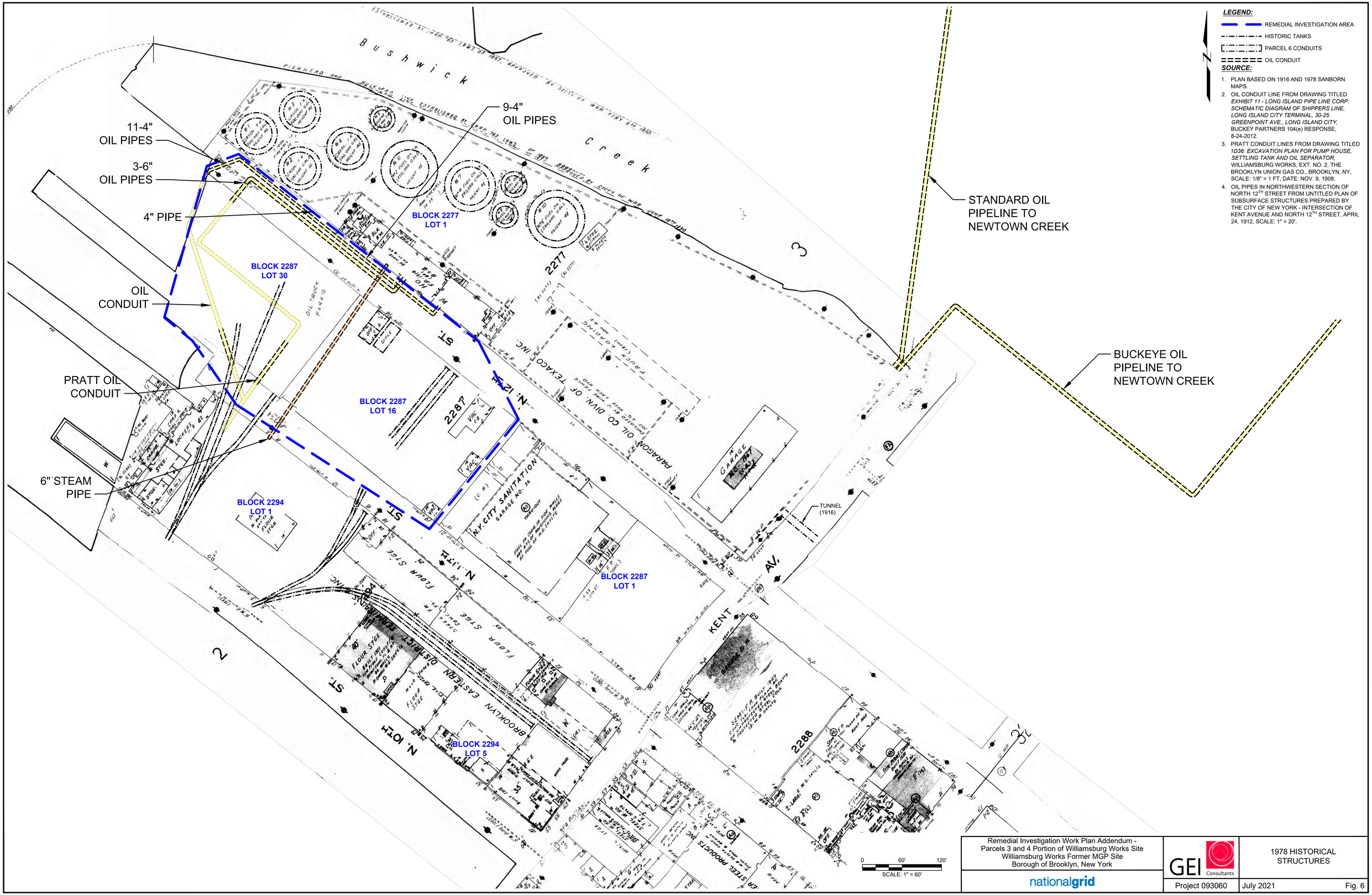

LEGEND:

- REMEDIAL INVESTIGATION AREA
- HISTORIC TANKS
- PARCEL 6 CONDUITS
- OIL CONDUIT

SOURCE:

1. PLAN BASED ON 1916 AND 1978 SANBORN MAPS.
2. OIL CONDUIT LINE FROM DRAWING TITLED *EXHIBIT 11 - LONG ISLAND PIPE LINE CORP. SCHEMATIC DIAGRAM OF SHIPPERS LINE, LONG ISLAND CITY TERMINAL, 30-25 GREENPOINT AVE., LONG ISLAND CITY,* BUCKEY PARTNERS 104(e) RESPONSE, 8-24-2012.
3. PRATT CONDUIT LINES FROM DRAWING TITLED *1D36: EXCAVATION PLAN FOR PUMP HOUSE, SETTLING TANK AND OIL SEPARATOR,* WILLIAMSBURG WORKS, EXT. NO. 2, THE BROOKLYN UNION GAS CO., BROOKLYN, NY, SCALE: 1/8" = 1 FT, DATE: NOV. 9, 1908.
4. OIL PIPES IN NORTHWESTERN SECTION OF NORTH 12TH STREET FROM UNTITLED PLAN OF SUBSURFACE STRUCTURES PREPARED BY THE CITY OF NEW YORK - INTERSECTION OF KENT AVENUE AND NORTH 12TH STREET, APRIL 24, 1912, SCALE: 1" = 20'.

Remedial Investigation Work Plan Addendum -
Parcels 3 and 4 Portion of Williamsburg Works Site
Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

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1978 HISTORICAL STRUCTURES

Project 093060 | July 2021 | Fig. 6

Plates

LEGEND:

- INVESTIGATION AREA
- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MGP PROPERTY
- HISTORIC MGP STRUCTURES
- HISTORIC NON-MGP STRUCTURES
- PARCEL 6 CONDUITS

PROPOSED SAMPLE LOCATIONS

- PROPOSED SOIL BORING
- PROPOSED DEEP SOIL BORING
- PROPOSED SOIL BORING AND MONITORING WELL
- PROPOSED DEEP SOIL BORING AND MONITORNG WELL
- PROPOSED SOIL VAPOR POINT
- PROPOSED TEST PIT

SOURCE:

AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, © 2020 GOOGLE LLC., IMAGERY DATE: 6/15/2018, ACCESSED ON 6/8/2020.

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Borough of Brooklyn, New York

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July 2021

Plate 1

PROPOSED SAMPLE LOCATIONS

\\GTB-PHERIOT I:\Project\National Grid\Williamsburg\00_CAD\Figures\RIWPA_L1630\093060_RIWPA_PSMP.dwg - 7/15/2021

PARCEL 6
BLOCK 2277
LOT 1
PARCEL 4
BLOCK 2287
LOT 30
PARCEL 3
BLOCK 2287
LOT 16
PARCEL 5
BLOCK 2294
LOT 1
PARCEL 2
BLOCK 2287
LOT 1
EAST RIVER
BRUSHWICK INLET
DOCK
UNITED STATES BULKHEAD LINE
N. 12TH STREET
N. 11TH STREET
IRON TANK
GAS OIL TANK
IRON TAR TANK
WOODEN TAR TANK
TAR TANK
TAR TANKS
TERRA COTTA TANK
SEPARATOR TANKS
WATER TANK
COAL SHED
OIL SEPARATORS
TAR SEPARATING TANK
PUMP HOUSE
SEPARATORS
OIL STORAGE TANKS
FILLING ROOM
PAINT SHOP
BLACKSMITH SHOP
BOILER HOUSE
STORAGE
ACCOM. ROOM
SHAVING SCRUBBERS
IRON GAS TANK
SCRUBBERS
PURIFYING HOUSE
ENGINE BLOWER ROOM
RETORT HOUSE/ GENERATOR HOUSE
OFFICE
PURIFIER
SALT WATER CONDENSERS
EXHAUSTER HOUSE
LIME HOUSE
CONDENSER HOUSE
PURIFYING HOUSE
METER/LIME HOUSE
4" OIL PIPES
3-6" OIL PIPES
4" PIPE
OIL CONDUIT (BELOWGROUND)
PRATT OIL CONDUIT (BELOWGROUND)
6" STEAM PIPE (ABOVEGROUND)
WW-MW-01
WW-MW-02
WW-MW-03
WW-MW-04
WW-MW-05
WW-MW-06
WW-MW-07
WW-MW-08
WW-MW-09
WW-MW-10
WW-MW-11
WW-MW-12
WW-MW-13
WW-MW-14
WW-MW-15
WW-MW-17
WW-MW-19
WW-MW-22
WW-SB-01
WW-SB-02
WW-SB-03
WW-SB-04
WW-SB-05
WW-SB-06
WW-SB-07
WW-SB-08
WW-SB-09
WW-SB-10
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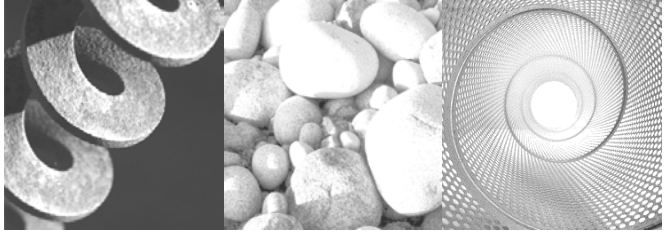
WW-SB-38
WW-SB-39
WW-SB-40

Appendix A

Health and Safety Plan



GEI Consultants

Consulting
Engineers and
Scientists

Health and Safety Plan

Williamsburg Works Site, Parcels 3 and 4
Brooklyn, New York

Prepared For:
National Grid
One MetroTech Center
Brooklyn, NY 11201

Submitted by:
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July 2021

Project No. 093060.1.1115

Melissa Felter, P.G.
Project Manager

Jeena Sheppard
Regional Health and Safety Officer

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1. Emergency Contact Information

Table 1. Emergency Contact Information

Important Phone Numbers	
Local Police:	911
Fire Department:	911
Ambulance:	911
Hospital and Occupational Clinic Information *(See Attached Maps and Directions in Appendix A)*	
Woodhull Medical and Mental Health Center: 760 Broadway Brooklyn, NY 11206 **HealthCor Corporate Medical Services:** 73-01 Grand Avenue Maspeth, NY 11378	(718) 250-8075 (718) 457-5900
Contacts	
Project Manager: Melissa Felter	(860) 368-5328 office (860) 608-9717 cell
Corporate Health and Safety Officer: Steve Hawkins Corporate People and Safety: Julie Jennings	(860) 368-5348 office (860) 916-4167 cell (916) 631-4533 office (224) 240-8335 cell
Regional Health and Safety Officer: Jeena Sheppard	(856) 608-5663 office (856) 298-7138 cell
GEI People Team:	(781) 721-4117 Boston (916) 631-4596 Sacramento
Medcor Triage	1-800-775-5866
Client Contact: Donald Campbell (Project Manager) Bill Ryan (SIR Regional Safety Lead)	(718) 963-5453 office (347) 452-5973 cell (516) 545-2586 office (516) 790-1660 cell
Other Information	
Nearest Telephone Location (or alternate means of communication)	On-site Cellular

2. Background

Project Name: Williamsburg Works Site, Parcels 3 and 4

Project Location: 2 and 20 N. 12th Street, Brooklyn, NY

GEI Project No: 093060

This Health and Safety Plan (HASP) establishes policies and procedures to protect GEI Consultants, Inc. (GEI) personnel from the potential hazards posed by the activities at the Williamsburg Works Site, Parcels 3 and 4, 2 and 20 N. 12th Street, Brooklyn, New York. Reading of the HASP is required of on-site GEI personnel and will be reviewed by GEI subcontractors. Subcontractors will prepare their own Site-specific HASP and may use this as a guide. The plan identifies measures to minimize accidents and injuries, which may result from project activities or during adverse weather conditions. Additionally, federal, state and local representatives, as well as National Grid employees may be required to sign and adhere to this HASP, depending on the nature of their presence on site during activities conducted by GEI. A copy of this HASP will be maintained on site for the duration of the work.

Included in Section 1 and Appendix A is a route to the nearest medical facility from the Site with directions and contact information. Safety data sheets (formerly known as Material Safety Data Sheets [MSDS]) specific to chemicals that may be encountered while working at the Site are in Appendix B. Appendix C details the signs, symptoms, care and procedures to both heat and cold stress. Appendix D includes the Tailgate Safety Briefing form, the Project Safety Briefing form, the Accident/Incident Report Form and the Near Miss Reporting Form. Appendix E contains the GEI Health and Safety (H&S) Standard Operating Procedures (SOPs) that apply to this project.

Employees and contractors should review National Grid's Safety Procedure, Contractor Safety Requirements for reference (Appendix F) and National Grid's COVID-19 Contractor Safety Requirements (Appendix G). GEI and others must, at a minimum, follow the National Grid safety, including COVID-19, procedures and contractor safety requirements. These documents represent policies and safety-related work methods unique to National Grid, and they may be more stringent than OSHA regulations. Contractors must follow these requirements as well as their own rules or regulations that meet or exceed OSHA and other regulatory requirements.

2.1 Scope of Field Work

National Grid retained GEI to conduct a Remedial Investigation. Activities that GEI will be performing during the RI are listed below:

- Site Mobilization
- CAMP Monitoring
- Soil Boring, Monitoring Well, and Test Pit Installation
- Groundwater Sampling

2.2 Site Description

The Williamsburg Works site is located in an industrial and commercial section of the Williamsburg neighborhood of Brooklyn, New York. The Site is also located in the 94th Precinct. The Site is bordered by North 12th Street to the northwest, a park to the southeast, North 11th Street to the southwest, and the East River to the northeast.

The Site consists of two properties. The addresses and tax map information for these properties are presented in the table below.

Address	Block	Lot
20 North 12th Street Brooklyn, NY	2287	16
2 North 11th Street Brooklyn, NY	2287	30

The site history of the Williamsburg Works and surrounding area was developed through the review of available Sanborn Fire Insurance (Sanborn) maps and other historic documents.

2.2.1 MGP History

The former Williamsburg Works MGP operated in a highly industrialized area that included dozens of historic, industrial, and manufacturing uses; large petroleum storage sites; and reported spills, all of which constitute sources of soil and groundwater contamination surrounding the Site. Historic property uses in the site vicinity included petroleum refining, fuel storage, a railroad terminal, iron works, varnishing works, chemical works, a brass foundry, laundry and dry-cleaning supply facilities, and other manufacturing facilities. Facilities that used or generated petroleum and tar-like substances include the former Pratt Works Refinery and former iron foundries. A more detailed Site history can be found in the Remedial Investigation Report (GEI, 2015) and the Construction Completion Report for 50 Kent Avenue (AECOM, 2018).

The Williamsburg Gas Light Company was the first known operator of the Williamsburg Works. It was incorporated in 1850 but as of 1851 had not started operations (Murphy, 1995). The Williamsburg Works was first shown on the 1868 Sanborn map. At that time, gas was produced using a coal carbonization process. Gas production facilities included a retort house, coal shed, and coal tar tank. The 1884 Sanborn shows two exhauster houses, a generator house, condenser house, and multiple tanks. Gas storage and purification facilities included two tar tanks on the 1887 Sanborn map. In the 1800s it also appears that the MGP feedstock switched from coal to naphtha supplied by Exxon (Progressive Age, 1893).

According to the 1905 Sanborn map, iron tanks, a pump house, a circular gas tank, a generator house, a condenser house, exhauster houses, purifying houses, blacksmith shop, and pipe shop have been added.

A 1908 BUG drawing shows an excavation plan for a pump house, settling tank, and oil separator to be built on the south-western portion of the Site. Two pipelines, one labeled Oil Conduit and the other labeled Pratt Oil Conduit, are shown on Parcel 4. Based on its name and on the orientation of the Pratt Oil Conduit crossing the Site in the 1908 figure, it appears to connect to the brick conduit north of the Site to the filling room south of the Site. The other conduit, based on its name and orientation, appears to connect the Exxon operations to the Williamsburg Works.

By 1916, the Sanborn indicates the former Williamsburg Works continued carbureted water gas production as evidenced by the addition of generators and conversion of the retort house to a generator house. A pump house and oil separator, similar to those shown in the 1908 BUG drawing, as well as two additional oil tanks and a tar slop tank are also shown.

During World War I the United States government, acting through the Ordnance Department of the War Department, constructed a toluol manufacturing plant within and adjacent to the Williamsburg Works property. However, these operations likely occurred on at least Parcel 3.

The toluol plant began operations on October 8, 1918 and was discontinued 45 days thereafter, on November 21, 1918. The toluol plant was rated to scrub 16,000 million cubic feet of water gas per day. The estimated annual pure toluol production was 407,000 gallons, however, given the short period of operation actual production was 39,829 gallons.

In addition to toluol, other petroleum distillates were produced as reported by the Ordnance Department including the following light oil, crude benzol, crude toluol and solvent naphtha.

During the period from 1932 to 1937, Exxon refinery infrastructure, in the form of steam lines connecting Block 2277 to Block 2294, was installed over and across North 12th Street and North 11th Street and through the Williamsburg Works. Removal of the steam lines from

North 11th and North 12th Streets, in 1937, approximately coincides with the cessation of operations and demolition of The Williamsburg Works, after 1935 (City of New York, 1938).

The Williamsburg Works ceased operation and the structures were dismantled prior to 1941, as evidenced by the vacant lots shown in the 1941 Sanborn Map.

2.2.2 Post-MGP History

Subsequent to dismantlement, the former Williamsburg Works property was subdivided and redeveloped for commercial, industrial and manufacturing uses. A brief history of the post-works use was developed from available BUG and Sanborn maps and is presented below by tax lot.

United States Navy leased the Site beginning on July 1, 1945, with permission to stay until June 30, 1946, or six months after the end of the war. The use and activity at the Site, if any, by the United States Navy is unknown. Other subsequent operators included:

- Parcel 3: The property was sold by The Brooklyn Union Gas Company to Havemeyer and Elder Inc. on January 31, 1947. Brooklyn Eastern District Terminal purchased the property September 8, 1948. ChevTex purchased the property from the Brooklyn Eastern District Terminal on August 14, 1958. The 1965 Sanborn depicts two railroad spurs, a repair shop, office, scale, and scrap metal storage on the property. By 1978, the property and buildings were vacant except for the office. ChevTex sold the property to Bridge Lumber Co. Inc. on May 24, 1982 which then sold the property to the New York City Industrial Development Agency on October 5, 1982. In 1983, per Sanborn, the buildings were demolished and the property was used for parking. On March 26, 1987 the property was repurchased by the Bridge Lumber Co. Inc. which sold it to the R.A.R Realty Corp. on the same day. A warehouse building was constructed by 1986 and used for lumber storage from 1988 until 1995, according to Sanborn maps. On September 23, 1991, the property was purchased by The City of New York. On June 29, 1995, the property was purchased by Citipostal, Inc. On December 12, 2001, the property was purchased by 10th Street, LLC. On October 7, 2004 the property was purchased by New 10th Street LLC. CitiStorage used the building for document storage until January 31, 2015 when a fire destroyed the building. The remainder of the building has been demolished and the parcel is currently vacant. On April 26, 2017, the property was repurchased by The City of New York.

- Parcel 4: According to the title search, the property was sold from the Brooklyn Union Gas Company to Havemeyer and Elder Inc. on January 31, 1947. Havemeyer & Elder purchased multiple properties along the East River to expand their railroad terminal, the Brooklyn Eastern District Terminal. The 1965 Sanborn figure depicted

three railroad spurs extending into the property from the west. Brooklyn Eastern District Terminal sold the property to ChevTex on August 14, 1958. The Sanborn maps depict oil truck parking operations occurred from approximately 1978 until 1982. ChevTex sold the property to The Bridge Lumber Company Inc. on May 24, 1982. On March 26, 1987 the property was repurchased by the Bridge Lumber Co. Inc. which sold it to the R.A.R Realty Corp. on the same day. The property was used for lumber storage from 1988 until at least 1996, according to Sanborn maps and aerial photographs. On September 23, 1991, the property was purchased by The City of New York. On June 29, 1995, the property was purchased by Citipostal, Inc. On December 12, 2001, the property was purchased by 10th Street, LLC. On October 7, 2004 the property was purchased by New 10th Street LLC. The building on Parcel 3 was extended to Parcel 4 sometime after 1996. CitiStorage used the building for offices and document storage until January 31, 2015 when a fire destroyed the building. The remainder of the building has been demolished and the parcel is currently vacant. On April 26, 2017, the property was repurchased by The City of New York.

2.2.3 Current Site Conditions

The current site conditions of each property are summarized below.

Address	Current Owner	Block	Lot	Parcel ID	Land Use Description
20 North 12th Street Brooklyn, NY 11211	Parks and Recreation	2287	16	3	Vacant following the burning of former warehouse building.
2 North 11th Street Brooklyn, NY 11211	Parks and Recreation	2287	30	4	Vacant following the burning of former warehouse building.

3. Statement of Safety and Health Policy

GEI is committed to providing a safe and healthy work environment for its employees. To maintain a safe work environment, GEI has established an organizational structure and a Corporate Health and Safety Program to promote the following objectives:

- Reduce the risk of injury, illness, and loss of life to GEI employees.
- Maintain compliance with federal, state, and other applicable safety regulations; and minimize GEI employees' work exposure to potential physical, chemical, biological, and radiological hazards.

Safety policy and procedure on any one project cannot be administered, implemented, monitored, and enforced by any one individual. The total objective of a safe, accident free work environment can only be accomplished by a dedicated, concerted effort by every individual involved with the project from management down to all employees.

Each GEI employee must understand their value to the company; the costs of accidents, both monetary, physical, and emotional; the objective of the safety policy and procedures; the safety rules that apply to the safety policy and procedures; and what their individual role is in administering, implementing, monitoring, and compliance of their safety policy and procedures. This allows for a more personal approach to compliance through planning, training, understanding, and cooperative effort, rather than by strict enforcement. If for any reason an unsafe act persists, strict enforcement will be implemented.

4. Hazard/Risk Analysis

The potential hazards associated with site conditions and activity hazards related to GEI on-site activities have been identified in this section.

4.1 Special Site Conditions or Concerns

- Traffic – The majority of traffic on the project site will be construction traffic and local traffic. Special attention should be given to the bike lane adjacent to the Site.
- Drill Rig/Equipment – Drilling contractor will use Geoprobe, sonic, or truck-mounted rotary drill rigs. Specific attention given to rotating equipment, pinch points, and overhead equipment.
- Hazardous summer conditions – Heat stress, heat stroke, and dehydration are possible dangers.
- Hazardous winter conditions – Cold stress, slippery surfaces, and icy conditions are possible dangers.
- Work near water.

Safety equipment will include: First aid kit, fire extinguisher, eye wash bottles, adequate supply of drinking water and electrolyte fluids, hand cleaner, insect repellent, sunscreen, and cell phone.

4.2 Activity Hazard Analysis

The potential hazards for this project associated with site conditions and activity hazards associated with on-site activities have been identified in Table 2. General hazards and control measures that are applicable to all site activities are identified in the General Hazards section. The site-specific tasks, potential hazards, and control measures established to reduce the risk of injury or illness are identified in the Activity Hazard section of Table 2. Health and Safety SOPs for routine hazards and common site conditions are referenced in the table below and included in Appendix E.

Table 2. Activity Hazard Analysis

General Hazards These Hazards Apply to All Site Activities	Control Measure
Chemical / Contaminant Exposure – Skin and eye injury/irritation	• Wear protective coveralls (e.g. Tyvek®) with shoe covers, safety glasses, face shield, Nitrile gloves. • Dispose of gloves after use and wash hands. • Avoid contact with pooled liquids and limit contact with contaminated soils/groundwater. • See SOP HS-009

General Hazards These Hazards Apply to All Site Activities	Control Measure
Cell Phone Use	• There shall be no cell phone use, including blue tooth enabled use, while performing any project-related activity governed by the HASP.
Cold Stress – Hypothermia, Frostbite	• Take breaks in heated shelters when working in extremely cold temperatures. • Drink warm liquids to reduce the susceptibility to cold stress. • Wear protective clothing (recommended three layers: an outside layer to break the wind, a middle layer to provide insulation, and an inner layer of cotton or synthetic weave to allow ventilation). • Wear a hat and insulated boots. • Keep a change of dry clothing available in case clothes become wet. • Do heavy work during the warmer parts of the day and take breaks from the cold. • If possible, shield work areas from drafts of wind and use insulating material on equipment handles when temperatures are below 30°F • Watch for symptoms of cold stress (see Appendix C in HASP).
Driving	• Employees must wear their safety belt while in a moving vehicle. • Vehicle accidents will be reported in accordance with GEI's accident reporting procedures. • Vehicles will be properly maintained and safely operated (refer to GEI's Fleet Maintenance Program). • Employees will follow safe driving behaviors, which include limiting distractions such as manipulating radios or other equipment that may cause a distraction. Employees should not exceed the posted speed limit and should maintain a safe distance between other vehicles. • Use defensive driving techniques. • Driving distance and time after a 12-hour shift should not exceed 30 miles or 30 minutes (whichever is greater). • Look both ways when crossing the bike lane on Kent Avenue even though it is a one-way street. Use a flagger if needed. • See SOP HS-004
Dusty Conditions – Eye and respiratory irritation	• Avoid travel at extreme times • Wear protective gear – dust masks, safety glasses

General Hazards These Hazards Apply to All Site Activities	Control Measure
Heat stress – Fainting, Fatigue, Heat Stroke	• Increase water intake while working. • Increase number of rest breaks and/or rotate workers in shorter work shifts. Rest in cool, dry areas. • Watch for signs and symptoms of heat exhaustion and fatigue. • Plan work for early morning or evening during hot months. • Use ice vests when necessary. • In the event of heat stroke, bring the victim to a cool environment and initiate first aid procedures. • See Appendix C of the HASP
Inclement Weather	• Listen to local forecasts for warnings about specific weather hazards such as tornados, thunderstorms, and flash floods. • If the storms produce thunder and/or lightning, leave the work area immediately and move to a safe area. • Discuss an action plan prior to the severe weather. • Wear appropriate PPE for the type of weather that could be encountered. • Stop work until conditions are suitable. Take cover in vehicles or shelter as appropriate. • See SOP HS-010
Insects – Bites, Stings, Allergic Reactions	• Apply insect repellent prior to performing field work and as often as needed throughout the work shift • Wear proper protective clothing (work boots, socks and light-colored clothing) • Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many insects are most active (between dawn and dusk). • When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible • Field personnel who may have insect allergies should have bee sting allergy medication on site and should provide this information to the SSO and the CHSO prior to commencing work. • Field personnel should perform a self-check at the end of the day for ticks. • See SOP HS-001

General Hazards **These Hazards Apply to All Site Activities**	**Control Measure**
Physical Injury – Slips, Trips and Falls	• Wear PPE that properly fits, is in good condition and appropriate for the activities and hazards. • Maintain good visibility of the work area. • Avoid walking on uneven, steeply sloped or debris ridden ground surfaces. • Plan tasks prior to preforming them including an activity hazard analysis. • Keep trafficked areas free from slip/trip/fall hazards. • Maintain weed growth in sampling areas, especially on slopes. • Wear shoes with traction. • Avoid traversing steep areas in slippery conditions. • Do not carry heavy objects to sampling areas, on steeply sloped areas, or where steep areas must be traversed to arrive at sample points.
Poisonous Plants - Poison Ivy, Poison Oak, and Poison Sumac	• Avoid areas infested with poisonous plants. · Use a barrier cream to provide some protection. • Wash exposed clothing separately in hot water with detergent. • After use, clean tools, and soles of boots with rubbing alcohol or soap and lots of water. • Immediately wash with soap and water any areas that come into contact with poisonous plants. • If exposed to a poisonous plant, wash with soap and water or a product such as Technu™. First aid kits are available in the company vehicles. • See SOP HS-001
Repetitive Motion Injury – Standing, Squatting, and Bending Over	• Take regular breaks and do not work in unusual positions for long periods of time. • Walk and stretch between tasks. • See SOP HS-025
Unsecured or High Crime Areas	• Be aware of your surroundings. • Use the buddy system. Do not remain on site alone. Accompany or be accompanied by others to vehicles. • Request police detail when appropriate. • Let the Site Safety Officer (SSO) know when you begin work in these areas and when you leave. • Call in regularly. • If you arrive in an area and it does not look safe to get out of your vehicle, lock the doors and drive off quickly but safely.

General Hazards These Hazards Apply to All Site Activities	Control Measure
Utilities – Shock, Electrocution, Fire, Explosion	• A thorough underground utility survey must be conducted prior to intrusive activities. Coordination with utility locating services, property owner(s) or utility companies must be conducted. • Utilities are to be considered live or active until documented otherwise. • For overhead utilities within 50 feet, determine with the utility company the appropriate distance. Minimum distance for clearance is based on voltage of the line. • If exposing a utility, proper support and protection must be provided so that the utility will not be damaged. • If a gas line is contacted, the contractor must notify police, fire, and emergency personnel, and evacuate employees according to the site evacuation procedures. No attempt should be made to tamper with or correct the damaged utility. • See SOP HS-014
Vehicular Traffic – Struck by injury, crushing	• Increase visibility of the work area to others by using cones, flags, barricades, proper lighting and caution tape to define work area. • Use a "spotter" to locate oncoming vehicles. • Use vehicle to block work area. • Engage police detail for all work conducted in appropriate areas. • Wear high-visibility, reflective vest at all times. • Maintain minimum DOT defined distances to other traffic lanes. • See SOP HS-016.

Activity	Potential Hazard	Control Measures
Asbestos Exposure	Respiratory irritation, eye irritation, skin irritation	• APR with P-100 cartridges, Steel-toe/shank boots, gloves, protective clothing, negative pressure air machines with HEPA filters and exterior exhaust
Carrying Equipment	Heavy lifting, strains/sprains, slips/trips/falls, pinch points	• Use proper lifting techniques as defined in the heavy lifting activity analysis below • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions and cause disorders like tendinitis or carpal tunnel syndrome • Take breaks when carrying items frequently and/or for long distances • Do not over reach when picking up or placing items. • Use the buddy system when necessary. • When climbing ladders, maintain three points of contact at all times. DO NOT carry equipment up or down ladders unless it is in a secure backpack or similar hands-free shoulder-strap bag or case. Lower or raise larger equipment by crane or rope.
Confined Space Entry (General)	Asphyxiation, entrapment, chemical exposure, fire/explosion hazards	• Only trained GEI personnel can enter the space. • The atmosphere in the space must meet GEI entry requirements. • A copy of the permit will be forwarded to the CHSO prior to entry. • A multi-gas meter must be used to characterize the space before entry. • Proper protective equipment must be worn at all times while personnel are in the space. • Heavy duty flashlights and headlamps should be used while in the space to improve visibility.

Activity	Potential Hazard	Control Measures
Construction Site Entry	Struck-by, caught-in-between equipment, crushing, pinch points	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or (electrical hazard) EH-rated safety boots with composite toe and shank; safety glasses; nitrile/neoprene gloves; and earplugs. • Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Coordinate hand signals with operators. • Stay Alert! Pay attention to equipment backup alarms and swing radii. • Wear a high-visibility, reflective vest when working near equipment or motor vehicle traffic. • Position yourself in a safe location when filling out logs talking with the contractor. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspended loads or near any pressurized equipment lines. • Do not operate cellular telephones in the vicinity of heavy equipment operation. • See HS-018.
Cutting Cores	Cuts/lacerations	• Use care when cutting cores. Use mechanical shears, electric knife or self-retracting safety blade when handling cores. • Eliminate hazard by having the drillers open the cores for you. • When using cutting tools, follow the safety precautions listed below: • Keep free hand out of the way. • Secure work if cutting through thick material. • Use only sharp blades; dull blades require more force that results in less knife control. • Pull the knife through the object and away from your body; pulling motions are easier to manage. • Do not put the knife in your pocket. • Wear leather or Kevlar® gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.
Decontamination of equipment and PPE	Possible exposure to decontamination chemicals	• Wear rubber gloves and glasses to provide eye protection from splashing. Wash hands immediately after use.

Activity	Potential Hazard	Control Measures
Drilling Oversight/ Sampling	Contaminant Exposure, Noise, Contact with Utilities, Cuts/Scrapes, Heavy Lifting, Repetition, Slips/Trips/Falls	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or composite toe and shank; safety glasses; Nitrile/neoprene gloves; and earplugs. • Confirm utility locate has been completed. • Confirm adequate clearance from overhead utilities. • Dispose of gloves after use and wash hands. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards. • If cutting through concrete, follow the work practices and respiratory protection recommended in Table 1 of the GEI Silica Program based on the type of equipment being used to cut through the concrete.
Drum Handling	Contaminant Contact Wear proper PPE during sampling including nitrile gloves and safety glasses. Cuts or Abrasions Heavy Lifting, Slips/Trips/Falls	• Wear proper PPE during sampling including nitrile gloves and safety glasses and face shield as appropriate. • Use proper dollies or drum moving tools. • Use applicable tools to open/close drum lids. • Do not handle drums with bulging sides. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Use proper lifting techniques. • Ask fellow worker for help. • Keep trafficked areas free from slip/trip/fall hazards. • See SOP HS-003
Electrical Safety	Electrocution, burns, shock	• Conductive items such as jewelry or clothing containing metals will not be worn. • Visually inspect equipment or systems for indications of possible damage. Equipment found damaged or defective will not be used and will be properly tagged as “Out of Service”. • Shut down the machine/equipment by the normal stopping procedure (stop button, open switch, close valve, etc.). • Disconnect the machine/equipment from the energy source. • Be aware of stored or residual energy and dissipate or restrain. • When the system/equipment is ready to be returned to service, make sure all tools are removed and the system is operationally intact. • Verify that all employees are in a safe position and have been removed from the area and notify when system/equipment is ready for use. • See SOP HS-005 a/b

Activity	Potential Hazard	Control Measures
Excavation and Trenching Oversight	Crushing, entrapment, falls, fire/explosion	• Prior to excavating, determine utility locations and have locations marked by utility companies and the property owner. • Utilities shall be properly supported and barriers should be erected around excavations in remote areas. • Backfill temporary excavations when work is completed. • Personnel must remain 2 feet from the face of the excavation. • Sides, slopes, and faces shall meet OSHA requirements. • Excavation entry will be allowed only with proper sloping or shoring. • See SOP HS-006
Groundwater Sampling	Contaminant Exposure, Heavy Lifting, Repetition, Slips/Trips/Falls	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or composite toe and shank; safety glasses and Nitrile/neoprene gloves. • Dispose of gloves after use and wash hands. • User proper lifting techniques. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
Hand Augering	Repetition, pinch point, back/wrist/knee injury, cuts and scrapes	• Wear appropriate PPE including safety glasses and gloves that provide protection and grip. • Remove excavated soil only after stopping the hand auger. • Keep trafficked areas free from slip/trip/fall hazards. • A thorough underground utility survey must be conducted prior to intrusive activities. Coordination with utility locating services, property owner(s) or utility companies must be conducted. • Inspect hand auger prior to use to determine if it is functioning properly and free of metal burs. • Use the appropriate size hand auger for the job. • Use hand movements that exert minimum pressure on wrist bones. • Take regular breaks and do not work in unusual positions for long periods of time.

Activity	Potential Hazard	Control Measures
Hammer Drill Use	Cuts/Scrapes, Noise, Slips/Trips/Falls, Heavy Lifting, Repetition, Struck-by, caught-in-between equipment, pinch points, hot surfaces (burns), electrical shock	• Wear appropriate PPE including: hard hat, gloves, steel toed/shank safety boots, safety glasses, high visibility reflective clothing, and ear plugs. • Use a hammer drill equipped with a shroud or cowling with dust collection system. If dust exposures cannot be controlled, respiratory protection must be used based on Table 1 of the GEI Silica Program. • Keep hands and loose clothing away from moving parts. • Use proper lifting techniques. • Do not remove equipment guards on equipment. • Take regular breaks and do not work in unusual positions for long periods of time. • Avoid standing in water when working with electrically powered equipment or tools. • Inspect electrically powered equipment or tools prior to use. Tag and remove from service any tool with frayed cords, broken plugs, or otherwise damaged. • Electrical equipment or tools must be connected to ground fault circuit interrupters.
Handling/Mixing Cement	Chemical exposure, heavy lifting	• Wear appropriate PPE including: Waterproof gloves, a long-sleeved shirt, and long pants should be worn and safety glasses. • Use proper lifting techniques. • Avoid prolonged contact with fresh concrete – contact with skin surfaces, eyes, and clothing may result in burns that are quite severe. • Wash hands and arms immediately afterwards with clean water, non-alkaline soap, and clean towels. • Use all available work practices to control dust exposures.
Heavy Lifting	Back injury, knee injury	• Use proper lifting techniques. • Ask fellow worker for help. • Use a mechanical lifting device or a lifting aid where appropriate. • If you must lift, plan the lift before doing it. • Check your route for clearance. • Bend at the knees and use leg muscles when lifting. • Use the buddy system when lifting heavy or awkward objects. • Do not twist your body while lifting. • See SOP HS-025

Activity	Potential Hazard	Control Measures
Heavy Equipment – Working Near	Struck-by, caught-in-between equipment, crushing, pinch points	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or (electrical hazard) EH-rated safety boots with composite toe and shank; safety glasses; nitrile/neoprene gloves; and earplugs. • Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Coordinate hand signals with operators. • Stay Alert! Pay attention to equipment backup alarms and swing radii. • Wear a high-visibility, reflective vest when working near equipment or motor vehicle traffic. • Position yourself in a safe location when filling out logs talking with the contractor. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspended loads or near any pressurized equipment lines. • Do not operate cellular telephones in the vicinity of heavy equipment operation. • See SOP HS-018
Waste Characterization	Contaminant Contact • Wear proper PPE during sampling including nitrile gloves and safety glasses. Cuts or Abrasions, Slips/Trips/Falls	• Wear proper Personal Protective Equipment (PPE) during sampling including nitrile gloves and safety glasses. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Keep trafficked areas free from slip/trip/fall hazards.
Working near Water	Drowning, hypothermia	• While working near water stay inside guard rails and or barriers. • While working out of safety zones a U.S. Coast Guard-approved Type III or a Type V personal flotation device (PFD) must be worn at all times and an approved 30-inch ring buoy will be readily available for emergency rescue operations. • A PFD must be worn within 6 feet of the water if there are no barriers or safeguards. • Use appropriate fall protection. • Buddy system shall be in use. • See SOP HS-017

PPE is the initial level of protection based on the activity hazards and site conditions which have been identified. Upgrades to respiratory protection may be required based on the designated Action Levels found in Section 9. General on-site provisions will include: extra nitrile, leather, and/or Kevlar gloves, extra protective coveralls (e.g. Tyvek®) with boot covers, drinking water and electrolyte fluids, reflective vest, first aid kit, fire extinguisher, hearing protection, and washing facilities.

If site conditions suggest the existence of a situation more hazardous than anticipated, the site personnel will evacuate the immediate area. The hazard, the level of precautions, and the PPE will then be reevaluated with the assistance and approval of the Corporate Health and Safety Officer (CHSO) and the Project Manager (PM).

4.3 Personal Safety

Field activities have the potential to take employees into areas which may pose a risk to personal safety. The following websites (sources) have been researched to identify potential crime activity in the area of the project:

- www.crimereports.com: No crimes identified in the past 30 days of preparing this HASP (April 15, 2020) within a mile of the Site.
- www.cityrating.com/crimestatistics.asp: New York crime statistics report an overall downward trend in crime based on data from 17 years with violent crime decreasing and property crime decreasing. Based on this trend, the crime rate in New York for 2020 is expected to be lower than in 2016.
- The city violent crime rate for New York in 2016 was higher than the national violent crime rate average by 44.41% and the city property crime rate in New York was lower than the national property crime rate average by 40.33%. In 2016 the city violent crime rate in New York was higher than the violent crime rate in New York by 52.42% and the city property crime rate in New York was lower than the property crime rate in New York by 5.39%.

Brooklyn, New York is not listed on the Crime Mapping website; however, the New York City Police Department has a Crime Map showing crime statistics for the year to date. Prior to July 8, 2018, 423 incidents were listed in the 94th Precinct. This is an increase of 14.95% from 2017.

To protect yourself, take the following precautions:

- If deemed necessary by the PM, use the buddy system (teams of a minimum of two persons present);
- Let the Site Safety Officer (SSO) know when you begin work in these areas and when you leave;
- Call in regularly;
- Pay attention to what is going on around you; and
- If you arrive in an area and it does not look safe to get out of your vehicle, lock the doors and drive off quickly, but safely.

Employees must not knowingly enter into a situation where there is the potential for physical and violent behaviors to occur. If employees encounter hostile individuals or a confrontation develops in the work area, suspend work activities, immediately leave the area of concern, and contact local 911 for assistance. Notify the SSO and Safety Team (Corporate Health and Safety Officer and Regional Health and Safety Officers –SafetyTeam@geiconsultants.com) of any incidents once you are out of potential danger.

In the event of an emergency, prompt communications with local emergency responders is essential. At least one charged and otherwise functioning cell phone to facilitate emergency communications will be on-site. Confirmation of cellular phone operation will be confirmed at the start of each working day.

4.3.1 Handling Drums and Containers

Regulations for handling drums and containers are specified by Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120(j). Potential hazards associated with handling drums include vapor generation, fire, explosions, and possible physical injury. Handling of drums/containers during the Site investigation and remediation activities may be necessary. If drum/container handling is necessary, it will be performed in accordance with applicable regulations.

4.3.2 Electrical Hazards

4.3.2.1 Utilities

The Site may have shallow, buried utilities and also overhead utilities in certain areas. It will be necessary for parties disturbing the existing ground surface and conducting operations with heavy equipment having high clearances to exercise caution in performing project-related work with respect to the presence of utilities. Utility companies with active, buried lines in the Site area will be asked by the Contractor performing intrusive activities to mark their facilities. Employees will use these data to choose work locations.

4.3.2.2 Underground Utilities

No excavating, drilling, boring, or other intrusive activities will be performed until an underground utility survey, conducted by knowledgeable persons or agencies, has been made. This survey will identify underground and in-workplace utilities such as the following:

- Electrical lines and appliances;
- Telephone lines;
- Cable television lines;
- Gas lines;
- Pipelines;

- Steam lines;
- Water lines;
- Sewer lines; and/or
- Pressurized air lines.

The location of utilities will be discussed with GEI employees and subcontractors during a Site Safety Briefing. Identified utilities should be marked or access to them otherwise restricted to avoid chance of accidental contact. 811 must be called at least 3-days prior to work starting and valid 811 tickets will be maintained on-site.

Even when a utility search has been completed, drilling, boring, and excavation should commence with caution until advanced beyond the depth at which such utilities are usually located. Utilities will be considered "live" or active until reliable sources demonstrate otherwise.

4.3.2.3 Overhead Utilities

Overhead transmission and distribution lines will be carried on towers and poles which provide adequate safety clearance over roadways and structures. Clearances will be adequate for the safe movement of vehicles and for the operation of construction equipment.

Overhead or above-ground electric lines should be considered active until a reliable source has documented them to be otherwise. Elevated work platforms, ladders, scaffolding, man-lifts, and drill or vehicle superstructures will be erected a minimum of 20 feet (the actual distance is dependent upon the voltage of the line) from overhead electrical lines until the line is de-energized, grounded, or shielded so arcing cannot occur between the work location or superstructure.

4.3.3 Precautions for Working in Confined Spaces

Work in confined spaces will be performed in accordance with 29 CFR 1910.146 (effective April 15, 1993), and GEI Permit Required Confined Space Entry program. The PM will work with the CHSO to address confined space issues as applicable prior to the start of the project. A confined space entry number will be obtained from the CHSO before entering space. The PM will contact local emergency responders to make arrangements for potential rescue. This correspondence will be documented and submitted to the CHSO. Copies of the standards will be kept on file in GEI's main office. Confined space work will not be performed without first notifying and receiving approval from the CHSO.

4.3.4 Excavations and Trenches (Including Drilling)

The safety requirements for excavations and trenches must be determined by a competent person who is capable of identifying existing and predictable hazards and work conditions

that are unsanitary, hazardous, or dangerous to GEI employees. The competent person must also have the authorization to take prompt corrective measures to eliminate unsatisfactory conditions. GEI employees will not enter trenches.

The following are general requirements for work activities in and around excavations:

- Prior to initiation of excavation activity (or ground intrusive activity, such as drilling), the location of underground installations will be determined. The One-Call/Dig-Safe center will be contacted by the Contractor/Subcontractor a minimum of 72 hours prior to excavation activities. It may also be necessary to temporarily support underground utilities during excavation. When excavations approach the estimated location of underground installations, the exact location of the underground installations will be determined by means that are safe for GEI employees, i.e., hand dig, test pits, etc.
- Excavations should be inspected daily by the excavating company's competent person prior to commencement of work activities. Evidence of cave-ins, slides, sloughing, or surface cracks or excavations will be cause for work to cease until necessary precautions are taken to safeguard employees.
- Excavated and other materials or equipment that could fall or roll into the excavation, and vehicular traffic and heavy equipment will be placed at least 5 feet from the edge of the excavation.
- Excavation operations will cease immediately during hazardous weather conditions such as high winds, heavy rain, lightning, and heavy snow.
- Atmospheres are to be tested with a properly calibrated Combustion Gas Indicator (CGI) or Gas Measurement Instrument (GMI) in accordance with National Grid excavation procedures as required.

Employees will refer to GEI's Excavation Safety SOP for further information.

4.3.5 Fire and Explosion

When conducting excavating activities, the opportunity for encountering fire and explosion hazards exists from contamination in soil and the possibility of free product in underground structures and pipelines. Additionally, the use of diesel-powered excavating equipment could present the possibility of encountering fire and explosion hazards.

4.3.6 Heat Stress

Employees may be exposed to the hazards associated with heat stress when ambient temperatures exceed 70º F. Employees should increase water intake while working in conditions of high heat. Enough water should be available so that each employee can consume 1 quart of water per hour. In addition, they should increase number of rest breaks and/or rotate employees in shorter work shifts. Employees should rest in cool, dry, shaded areas for at least 5 minutes. Employees should not wait until they feel sick to cool down.

Watch for signs and symptoms of heat exhaustion and fatigue. In the event of heat stroke, bring the victim to a cool environment, call for help, and initiate first aid procedures.

The procedures to be followed regarding avoiding heat stress are provided in Appendix C – Heat Stress Guidelines and in GEI's Heat Stress program.

4.3.7 Cold Stress

Employees may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, and poor judgment. The procedures to be followed regarding avoiding cold stress are provided in Appendix C – Cold Stress Guidelines and in GEI's Cold Stress program.

4.3.8 Noise

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps, and generators. Employees who will perform suspected or established high noise tasks and operations will wear hearing protection. If deemed necessary by the SSO, the CHSO will be consulted on the need for additional hearing protection and the need to monitor sound levels for Site activities. Other employees who do not need to be in proximity of the noise should distance themselves from the equipment generating the noise.

4.3.9 Hand and Power Tools

In order to complete the various tasks for the project, personnel may use hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Work gloves, safety glasses, and hard hats will be worn by the operating personnel when using hand and power tools and Ground Fault Circuit Interrupter (GFCI)-equipped circuits will be used for power tools.

4.3.10 Slips, Trips, and Falls

Working in and around the Site may pose slip, trip, and fall hazards due to slippery and uneven surfaces. Excavation at the Site may cause uneven footing in trenches and around the soil piles. Steep slope and uneven terrain conditions at the Site are also a primary concern. GEI employees will wear proper foot gear and will employ good work practice and housekeeping procedures to minimize the potential for slips, trips, and falls.

4.3.11 Manual Lifting

Manual lifting of objects and equipment may be required. Failure to follow proper lifting technique can result in back injuries and strains. Employees should use a buddy system

and/or power equipment to lift heavy loads whenever possible and should evaluate loads before trying to lift them (i.e., they should be able to easily tip the load and then return it to its original position). Carrying heavy loads with a buddy and proper lifting techniques include: 1) make sure footing is solid; 2) make back straight with no curving or slouching; 3) center body over feet; 4) grasp the object firmly and as close to your body as possible; 5) lift with legs; and 6) turn with your feet, don't twist.

4.3.12 Overhead Dangers

Overhead dangers, including but not limited to falling debris and equipment, can occur while operating drill rigs. GEI employees will maintain a minimum distance from large overhead operations and to maintain proper communication with heavy equipment operators and their handlers, should work necessitate their presence beyond the minimum safety distance. Proper PPE will be worn during these types of activities including steel-toed/shank boots, safety vests, safety glasses, and hard hats.

4.3.13 Cuts and Lacerations

The core sampling program may require employees or the contractor to use powered cutting tools (circular saw or shears) or a hooked knife to cut open the sample liner. Safety box cutters will be utilized for routine operations such as opening boxes of supplies or cutting rope or string. When using cutting tools, follow the safety precautions listed below:

- Keep free hand out of the way.
- Secure work if cutting through thick material.
- Use only sharp blades; dull blades require more force that results in less knife control.
- Pull the knife through the object and away from your body; pulling motions are easier to manage.
- Do not put the knife in your pocket.
- Wear leather or Kevlar® gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.

4.3.14 Working Near Water

The buddy system will be used when working within 6-feet water, in which two persons operate as a single unit in order to monitor and assist each other in performing tasks. Personnel must be attired in a United States Coast Guard (USCG)-approved Type III or Type V work vest. The vest must be properly sized for the individual and must be secured. A throwable rescue device (Type IV personal flotation device [PFD] flotation aid) along with whatever equipment (i.e., ladders, lifting gear, or rescue boat) necessary will be immediately available to recover an individual from the water.

Waders may not be worn when working along, over, or in moving waters; or in waters influenced by tides or acted upon by waves when water depths exceed knee height unless specifically approved by the CHSO. Waders may be worn in still waters and in water depths up to the waist, if bottom conditions are firm and well understood. Waders should never be worn aboard a watercraft.

Take special care on slippery rocks along shorelines, lakeshores, riverbanks, and creeks. Always look ahead at the ground when walking around the water's edge and avoid stepping on stones that have algal growth, especially those in intertidal areas, as these are extremely slippery. Employees should limit access to areas where these slip/fall hazards exist, especially in locations containing tidal water flow.

4.3.15 Fall Protection

Fall protection or fall restriction devices shall be used when working at heights over 4 feet with the exception of ladder use, when three points of contact are maintained. Examples of fall protection include appropriate guardrail systems, completed/approved scaffolding and personal fall arrest. A Fall Protection Plan must be developed when GEI employees are working where there is a potential to fall to a lower level greater than 4 feet. The Fall Protection Plan template can be found on the Health and Safety page of the GEI intranet. This plan must be submitted to the Safety Team for approval and will be attached to this HASP as an additional section or appendix.

4.3.16 Cellular Phone Use

Cellular phones lead to distractions that can cause accidents on the job, while driving and walking. The cognitive and visual distraction of a mobile device while performing tasks can put you and those around you at risk. Do not use mobile devices, including blue tooth enabled devices, while working near heavy machinery/equipment, while driving, or walking. If you have to talk, text, or use an electronic device, stop and move to a safe location away from others and oncoming hazards.

4.4 Chemical Hazards

The characteristics of compounds at the Site are discussed below for information purposes. Adherence to the safety and health guidelines in this HASP should reduce the potential for exposure to the compounds discussed below.

4.4.1 Asbestos-Containing Materials

The Site potentially contains asbestos-containing materials (ACM) in the forms of demolition debris within or without holders, ACM pipe insulation, and asbestos cement pipe. Chronic exposure to asbestos may cause asbestosis and mesothelioma. The primary route of exposure

for asbestos is inhalation during the disturbance and/or removal of asbestos from the pipe insulation and cement pipes.

Asbestos is strictly regulated under OSHA 29 CFR 1910.1001/1926.1101. Employees that may be potentially exposed to ACM must participate in a medical surveillance program, have specific training in the hazards and controls of exposure to asbestos, and wear respirators with high efficiency particulate air (HEPA) filters. Work must be conducted in demarcated regulated areas to minimize the amount of people within the exposure area. Employers must conduct air sampling and provide signs and labels regarding the presence of asbestos.

4.4.2 Chlorinated Hydrocarbons

Chlorinated hydrocarbons (organochlorides) are a very large and diverse group of hydrocarbon molecules that also have at least one covalently bound chlorine atom chemically bonded to them. Chlorinated hydrocarbons are used predominantly as solvents and have historically been used as industrial degreasers, dry cleaning solvents, anesthetic agents and as refrigerants. They are colorless, volatile liquids with a moderately sweet aroma and partially soluble in but denser than water. They are the most common dense non-aqueous phase liquid (DNAPL).

The more common forms of chlorinated solvent contamination of soils and ground waters include:

- Tetrachloroethene (PCE, Tetrachloroethylene)
- Carbon tetrachloride (Tetrachloromethane or carbon tet)
- Trichloroethylene (TCE, Trichloroethene)
- 1,1,1-TrichloroMethane (Chloroform)
- 1,1,1-Trichloroethane (TCA, methyl chloroform, chlorothene, Solvent 111)
- Dichloromethane (DCM or methylene chloride)

As a class, the chlorinated hydrocarbons are potent central nervous system depressants or stimulants. They also cause greater liver and kidney damage compared to other organic solvents. Many have been shown to cause cancer in laboratory animals; due to widespread industrial use, the issue of carcinogenic risk to humans is one of the most controversial issues in regulatory toxicology.

Exposure to chlorinated hydrocarbon compounds in the occupational setting is primarily through inhalation. Skin absorption is variable and usually insignificant, although dermal absorption following prolonged or extensive skin contact can cause systemic toxicity.

4.4.3 Coal Tar and Coal Tar Products

Coal tar products, which are semi-volatile organic compounds (SVOCs) consist of a mixture of acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluorethene, benz(a)pyrene, benzo(e)pyrene, benzo(g,h,i)peryline, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3cd)pyrene, 2-methyl naphthalene, naphththalene, phenanthrene, phenols, pyrene.

Coal tar products and other SVOCs are present at the Site within impacted soil and groundwater and as a DNAPL by-product of gas production within soils, former MGP structures, and abandoned pipelines.

Coal tar products such as those listed above may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. Coal tar is considered to be very toxic, if ingested. High levels of exposure to coal tar, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

4.4.4 Cyanide

Cyanide compounds are common by-products of manufactured gas production. Hydrogen cyanide is toxic because it is a chemical asphyxiate. It replaces the oxygen in the blood and thereby suffocates the cells. Ferro cyanides are not considered toxic because the hydrogen cyanide ion is bound too tightly to the iron and cannot therefore replace the oxygen. It takes a great amount of heat and/or acid to release cyanide gas from the ferro cyanide molecule; therefore, hydrogen cyanide is not a concern at this Site. However, it is National Grid's policy to monitor for hydrogen cyanide during earth-disturbing activities at sites where MGP-related contaminants have been found.

4.4.5 Heavy Metals

Exposure to high concentrations of arsenic can cause dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, and hyper pigmentation of skin. Chronic exposure to arsenic has resulted in lung cancer in humans.

Exposure to high concentrations of aluminum can cause irritation of the eyes, skin, and the respiratory system.

Exposure to high concentrations of antimony can cause irritation of eyes, skin, nose, throat, and mouth; coughing; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; and could be unable to smell properly. Chronic exposure to antimony can produce respiratory effects that include antimony pneumoconiosis (inflammation of the lungs due to irritation caused by the inhalation of dust), alterations in pulmonary function, chronic bronchitis, chronic emphysema, inactive tuberculosis, pleural adhesions, irritation; cardiovascular effects (increased blood pressure, altered EKG readings and heart muscle damage) and gastrointestinal disorders in humans.

Exposure to high concentrations of beryllium can result in "beryllium sensitization," which is an allergic response to beryllium. Symptoms of the disease include cough, shortness of breath, fatigue, fevers, skin rash, and night sweats. In the later stages, lung tissue becomes scarred. In severe cases, the right side of the heart may be strained due to increased pressure in the pulmonary artery from lung damage.

Exposure to high concentrations of cadmium can cause acute symptoms such as pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness and pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; loss of the sense of smell), mild anemia; and is considered a potential occupational carcinogen.

Exposure to chromium can cause acute symptoms such as irritation of the eyes, nose and throat as well as wheezing and coughing. Chronic effects include nosebleeds, nasal congestion, dermatitis, and loss of sight.

Exposure to high concentrations of copper through inhalation can cause irritation of the eyes, nose, pharynx, nasal septum. Ingestion may cause a metallic taste. Skin irritation may result from direct contact with skin. Damage to the liver and kidneys may occur.

No adverse health effects are associated with environmental exposure to iron. Target organs for iron via ingestion of iron (most often in supplement form) are the liver, cardiovascular system, and kidneys. Exposure to high concentrations of iron through ingestion can cause salivation nausea, vomiting, diarrhea, and abdominal pain.

Exposure to lead may cause acute symptoms such as eye irritation, weakness, weight loss, abdominal pain, and anemia. Chronic exposure to lead may result in kidney disease, effects to the reproductive system, blood forming organs, and Central Nervous System (CNS).

Lead and arsenic are regulated by specific OSHA standards. They are 29 CFR 1910.1025/1926.52 and 29 CFR 1910.1018/1926.1118, respectively. These standards

include specific requirements for air monitoring, signs and labels, training and medical surveillance.

Exposure to high concentrations of manganese can cause manganism, metal fume fever, flu-like fever, and kidney damage.

Exposure to high concentrations of nickel may cause sensitization dermatitis, allergic asthma, and pneumonitis. Exposure to mercury can cause dizziness, salivation nausea, vomiting, diarrhea, constipation, emotional disturbance, and kidney injury. Chronic exposure to mercury can cause CNS damage.

Exposure to high concentrations of selenium can cause mucous membrane irritation, coughing, sneezing, shortness of breath, chills, headaches, hypotension, and CNS depression. Chronic exposure to selenium could cause bronchial irritation, gastrointestinal distress, excessive fatigue, and skin discoloration.

Exposure to high concentrations of thallium can cause nausea, diarrhea, abdominal pain, vomiting; tremor; chest pain, pulmonary edema; convulsions, psychosis; liver, kidney damage; and alopecia.

Vanadium may cause greenish-black discoloration of the tongue and is a possibly carcinogenic to humans. Long-term or repeated exposure to vanadium may have effects on the respiratory tract, resulting in chronic rhinitis and chronic bronchitis.

Exposure to high concentrations of zinc through ingestion can cause abdominal pain, nausea, vomiting, and diarrhea. Chronic exposure can lead to low blood pressure, jaundice, and seizures.

These metals are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. As with SVOCs, the primary route of exposure is through inhalation of dust particles when soil is disturbed and becomes airborne.

4.4.6 Hydrogen Sulfide

Hydrogen sulfide is another common by-product of manufactured gas production. Exposure to lower concentrations can result in eye irritation, a sore throat and cough, shortness of breath, and fluid in the lungs. These symptoms usually go away in a few weeks. Long-term, low-level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness. Breathing very high levels (> 800 parts per million [ppm]) of hydrogen sulfide can cause death within just a few breaths. The primary route of exposure is through inhalation and, therefore, respiratory protection is the primary control against exposure to hydrogen sulfide.

4.4.7 Pesticides

Pesticide exposures, in general, affect the CNS, liver, kidneys, and skin. At high concentrations, pesticides can cause headache, dizziness, nausea, vomiting, malaise (vague feeling of discomfort), sweating, limb jerks, convulsions, and coma. The pesticides detected at the site are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur.

4.4.8 Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbons (PAHs), are a group of chemicals consisting of numerous carbon atoms joined together to form multiple rings. PAHs include acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluorethene, benz(a)pyrene, benzo(e)pyrene, benzo(g,h,i)peryline, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, phenols, and pyrene. Most are formed from the incomplete combustion of plant or animal matter, or carbon fuels, such as coal or petroleum. These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. PAHs may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. High levels of exposure to PAHs, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

4.4.9 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) have previously been encountered during MGP site investigations at other sites. PCBs have historically been used from a number of sources including, but not limited to; electrical systems, hydraulic oils, lubricants, cutting oils, printer's ink, and asphalt. Exposure to PCBs can occur through unbroken skin without immediate pain or irritation. PCBs detected at the site are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. Acute effects of exposure to high concentrations of PCB can include eye, skin, nose, and throat irritation. Chronic effects of PCB exposure can include skin swelling and redness, gastro-intestinal disturbances, and neurological effects such as headache, dizziness, nervousness,

and numbness of extremities. PCBs are suspected human carcinogens that can cause liver cancer. PCBs can accumulate in fatty tissues and result in health effects after the initial exposure has occurred. The primary route of exposure for PCBs is inhalation, dermal contact, and ingestion. Analysis of soils from the Site did not indicate elevated PCB concentrations.

4.4.10 SVOCs

SVOCs are present at the Site within impacted soil and groundwater and as a dense DNAPL by-product of gas production within soils, former MGP structures, and abandoned pipelines.

These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. SVOCs such as those listed above may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. Many SVOCs are considered to be very toxic, if ingested. High levels of exposure to SVOCs, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

4.4.11 Volatile Organic Compounds

Volatile organic chemicals (VOCs), such as benzene, toluene, ethyl benzene, and xylene (BTEX) are present as soil and groundwater contaminants, and in some cases chemical components in non-aqueous phase liquids (NAPL) such as oil or tar within soils and abandoned pipelines. These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. These compounds generally have a depressant effect on the CNS, may cause chronic liver and kidney damage, and some are suspected human carcinogens. Benzene is a known human carcinogen. Acute exposure may include headache, dizziness, nausea, and skin and eye irritation. The primary route of exposure to VOCs is through inhalation and, therefore, respiratory protection is the primary control against exposure to VOCs.

4.4.12 Coal Ash

Coal ash, also referred to as coal combustion residuals or CCRs, is produced primarily from the burning of coal in coal-fired power plants. Coal ash includes a number of by-products produced from burning coal. Coal ash contains contaminants like mercury, cadmium and arsenic. Ash is a solid, grey/black or brown/tan, odorless powder which may contain solidified masses. It is not combustible or explosive. Airborne dust may cause immediate or delayed irritation or inflammation to the eyes, nose, throat, or lungs depending on the degree of exposure. Ash may contain trace amounts of ammonia or ammonia bisulfate. Contact with water or moisture can cause the ammonia to be released from the ash into the air. Inhalation of ammonia can cause coughing and irritation or burns to the nose throat and lungs. These effects depend on the concentration of ammonia inhaled. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne. For dust generated during site activities which exceed site specific limits, engineering controls such as water application will be used to control dust concentrations.

4.4.13 Evaluation of Organic Vapor Exposure

Air monitoring reduces the risk of overexposure by indicating when action levels have been exceeded and when PPE must be upgraded or changed. Action Levels for VOCs and associated contingency plans for the work zone are discussed within Section 9 of this HASP.

Exposure to organic vapors will be evaluated and/or controlled by:

- Monitoring air concentrations for organic vapors in the breathing zone with a photoionization detector (PID) or a flame ionization detector (FID).
- When possible, engineering control measures will be utilized to suppress the volatile organic vapors. Engineering methods can include utilizing a fan to promote air circulation, utilizing volatile suppressant foam, providing artificial ground cover, or covering up the impacted material with a tarp to mitigate volatile odors.
- When volatile suppression engineering controls are not effective and organic vapor meters indicate concentrations above the action levels, then appropriate respiratory protection (i.e., air purifying respirator with organic vapor cartridge) will be employed.

4.4.14 Evaluation of Skin Contact and Absorption

Skin contact by contaminants may be controlled by use of proper hygiene practices, PPE, and good housekeeping procedures. The proper PPE (e.g., Tyvek®, gloves, safety glasses) as described in Section 5 will be worn for activities where contact with potential contaminated media or materials are expected.

SDSs for decontamination chemicals and laboratory reagents that may be used on Site are included in Appendix B. Specific chemical hazards information from the occupational health sources are summarized in Table 3.

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Aluminum	7429-90-5	NIOSH REL: TWA 10 mg/m3 (total) TWA 5 mg/m3 (resp)	TWA 15 mg/m3 (total) TWA 5 mg/m3 (resp)	Inhalation, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Silvery-white, malleable, ductile, odorless metal. FP: none LEL:N/A UEL: N/A VP: 0 mm
Antimony	7440-36-0	TWA 0.5 mg/m3	TWA 0.5 mg/m3	Inhalation Ingestion Skin Contact Eyes	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Respiratory system, skin, eyes, cardiovascular systems	Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder. FP: NA IP: NA LEL: NA UEL NA VP: 0 mm
Arsenic	7440-38-2	0.01 mg/m^3	0.01 mg/m^3 A.L. .005mg/m3	Inhalation Skin Absorption Ingestion Skin Contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, potential carcinogen	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin-white, brittle, odorless solid FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Asbestos	1332-21-4	0.1 f/cc	0.1 f/cc over 8 hr period or 1.0f/cc over 30 min.	Inhalation Ingestion Skin Contact	Asbestosis (chronic exposure); mesothelioma, breathing difficulty, interstitial fibrosis' restricted pulmonary function, finger clubbing; irritate eyes, potential carcinogen	Respiratory system, eyes	White, greenish, blue, or gray-green fibrous solids FP: NA IP: NA LEL: NA UEL NA VP: 0 mm
Barium	7727-43-7	TWA 10 mg/m3 (total) TWA 5 mg/m3 (resp)	TWA 15 mg/m3 (total) TWA 5 mg/m3 (resp)	Inhalation, skin and/or eye contact	Irritation eyes, nose, upper respiratory system; benign pneumoconiosis (baritosis)	Eyes, respiratory system	Metal: White or yellowish, odorless powder FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Benzene	71-43-2	0.5 ppm (Skin)	1 ppm TWA 5 ppm STEL	Inhalation Skin Absorption Ingestion Skin Contact	Irritation of eyes, skin, nose, respiratory system, giddiness, headache, nausea; staggering gait, fatigue, anorexia, weakness, dermatitis, bone marrow depression, potential carcinogen	Eyes, skin, CNS, bone marrow, blood	FP: 12° F IP: 9.24 eve LEL: 1.2% UEL:7.8% VP: 75 mm
Beryllium	7440-41-7	NIOSH REL: Ca C 0.0005 mg/m3	TWA 0.002 mg/m3 C 0.005 mg/m3 (30 minutes), with a maximum peak of 0.025 mg/m3	Inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	A hard, brittle, gray-white solid.. FP: none LEL:N/A UEL: N/A VP: 0 mm
Cadmium	7440-43-9 (metal)	CA	TWA 0.005 mg/m^3	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Respiratory system, kidneys, prostate, blood; **Cancer Site** [prostatic & lung cancer]	Silver-white, blue-tinged lustrous, odorless solid. FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Carbon Disulfide	75-15-10		30 ppm C	Inhalation, ingestion, skin absorption, skin contact, eye contact	Dizziness, headache, poor sleep, lassitude, anxiety	Eyes, respiratory system, Central Nervous System	Vapor Pressure: 297 mmHg, Ionization Potential: 10.08 eV

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Carbon Monoxide	630-08-0	35 ppm 200 ppm C	50 ppm	Inhalation, skin and/or eye contact (liquid)	Headache, tachypnea, nausea, lassitude (weakness, exhaustion), dizziness, confusion, hallucinations; cyanosis; depressed S-T segment of electrocardiogram, angina, syncope	Cardiovascular system, lungs, blood, central nervous system	Colorless, odorless gas FP: NA IP: 14.01 eV LEL: 12.5% UEL: 74% VP: >35 atm
Carbon Tetrachloride	56-23-5	Ca ST 2 ppm (12.6 mg/m3) [60-minute]	Ca ST 2 ppm (12.6 mg/m3) [60-minute]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	Central nervous system, eyes, lungs, liver, kidneys, skin	Colorless liquid with a characteristic ether-like odor FP: NA IP: 11.47 eV LEL: NA UEL: NA VP: 91 mmHg
Chromium (Chromic Acid and Chromates)	1333-82-0	0.05 mg/m^3	0.1 mg/m^3	Inhalation Ingestion Skin Contact	Irritates respiratory system, nasal, septum perforation, liver and kidney damage, leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), monocytosis (increased monocytes), Eosinophilia, eye injury, conjunctivitis, skin ulcer, sensitivity dermatitis, potential carcinogen	Blood, respiratory system, liver, kidney, eyes, skin, lung cancer	FP:NA IP:NA VP: Very Low LEL: NA UEL: NA
Copper (as a fume)	1317-38-0	NIOSH REL: TWA 0.1 mg/m3	TWA 0.1 mg/m3	Inhalation, skin and/or eye contact	Irritation eyes, upper respiratory system; metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough, lassitude (weakness, exhaustion); metallic or sweet taste; discoloration skin, hair	Eyes, skin, respiratory system (increased risk with Wilson's disease)	Finely divided black particulate dispersed in air FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Cresol	108-39-4	NIOSH REL: TWA 2.3 ppm (10 mg/m3)	TWA 5 ppm (22 mg/m3) [skin]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; central nervous system effects: confusion, depression, respiratory failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin burns; dermatitis; lung, liver, kidney, pancreas damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys, pancreas, cardiovascular system	Colorless to yellowish liquid with a sweet, tarry odor. FP: 1870 F LEL:1.1% UEL: ? VP: 0.14 mm
Ethylbenzene	100-41-4	100 ppm	100 ppm	Inhalation Ingestion Skin Contact	Eye, skin, mucous membrane irritation; headache; dermatitis, narcosis; coma	Eyes, skin, respiratory system, CNS	FP: 55° F IP: 8.76 eV LEL: 0.8% UEL:6.7% VP: 7 mm
Hydrogen cyanide	74-90-8	4.7 ppm (5 mg/m^3) STEL [skin]	10 ppm (11 mg/m^3) [skin]	Inhalation Ingestion Absorption Skin/Eye Contact	Asphyxia; weakness, headache, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow and gasping; thyroid, blood changes	CNS, CVS, thyroid, blood	Colorless or pale-blue liquid or gas (above 78°F) with a bitter, almond-like odor. VP: 630 mmHg IP: 13.60 eV
Hydrogen sulfide	7783-06-4	10 ppm TWA, 15 ppm STEL	20 ppm C, 50 ppm [10-min. Maximum peak]	Inhalation Skin/Eye Contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, fatigue, irritability, insomnia; gastrointestinal disturbance; liquid: frostbite	Eyes, respiratory system, CNS	Colorless gas with a strong odor of rotten eggs. VP: 17.6 atm IP: 10.46 eV

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Iron	1309-37-1	Iron oxide dust and fume (Fe2O3) as Fe: 5 mg/m3 (TWA);	Iron oxide dust and fume: 10 mg/m3	Inhalation, ingestion, eye contact	Respiratory tract irritation, coughing, shortness of breath, overdose of iron may cause vomiting, abdominal pain, bloody diarrhea, vomiting blood, lethargy, and shock; acidity in the blood, bluish skin discoloration, fever, liver damage, and possibly death; eye and cornea irritation and discoloration	Eyes, respiratory system, GI tract, liver	Reddish brown solid FP: NA LEL: NA UEL: NA VP: 0 mmHg
Lead	7439-92-1	0.050 mg/m^3	0.05 mg/m^3 A.L. 0.03 mg/m3	Inhalation Ingestion Skin Contact	Weakness, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis of wrist and ankles; irritates eyes, hypo tension	Eyes, GI tract, CNS, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid. FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Manganese	7439-96-5	TWA 1 mg/m3 ST 3 mg/m3	C 5 mg/m3	Inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage	Respiratory system, central nervous system, blood, kidneys	A lustrous, brittle, silvery solid. FP: NA LEL: NA UEL: Na VP: 0 mmHg
Mercury	7439-97-6	0.025 mg/m^3	0.10 mg/m3	Inhalation Ingestion Skin Contact Skin Absorption	Irritates eyes and skin, chest pain, cough, difficulty breathing, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, Gastrointestinal disturbance, weight loss, proteinuria	Eyes, skin, respiratory tract, central nervous system	Silver-white, heavy odorless liquid FP: NA IP:? LEL: NA UEL:NA VP: 0.0012 mm

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Naphthalene	91-20-3	10 ppm (52 mg/m3) TWA, 15 ppm (79 mg/m3) STEL	10 ppm (50 mg/m^3) TWA	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	Eyes, skin, blood, liver, kidneys, central nervous system	FP: 174 F IP: 8.12 eV, LEL: 0.8% UEL:6.7%, VP: 0.08 mm
Nickel	7440-02-0 (Metal)	NIOSH REL*: Ca TWA 0.015 mg/m3 [*Note: The REL does not apply to Nickel carbonyl.]	TWA 1 mg/m3 [*Note: The PEL does not apply to Nickel carbonyl.]	Inhalation, ingestion, skin and/or eye contact	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Nasal cavities, lungs, skin Cancer Site: [lung and nasal cancer]	Metal: Lustrous, silvery, odorless solid FP: none LEL:N/A UEL: N/A VP: 0 mm
PCBs	11097-69-1	0.5 mg/m^3 (Skin)	0.5 mg/m^3 (Skin)	Inhalation Skin Absorption Ingestion Skin Contact	Irritate eyes; chloracne; liver damage;	Skin, eyes, liver, reproductive system	Colorless liquid or solid with a mild, hydro-carbon odor VP = 0.00006 mm
Phenol	108-95-2	10 ppm (skin)	5 ppm (19 mg/m^3) [skin]	Inhalation Skin Absorption Ingestion Skin Contact	Irritates eyes, nose, throat, anorexia, weight loss, weakness, muscle ache, pain, dark urine, cyanosis, liver and kidney damage, skin burns, dermatitis, tremors, convulsions, twitching,	Eyes, skin, respiratory system, liver, kidneys	Colorless to light pink crystalline solid with sweet, acrid odor. FP:175 ^{o}F IP:8.5 LEL:1.8% UEL: 8.6% VP: 0.4 mm
Portland Cement	65997-15-1	10 µg/m3 (total) TWA 5 µg/m3 (resp)	TWA 50 mppcf	Inhalation, Ingestion, Skin and/or Eye Contact	Irritation eyes, skin, nose; cough, expectoration; exertional dyspnea (breathing difficulty), wheezing, chronic bronchitis; dermatitis	Eyes, skin, respiratory system	Gray, odorless powder FP: NA IP: NA LEL: NA UEL: NA VP: 0 mmHg

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Selenium	7782-49-2	0.2 mg/m^3	0.2 mg/m^3	Inhalation Ingestion Skin Contact	Irritant to eyes, skin, nose and throat, visual disturbance, headache, chills, fever, breathing difficulty, bronchitis, metallic taste, garlic breath, GI disturbance, dermatitis, eye and skin burns,	Eyes, skin, respiratory system, liver, kidneys, blood spleen	Amphorous or crystalline, red to gray solid FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Thallium		NIOSH REL: TWA 0.1 mg/m3 [skin]	OSHA PEL: TWA 0.1 mg/m3 [skin]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eyes, respiratory system, central nervous system, liver, kidneys, gastrointestinal tract, body hair	Properties vary depending upon the specific soluble thallium compound.
Toluene	108-88-3	50 ppm	200 ppm	Inhalation Skin Absorption Ingestion Skin Contact	Eye, nose irritation; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, tearing of eyes; nervousness, muscle fatigue, insomnia, tingling in limbs; dermatitis	Eyes, skin, respiratory system, CNS, liver, kidneys	FP: 40o F IP: 8.82 eV LEL: 1.1% UEL:7.1% VP: 21 mm
1,2,4-Trimethyl-benzene	95-63-6	NIOSH REL TWA 25 ppm	None	Inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system, blood	FP: 112°F BP: 337°F LEL: 0.9% UEL: 6.4% VP: 1 mmHg

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
1,3,5 – Trimethylbenzene	108-67-8	TWA 25 ppm (125 mg/m3)	NA	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, central nervous system, blood	Class II Flammable Liquid FP: 122°F LEL: NA VP: 2mmHg IP: 8.39 eV UEL: NA
Vanadium	1314-62-1	NIOSH REL*: C 0.05 mg V/m3 [15-minute] [*Note: The REL applies to all vanadium compounds except Vanadium metal and Vanadium carbide}	C 0.5 mg V2O5/m3 (resp)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; green tongue, metallic taste, eczema; cough; fine rales, wheezing, bronchitis, dyspnea (breathing difficulty)	Eyes, skin, respiratory system	Yellow-orange powder or dark-gray, odorless flakes dispersed in air. FP: none LEL:N/A UEL: N/A VP: 0 mm
VOCs	NA	0.5 ppm (Skin)	0.5 ppm TWA 2.5 ppm STEL	Inhalation, Skin Absorption, Ingestion, Skin Contact	Irritate eyes and skin; headaches; dizziness; nausea; kidney; liver damage; depress CNS	Skin, eyes, liver, kidney, CNS	Colorless volatile liquid, sometimes with a sweet or solvent odor
Xylene	1330-20-7	100 ppm	100 ppm	Inhalation Skin Absorption Ingestion, Skin Contact	Eye, skin, nose, throat irritation; dizziness, excitement, drowsiness; incoordination, staggering gait; corneal damage; appetite loss, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, Central Nervous System, GI tract, blood, liver, kidneys	FP: 90o F LEL: 0.9% UEL: 6.7% VP: 9 mm

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Zinc	1314-13-2	5 mg/m3 (TWA), 10 mg/m3 (STEL) for zinc oxide fume	10 mg/m3 (TWA), for zinc oxide fume	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Respiratory system	Colorless liquid FP: NA? IP: 11 eV LEL: 7.5% UEL: 12.5% VP: 100 mmHg

Abbreviations

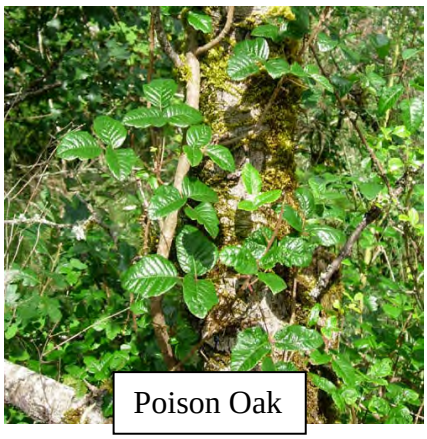
C = ceiling limit, not to be exceeded	LEL = Lower explosive limit
CNS = Central Nervous System	mm = millimeter
CVS = Cardiovascular System	ppm = parts per million
eV = electron volt	Skin = significant route of exposure
FP = Flash point	STEL = Short-term exposure limit (15 minutes)
IP = Ionization Potential	TWA = Time-weighted average (8 hours)
GI = Gastro-intestinal	UEL = Upper explosive limit
A.L. Action Level	VP = vapor pressure approximately 68° F in mm Hg (mercury)

4.5 Biological Hazards

Areas of the Site may be wooded, surrounded with brush, or landscaped. Therefore, employees working on this project should be aware of the potential biological hazards at this Site. Each is discussed in detail below:

4.5.1 Poisonous Plants

Persons working on the Site should be aware of the possible presence of poisonous plants. Poison ivy is a climbing plant with leaves that consist of three glossy, greenish leaflets. Poison ivy has conspicuous red foliage in the fall. Small yellowish-white flowers appear in May through July at the lower leaf axils of the plant. White berries appear from August through November. Poison ivy is typically found east of the Rockies. Poison oak is similar to poison ivy but its leaves are oak-like in form. Poison oak occurs mainly in the south and southwest. Poison sumac typically occurs as a small tree or shrub and may be 6 to 20 feet in height. The bark is smooth, dark and speckled with darker spots. Poison sumac is typically found in swampy areas and east of the Mississippi. The leaves have 7 to 13 smooth-edged leaflets and drooping clusters of ivory-white berries that appear in August and last through spring.



Poison Oak

Poison Ivy

Poison Sumac

The leaves, roots, stems and fruit of these poisonous plants contain urushiol. Contact with the irritating oil causes an intensely itching skin rash and characteristic, blister-like lesions.

The oil can be transmitted on soot particles when burned and may be carried on the fur of animals, equipment, and apparel.

Proper identification of these plants is the key to preventing contact and subsequent dermatitis. Wear long sleeves and pants when working in wooded areas. In areas of known infestation, wear Tyvek® coveralls and gloves. Oils are easily transferred from one surface to another. If you come in contact with these poisonous plants, wash exposed areas immediately with cool water to remove the oils. Some commercial products such as Tecnu's Poison Oak-n-Ivy Cleanser claim to further help with the removal of oils.

4.5.2 Ticks

4.5.2.1 Lyme Disease

Ticks are bloodsuckers, attaching themselves to warm-blooded vertebrates to feed. Deer ticks are associated with the transmission the bacteria that causes Lyme disease. Female deer ticks are about ¼-inch in length and are black and brick red in color. Males are smaller and all black. If a tick is not removed, or if the tick is allowed to remain for days feeding on human blood, a condition known as tick paralysis can develop. This is due to a neurotoxin, which the tick apparently injects while engorging. This neurotoxin acts upon the spinal cord causing incoordination, weakness, and paralysis.

The early stages of Lyme disease, which can develop within a week to a few weeks of the tick bite, are usually marked by one or more of these signs and symptoms:

- Tiredness
- Chills and fever
- Headache
- Muscle and/or joint pain
- Swollen lymph glands
- Characteristic skin rash (i.e. bullseye rash)

4.5.2.2 Rocky Mountain Spotted Fever

Rocky Mountain spotted fever is spread by the American dog tick, the lone-star tick, and the wood tick, all of which like to live in wooded areas and tall, grassy fields. The disease is most common in the spring and summer when these ticks are active, but it can occur anytime during the year when the weather is warm.

Initial signs and symptoms of the disease include sudden onset of fever, headache, and muscle pain, followed by development of a rash. Initial symptoms may include fever, nausea, vomiting, severe headache, muscle pain, and/or lack of appetite.

The rash first appears 2 to 5 days after the onset of fever and is often not present or may be very subtle. Most often it begins as small, flat, pink, non-itchy spots on the wrists, forearms, and ankles. These spots turn pale when pressure is applied and eventually become raised on the skin. Later signs and symptoms include rash, abdominal pain, joint pain, and/or diarrhea.

The characteristic red, spotted rash of Rocky Mountain spotted fever is usually not seen until the 6th day or later after onset of symptoms, and this type of rash occurs in only 35% to 60% of patients with Rocky Mountain spotted fever. The rash involves the palms or soles in as many as 50% to 80% of patients; however, this distribution may not occur until later in the course of the disease.

4.5.2.3 Prevention

Tick season lasts from April through October; peak season is May through July. You can reduce your risk by taking these precautions:

- During outside activities, wear long sleeves and long pants tucked into socks. Wear a hat, and tie hair back.
- Use insecticides to repel or kill ticks. Repellents containing the compound n,n-diethyl-meta-toluamide (DEET) can be used on exposed skin except for the face, but they do not kill ticks and are not 100% effective in discouraging ticks from biting. Products containing permethrin kill ticks, but they cannot be used on the skin -- only on clothing. When using any of these chemicals, follow label directions carefully.
- After outdoor activities, perform a tick check. Check body areas where ticks are commonly found: behind the knees, between the fingers and toes, under the arms, in and behind the ears, and on the neck, hairline, and top of the head. Check places where clothing presses on the skin.
- Remove attached ticks promptly. Removing a tick before it has been attached for more than 24 hours greatly reduces the risk of infection. Use tweezers, and grab as closely to the skin as possible. Do not try to remove ticks by squeezing them, coating them with petroleum jelly, or burning them with a match. Keep ticks in a zip-lock baggie in case testing needs to be performed.
- Report any of the above symptoms and all tick bites to the PM and Safety Team for evaluation.

4.5.3 Mosquito- Borne Disease – West Nile Virus

West Nile encephalitis is an infection of the brain caused by the West Nile virus, which is transmitted by infected mosquitoes. Following transmission from an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal CNS functioning and causes inflammation of the brain tissue. However, most infections are mild and symptoms include fever, headache, and body aches. More severe infections may be marked by headache, high fever,

neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and rarely, death. Persons over the age of 50 have the highest risk of severe disease.

Prevention centers on public health action to control mosquitoes and on individual action to avoid mosquito bites. To avoid being bitten by the mosquitoes that cause the disease, use the following control measures:

If possible, stay inside between dusk and dark. This is when mosquitoes are most active. When outside (between dusk and dark), wear long pants and long-sleeved shirts. Spray exposed skin with an insect repellent, preferably containing DEET.

4.5.4 Wasps and Bees

Wasps (hornets and yellow-jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer, or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either below or above the ground. Yellow-jackets tend to build their nests in the ground but hornets tend to build their nests in trees and shrubbery. Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once while wasps sting multiple times because their stinger is barbless. Wasps sting when they feel threatened. By remaining calm and not annoying wasps by swatting, you lessen the chance of being stung.

Wasps and bees inject a venomous fluid under the skin when they sting. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it with tweezers. Some people may develop an allergic reaction (i.e. anaphylactic shock) to a wasp or bee sting. If such a reaction develops, seek medical attention at once. If a GEI employee is allergic to bees or wasps notify the SSO and if, needed, the location of the epi pen.

4.5.5 Sun Exposure

Employees are encouraged to liberally apply sunscreen, with a minimum sun protection factor (SPF) of 15, when working outdoors to avoid sunburn and potential skin cancer, which is associated with excessive sun exposure to unprotected skin. Additionally, employees should wear safety glasses that offer protection from ultraviolet A and B (UVA/UVB) rays.

4.5.6 COVID-19

Information about preventing COVID-19 exposure is evolving regularly. The information included below are general steps we can take while performing field assignments. National

Grid's COVID-19 HASP as of May 2020 is included as Appendix G, and COVID-19 related safety precaution, shall, at a minimum, comply with the National Grid COVID-19 HASP.

Field work will continue to be performed so long as project sites are accessible, and the work can be performed safely. If you have a question on project or site accessibility, communicate with the project manager and/or client contact to whether there are any access restrictions in place. While working in an outdoor environment is better than enclosed areas, the primary precautions we need to continue to take are social distancing and good hygiene.

4.5.6.1 COVID-19 and Symptoms

The health and safety of every member of our GEI family is most important. Continue to follow the guidance that is frequently communicated to all employees including:

- Symptoms of COVID-19 include fever, cough, and shortness of breath.
- If you experience a fever or symptoms associated with COVID-19, please stay at home and contact your licensed healthcare provider. Notify your branch manager and Julie Jennings before returning to the workplace.
- If you, a household member, or someone with whom you have come into first-hand contact has a confirmed COVID-19 diagnosis, please do not come into the workplace. Alert your branch manager and Julie Jennings without delay for specific instructions, including the requirements for returning to work.

4.5.6.2 Social Distancing

COVID-19 spreads from person-to-person primarily through respiratory droplets that are emitted from the initial person to a distance of 6 to 10 feet.

- Whenever possible maintain a distance of at least 6 feet from others. This includes during site meetings and breaks and while performing work tasks.
- If tasks need to be performed close to others, limit the time spent in close proximity.
- Where masks where working within 6 feet (close proximity) to others.
- Minimize time in office spaces to performing essential duties such as picking up and dropping off equipment and samples. If you need to spend more significant time in a project office (e.g., a construction trailer), it's important that the workspace allows for proper social distancing.
- When traveling to project sites, travel in separate vehicles. Do not travel in the same vehicle.

4.5.6.3 Hygiene Practices

The hygiene practices we have been instructed to perform more routinely apply to performing field work as well, such as:

- Frequent hand washing with soap and warm water for 20 seconds. If soap and water are not readily available, use hand sanitizer (containing at least 60% alcohol) until soap and water can be used.
- If you are filling water bottles (for drinking or hand washing) keep the bottle away from the spigot to avoid transfer of germs or contaminants.
- Wipe down surfaces with disinfectant on a routine basis (at least once per day). This includes field equipment and other items that may have previously been used by others. This is especially important while working in construction trailers. When using company and personal vehicles, wipe surfaces including the steering wheel, gear shifter, controls, and door handles before and after use.
- Wear nitrile gloves as frequently as possible. Hand washing is necessary after removing gloves.
- When greeting others avoid handshaking, hugging, or other personal contact. A greeting from a distance such as a wave is suggested.
- Avoid sharing field equipment and other materials with others. Before using field equipment or putting it away, wipe it down with disinfectant or wash it with soap and water. Note, use extra caution using disinfectants while collecting environmental samples to ensure that the samples are not compromised.

More detail on ways to protect yourself through distancing and hygiene can be found at MIT Medical's website: https://medical.mit.edu/three-ways-to-protect

4.5.6.4 Use of Public Places

- If your project requires you to stay in a hotel, practice the disinfecting precautions described above.
- If you will be eating food/drinks, order take-out or use delivery services at restaurants. Wash your hands before eating.
- Minimize the use of public transportation to travel to and from project sites. Use your personal vehicle (preferred), GEI vehicle, or a ride service such as Lyft.
- If you have concerns, discuss them with the project manager, your supervisor, branch manager, and/or with your Regional Health and Safety Officer (RHSO) or with the CHSO.

4.5.6.5 Resources

Additional information can be found through the resources below:

- Centers for Disease Control and Prevention (CDC) – https://www.cdc.gov/coronavirus/2019-ncov/index.html
- World Health Organization – https://www.who.int/emergencies/diseases/novel-coronavirus-2019

4.5.6.6 Communication and Reporting

While COVID-19 related information is not expected to be reported through GEI's incident reporting process, the expectation is that all employees will communicate any inconsistencies or concerns with COVID-19 practices at project sites to their project manager, supervisor, branch manager, and RHSO. This will allow us to make corrections/updates and provide proper protective measures.

The information in this section should be included in safety briefings.

5. Personal Protective Equipment

The PPE specified in Table 4 represents PPE selection required by 29 CFR 1910.132, and is based on the Activity Hazard Analysis of Section 4 (Table 2). Specific information on the selection rationale activity can be found in the GEI Health and Safety Manual.

The PPE program addresses elements, such as PPE selection based on Site hazards, use and limitations, donning and doffing procedures, maintenance and storage, decontamination and disposal, training and proper fitting, inspection procedures prior to / during / and after use, evaluation of the effectiveness of the PPE program, and limitations during temperature extremes, heat stress, and other appropriate medical considerations. A summary of PPE for each level of protection is in Table 4.

Table 4. Site-Specific PPE

Task	PPE Level	Site-Specific Requirements	Respirator
Mobilization/Demobilization			
Reconnaissance	D	Hard hat, safety glasses, steel toe/shank safety boot, reflective vest, leather work gloves, hearing protection as needed	D - None
Mobilization/Demobilization of Equipment and Supplies	D	Hard hat, safety glasses, steel toe/shank safety boot, reflective vest, leather work gloves, hearing protection as needed	D – None
Establishment of Site Security, Work Zones, and Staging Area	D	Hard hat, safety glasses, steel toe/shank safety boot, reflective vest, leather work gloves, hearing protection as needed	D - None
Construction			
Drilling, Groundwater Well Installation, Excavation, Digging Test Pits, Backfilling, Grading Observation, Sampling	D	Hard hat, safety glasses, steel toe/shank safety boot with overboot as needed, reflective vest, leather work gloves as needed, nitrile gloves, hearing protection as needed, Tyvek as needed	Level D initially, Level C-If action levels exceeded (see Section 9 of HASP)

Use of Level A or Level B PPE is not anticipated. If conditions indicating the need for Level A or Level B PPE are encountered, personnel will leave the Site and this HASP will be revised with oversight of the CHSO or GEI personnel will not re-enter the Site until conditions allow.

For most work conducted at the Site, Level D PPE will include long pants, hard hats, safety vest, safety glasses with side shields, and steel toe/shank or EH-rated safety boots. When work is conducted in areas where NAPL or tar-saturated soil is anticipated, employees will wear, at a minimum, modified Level D PPE, which can include Tyvek® coveralls and safety boots with overboots in addition to the Level D PPE.

5.1 OSHA Requirements for PPE

Personal protective equipment used during the course of this field investigation must meet the following OSHA standards:

Table 5. OSHA Standards for PPE

Type of Protection	Regulation	Source
Eye and Face	29 CFR 1910.133	ANSI Z87.1 1968
Respiratory	29 CFR 1910.134	ANSI Z88.1 1980
Head	29 CFR 1910.135	ANSI Z89.1 1969
Foot	29 CFR 1910.136	ANSI Z41.1 1999 or ASTM F-2412-2005, and ASTM F-2413-2005

CFR = Code of Federal Regulations
ANSI = American National Standards Institute
ASTM = American Society for Testing and Materials

On-site GEI personnel who have the potential to don a respirator must have a valid fit test certification and documentation of medical clearance. The CHSO will maintain such information on file for on-site personnel. The PM will obtain such information from the subcontractor's site supervisor prior to the initiation of such work. Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.134). Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency (less than 20.7%).
- Imminent Danger to Life and Health (IDLH) concentrations.
- If contaminant levels exceed designated use concentrations.

6. Key Project Personnel/Responsibilities and Lines of Authority

6.1 GEI Personnel

- Melissa Felter — Project Manager
- Jeff Parillo — Project Engineer
- TBD — Site Safety Officer
- TBD — Field Personnel
- Steve Hawkins — Corporate Health and Safety Officer
- Jeena Sheppard — Regional Health and Safety Officer

The implementation of health and safety at this project location will be the shared responsibility of the PM, the CHSO, RHSO, the SSO, and other GEI personnel implementing the proposed scope of work.

6.1.1 GEI Project Manager

The PM, Melissa Felter, is responsible for confirming that the requirements of this HASP are implemented. Some of the PM's specific responsibilities include:

- Conducting and documenting the Project Safety Briefing for GEI project employees and forwarding the signed form (Appendix D) to the Safety Team;
- Verifying that the GEI staff selected to work on this program are sufficiently trained for Site activities;
- Assuring that personnel to whom this HASP applies, including subcontractor personnel, have received a copy of it;
- Providing the CHSO with updated information regarding conditions at the Site and the scope of Site work;
- Providing adequate authority and resources to the on-site SSO to allow for the successful implementation of necessary safety procedures;
- Supporting the decisions made by the SSO and CHSO;
- Maintaining regular communications with the SSO and, if necessary, the CHSO;
- Verifying that the subcontractors selected by GEI to work on this program have completed GEI environmental, health and safety requirements and has been deemed acceptable for the proposed scope of work;
- Verifying that 811 has been called and valid tickets have been received; and
- Coordinating the activities of GEI subcontractors and confirming that they are aware of the pertinent health and safety requirements for this project.

6.1.2 GEI Corporate Health and Safety Officer

The CHSO is the individual responsible for the review, interpretation, and modification of this HASP. Modifications to this HASP which may result in less stringent precautions cannot be undertaken by the PM or the SSO without the approval of the CHSO. Specific duties of the CHSO include:

- Writing, approving, and amending the HASP for this project;
- Advising the PM and SSO on matters relating to health and safety on this Site;
- Recommending appropriate PPE and safety equipment to protect personnel from potential Site hazards;
- Conducting accident investigations; and
- Maintaining regular contact with the PM and SSO to evaluate Site conditions and new information which might require modifications to the HASP.

6.1.3 GEI Site Safety Officer

GEI field staff are responsible for implementing the safety requirements specified in this HASP. However, one person will serve as the SSO. The SSO will be on-site during all activities covered by this HASP. The SSO is responsible for enforcing the requirements of this HASP once work begins. The SSO has the authority to immediately correct situations where noncompliance with this HASP is noted and to immediately stop work in cases where an immediate danger is perceived. Some of the SSO's specific responsibilities include:

- Conducting/attending the Project Safety Briefing prior to beginning work, and subsequent safety meetings as necessary;
- Conduct regular Safety Tailgate meeting in accordance with National Grid's requirements (can be combined with "pre-entry") briefing for Site-related work;
- Verifying that personnel to whom this HASP applies have attended and participated in the Project Safety Briefing and subsequent safety meetings that are conducted during the implementation of the program;
- Maintaining a high level of health and safety consciousness among employees implementing the proposed activities;
- Procuring the air monitoring instrumentation required and performing air monitoring for investigative activities;
- Procuring and distributing the PPE and safety equipment needed for this project for GEI employees;
- Verifying that PPE and health and safety equipment used by GEI is in good working order;
- Verifying that the selected contractors are prepared with the correct PPE and safety equipment and supplies;

- Notifying the PM of noncompliance situations and stopping work in the event that an immediate danger situation is perceived;
- Monitoring and controlling the safety performance of personnel within the established restricted areas to confirm that required safety and health procedures are being followed;
- Stopping work in the event that an immediate danger situation is perceived; and
- Reporting accident/incident and preparing accident/incident reports, if necessary.

6.1.4 GEI Field Personnel

GEI field personnel covered by this HASP are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading and signing the HASP in its entirety prior to the start of on-site work;
- Attending and actively participating in the required Project Safety Briefing prior to beginning on-site work and any subsequent safety meetings that are conducted during the implementation of the program;
- Stopping work in the event that an immediate danger situation is perceived;
- Bringing forth any questions or concerns regarding the content of the HASP to the PM or the SSO, prior to the start of work;
- Reporting accidents, injuries, and illnesses, regardless of their severity, to the SSO, CHSO, and HR; and
- Complying with the requirements of this HASP and the requests of the SSO.

6.1.5 Lines of Authority will be as follows:

On Site – GEI will have responsibility for safety of its employees during the work performed at the Site. GEI's field representative will have a cell phone available to contact the appropriate local authorities, in the event of an emergency. GEI's field representative will be available for communication with the GEI PM and with the National Grid representative.

All personnel on-site, including GEI employees and subcontractors, have the authority to stop work activities if an unanticipated hazard is encountered or a potential unsafe condition is observed. The GEI employee should contact the Corporate Health and Safety Officer and the Project Manager to discuss the stop work conditions and potential control methods that can be implemented.

6.2 Subcontractors

GEI requires its subcontractors to work in a responsible and safe manner. Subcontractors hired by GEI are required to submit documentation of their safety practices as part of GEI's

Subcontractor Management Program for evaluation and approval before the start of work. Subcontractors for this project will be required to develop their own HASP for protection of their employees, but, at a minimum, must adhere to applicable requirements set forth in this HASP.

7. Training Program

7.1 HAZWOPER Training

In accordance with OSHA Standard 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" (HAZWOPER) GEI employees and contractors will, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations. At a minimum, the training will have consisted of instruction in the topics outlined in the standard. Personnel who have not met the requirements for initial training will not be allowed to work in any Site activities in which they may be exposed to hazards (chemical or physical). Proof of training will be submitted to the PM or his/her representative prior to the start of field activities and a copy will be maintained on-site.

7.2 Annual 8-Hour Refresher Training

Annual 8-hour refresher training will be required of hazardous waste site field personnel in order to maintain their qualifications for fieldwork. The training will cover a review of 29 CFR 1910.120 requirements and related company programs and procedures. Proof of current 8-hour refresher training will be submitted to the PM or his/her representative prior to the start of field activities and a copy will be maintained on-site.

7.3 Supervisor Training

Personnel acting in a supervisory capacity will have received 8 hours of instruction in addition to the initial 40-hour training. In addition, supervisors will have 1 year of field experience and training specific to work activities (i.e., sampling, construction observation, etc.) Proof of training will be submitted to the PM or his/her representative prior to the start of field activities and a copy will be maintained on-site.

7.4 Site-Specific Training

Prior to commencement of field activities, the PM or the SSO will verify GEI field personnel assigned to the project and contractors will have completed training on the HASP that will specifically address the activities, procedures, monitoring, and equipment used in the Site operations. It will include Site and facility layout, hazards, and emergency services at the Site, and will highlight the provisions contained within this HASP and applicable GEI H&S SOPs (Appendix E). This training will be documented on the Project Safety Briefing Form Appendix D). The signed form will be forwarded to the Safety Team at SafetyTeam@geiconsultants.com. In addition, GEI personnel will sign the plan to document that they understand the hazards and control measures presented and agree to comply with

the procedures established in the HASP. Personnel that have not received project-specific training will not be allowed on-site.

7.5 On-Site Safety Briefings

Other GEI personnel will be given health and safety briefings daily by the SSO or field representative to assist GEI personnel in safely conducting work activities. The briefing will include GEI subcontractors. The briefings can include information on new operations to be conducted, changes in work practices, or changes in the Site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. Documentation of these briefings will be recorded in the GEI field book, if the project duration is less than 5 days. If the project is longer than 5 days, the Tailgate Safety Briefing Form (Appendix D) will be used to document briefings. The meetings will also be an opportunity to periodically update the employees on monitoring results.

7.6 First Aid and CPR

The PM will verify that GEI field staff has current certifications in first aid and Cardiopulmonary Resuscitation (CPR), so that emergency medical treatment is available during field activities. The training will be consistent with the requirements of the American Red Cross Association. GEI employees also attend annual Bloodborne Pathogens training in compliance with OSHA regulations.

8. Medical Surveillance Program

GEI maintains a continuous, corporate, medical surveillance program that includes a plan designed specifically for field personnel engaged in work at sites where hazardous or toxic materials may be present. GEI's CHSO and is responsible for the administration and coordination of medical evaluations conducted for GEI's employees at branch office locations. Comprehensive examinations are given to GEI field personnel on an annual or biennial basis (as determined to be appropriate by the CHSO) participating in hazardous waste operations. The medical results of the examinations aid in determining the overall fitness of employees participating in field activities.

Under the CHSO's supervision, field personnel undergo a complete initial physical examination, including a detailed medical and occupational history, before they participate in hazardous waste site investigations. Extensive annual/biennial reexaminations are also performed. Upon completion of these tests, personnel are certified by an occupational health physician as to whether they are fit for field work in general, and fit to use respiratory protection. A copy of this certification will be maintained on-site.

If a GEI employee or other project worker shows symptoms of exposure to a hazardous substance and wishes to be rechecked, he/she will be directed to the nearest area hospital or medical facility.

GEI subcontractor personnel that will enter any active waste handling or other active non-"clean" area must certify that they are participating in a medical surveillance program that complies with OSHA regulations for hazardous waste operations (i.e., 29 CFR 1910.120 and 29 CFR 1926.65). Proof of medical clearance will be submitted to the GEI PM or SSO prior to the start of field activities.

9. Atmospheric Monitoring

Air monitoring will be performed to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of worker protection needed on-site in the event that intrusive work is conducted. Work requiring air monitoring includes the installation and/or abandonment of monitoring wells, DNAPL recovery wells, oxygen injection wells, and soil vapor points. Additionally, PID screening of the well head space will be conducted during groundwater sampling activities.

GEI will conduct work zone monitoring for on-site GEI employees during intrusive activities only. GEI will monitor and document daily Site conditions and operations and inform field representatives of results. ***If Action Levels are exceeded, the SSO will immediately implement site action(s) according to Table 6 below and notify the PM and Safety Team***.

The following air monitoring equipment will be on site during intrusive activities:

- PID with 10.6 eV lamp or equivalent
- Drager Chip Measurement System (CMS) with appropriate gas detection chips, or
- Sensidyne Gas Detection Pump with appropriate gas detector tubes
- Particulate Meter (PM-10 capable)
- Multi-gas meter: lower explosive limit (LEL) / oxygen (O_2) / hydrogen sulfide (H_2S) / hydrogen cyanide (HCN) and carbon monoxide (CO) meter

9.1 Equipment Use

9.1.1 Calibration

Air monitoring equipment will be calibrated and maintained in accordance with manufacturer's requirements. Calibrations will be recorded in the project notes daily or on a daily calibration form.

9.1.2 Photoionization Detector

Organic vapor concentrations will be measured using a PID during intrusive activities. During intrusive operations, organic vapor concentrations will be measured continuously. Organic vapor concentrations will be measured upwind of the work site(s) to determine background concentrations at least twice a day, (once in the morning and once in the afternoon). The SSO will interpret monitoring results using professional judgment and according to the alert and Action Limits set forth in the associated Site Work Plan.

9.2 Particulate Meter

A particulate meter will be used to measure airborne particulate matter during intrusive activities. Monitoring will be continuous and readings will be averaged over a 15-minute period for comparison with the Action Levels. Monitoring personnel will make a best effort to collect dust monitoring data from downwind of the intrusive activity. If off-site sources are considered to be the source of the measured dust, upwind readings will also be collected.

9.2.1 Multi-Gas Meter

A multi-gas meter will be used to monitor for combustible gases and O_2 content in the work zone during intrusive activities. The meter will also be equipped with an H_2S sensor and an HCN sensor. H_2S monitoring will be completed every 15 minutes or, if a sulfur odor is present, monitoring will be continuous. HCN monitoring will be completed every 15 minutes or, if an almond odor is detected, monitoring will be continuous.

9.3 Action Levels

Table 6 provides a summary of real time air monitoring Action Levels and contingency plans for work zone activities. The below Action Levels are determined by halving the Permissible Exposure Limits (PELs) or Threshold Limit Values (TLVs) as set forth by OSHA and the American Conference of Government Industrial Hygienists (ACGIH). O_2 values are based on the maximum use limits of a full face respirator if oxygen were being displaced by a chemical.

Table 6. Real-Time Work Zone Air Monitoring Action Levels

Air Monitoring Instrument	Action Level (above background)	Site Action
PID	1.0 ppm	Use detector tube for benzene or zNose® to verify if concentration is benzene. No respiratory protection is required if benzene is not present.
PID	1.0 - 10 ppm	Use Sensidyne detector tube for naphthalene or zNose® to verify if concentration is naphthalene. No respiratory protection is required if naphthalene is not present.
	10 – 50 ppm	No respiratory protection is required if benzene or naphthalene is not present.
	50 – 100 ppm	Stop work, withdrawal from work area, institute engineering controls, if levels persist, upgrade to Level C.
	> 100 ppm	Stop work, withdraw from work area, notify PM and Safety Team.
O_2 Meter	< 20.7%	Stop work, withdraw from work area, ventilate area, notify PM and Safety Team.
	> 21.1%	Stop work, withdraw from work area, notify PM and Safety Team.
H_2S Meter	< 5.0 ppm	No respiratory protection is required.
	> 5.0 ppm	Stop work, cover excavation, withdraw from work area, institute engineering controls, notify PM and Safety Team.
HCN Meter	< 1.0 ppm	Run CMS Drager tube. Continue monitoring with real-time meter, and continue work if CMS Drager tube reading is less than 2.0 ppm.
	> 1.0 ppm HCN Concentrations < 2.0 ppm	Run CMS Drager tube and confirm concentration is less than 2.0 ppm, notify PM and Safety Team. Run CMS tube for sulfur dioxide, hydrogen sulfide, and phosphine chip potential interferences. Continue to monitor with real-time meter.
	> 2.0 ppm	Stop work, and move (with continuous HCN monitoring meter) at lease 25 ppm upwind of the excavation until continuous meter reads less than 1 ppm, notify PM and Safety Team.Run CMS Drager hydrogen cyanide chip and re-evaluate activity, continue monitoring with a real-time meter, resume work if concentrations read less than 1.0 ppm.
Lower Explosive Limit	< 10% LEL	Investigate possible causes, allow excavation to ventilate, use caution during procedures.
	> 10% LEL	Stop work, allow excavation/borehole to ventilate to < 10% LEL, if ventilation does not result in a decrease to < 10% LEL, withdraw from work area, notify PM and Safety Team.
Carbon Monoxide	> 35 ppm	Stop work, withdraw from work area, ventilate area, notify PM and Safety Team.
Particulate Meter	150 µg/m^3	Implement work practices to reduce/minimize airborne dust generation, e.g., spray/misting of soil with water.

10. Site Control Measures

10.1 Site Zones

Site zones are intended to control the potential spread of contamination and to assure that only authorized individuals are permitted into potentially hazardous areas. A three-zone approach will be utilized. It will include an Exclusion Zone (EZ), Contamination Reduction Zone (CRZ) and a Support Zone (SZ). Specific zones will be established on the work site by the Contractor when operations begin for each task requiring such delineation.

This project is being conducted under the requirements of 29 CFR 1910.120, and any personnel working in an area where the potential for exposure to Site contaminants exists, will only be allowed access after proper training and medical documentation.

The following will be used for guidance in revising these preliminary zone designations, if necessary.

Support Zone – The SZ is an uncontaminated area that will be the field support area for most operations. The SZ provides for field team communications and staging for medical emergency. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel/materials are not allowed in this zone.

Contamination Reduction Zone – The CRZ is established between the EZ and the SZ. The CRZ contains the contamination reduction corridor and provides an area for decontamination of personnel and portable hand-held equipment, tools and heavy equipment. A personnel decontamination area will be prepared at each exclusion zone. The CRZ will be used for EZ entry and egress in addition to access for heavy equipment and emergency support services.

Exclusion Zone – Activities which may involve exposure to Site contaminants, hazardous materials, and/or conditions should be considered an EZ. This zone will be clearly delineated by cones, tapes, or other means. The Contractor may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ will be determined by the Contractor allowing adequate space for the activity to be completed, field members, and emergency equipment.

10.2 Buddy System

GEI personnel should be in line-of-site or communication contact with another on-site person. The other on-site person should be aware of his or her role as a “buddy” and be able to provide assistance in the event of an emergency. A copy of this plan will be given to any person acting as a GEI “buddy” for informational purposes.

10.3 Sanitation for Temporary Work Sites

Sanitation requirements identified in the OSHA Standard 29 CFR 1926.51 "Sanitation" specifies that employees working at temporary project sites have at least one sanitary facility available to them. Public restrooms are available in Bushwick Inlet Park, near the intersection of Kent Avenue and N. 9th Street.

10.4 Illumination

Illumination requirements identified by OSHA are directed to work efforts inside buildings and/or during non-daylight hours. Activities planned for the Site are anticipated to occur outside during daylight hours. However, if work areas do not meet illumination requirements, they will be equipped with appropriate illumination that meets or exceeds requirements specified in OSHA Standard 29 CFR 1926.56 "Illumination." Employees will not work on sites that are not properly lighted.

10.5 Smoking

Smoking is prohibited at or in the vicinity of hazardous operations or materials. Where smoking is permitted, safe receptacles will be provided for smoking materials.

10.6 Alcohol and Drug Abuse Prevention

Alcohol and drugs will not be allowed on the Site. Project personnel under the influence of alcohol or drugs will not be allowed to enter the Site.

11. Incident Reporting

GEI will report incidents involving GEI personnel or subcontractor personnel, such as: lost time injuries, injuries requiring medical attention, near miss incidents, fires, fatalities, accidents involving the public, chemical spills, vehicle accidents, and property damage. The person reporting the incident is the Incident Reporter. The following steps must be followed when an incident occurs:

1. In life-threatening situations, immediately call 9-1-1.
2. Stop work activity to address any injury, illness, property damage, spill or other emergency.
3. **Immediately** report any incidents to your Supervisor/Project Manager and a Regional Health & Safety Officer.
4. The PM will immediately (or no later than 1 hour) inform the CHSO and the Project-Specific National Grid Representative of any accident, incident, injury or near miss.
5. If your injury or illness is not life-threatening, call Medcor Triage at 1-800-775-5866 to speak with a medical professional.
6. Complete an Incident Report Form **immediately** after addressing the incident. Figures, photographs and/or sketches should be included within the Incident Report.
7. A DRAFT Incident Report Form including root cause/corrective actions will be completed by a member of the Safety Team and submitted to the Project-Specific National Grid Representative within **4 hours**.
8. A FINAL Incident Report will be submitted within **24 hours** via e-mail to the Project-Specific National Grid PM, National Grid Regional Safety Lead, and/or the person to whom the verbal notification was initially provided.

All work will be suspended until contact is made with the Project-Specific PM so that National Grid can assess if continued work suspension or if a stand down is necessary. If the National Grid PM cannot be reached, contact the National Grid SIR Regional Safety Lead as noted in the table below.

Name	Region	Phone Numbers	E-Mail
William Ryan	Downstate NY	W- (516) 545-2586 C - (516) 790-1660	William.Ryan@nationalgrid.com

For vehicle accidents involving another vehicle or damage to property, the employee will take pictures of each vehicle or property involved in the incident and obtain a police report. In some municipalities police will not be dispatched to a non-injury accident, but every effort needs to be made to try and obtain the report. The Incident Report Form and the Near Miss

Reporting Form can be found in Appendix D, on the GEI Health and Safety smartphone app, or on the Safety page of the GEI Intranet. To report subcontractor injuries or incidents, follow the same verbal reporting procedures and submit an email describing the event to the PM and the Safety Team. A representative with knowledge of the incident should be available to provide incident information until the investigation is completed by National Grid.

11.1 Injury Triage Service

If a GEI employee experiences a work-related injury that is not life-threatening, the employee will initiate a call to Medcor Triage at 1-800-775-5866. The injured employee will detail any medical symptoms or complaints which will be evaluated by a Registered Nurse (RN) specially trained to perform telephonic triage. The RN will recommend first aid self-treatment or refer the injured employee for an off-site medical evaluation by a health professional at a clinic within GEI's workers compensation provider network. GEI employees are still required to follow our Accident Reporting procedures as listed above.

11.2 Flow Chart for Accident Reporting

Employee	GEI (Incident Report) reports incidents involving GEI personnel or subcontractor personnel including lost time injuries, injuries requiring medical attention, near miss incidents, fires, fatalities, accidents involving the public, and property damage.
Employee	Once the incident is under control, the report is made to the GEI Supervisor, PM, and Regional Health & Safety Office verbally **immediately**.
PM	The PM **immediately or no later than 1 hour,** notifies the CHSO and the Project-Specific National Grid Representative for the incident. In addition, the PM will notify the GEI National Grid Client Manager.
Employee	If your injury or illness is not life-threatening, call Medcor Triage at 1-800-775-5866 to speak with a medical professional.
CHSO	The CHSO informs the SVP of People & Safety and Regional Manager of the incident.
Employee	The GEI Incident Report form is completed once the incident is under control by the injured employee and submitted to the Safety Team **within 2 hours** of the incident.
PM with assist from CHSO or RHSO	A ***DRAFT*** Incident Report Form found in the appendix of the HASP is completed and submitted to the Project-Specific National Grid Representative **within 4 hours** of the incident.
PM with assist from CHSO or RHSO	A ***FINAL*** written Incident Report is submitted to the Project-Specific National Grid PM **within 24 hours** of the incident.
RHSO	The GEI Regional Health and Safety Officer initiates an accident investigation within 24 hours of the receipt of the accident report.
RHSO	The accident investigation report is submitted to the CHSO for approval.
CHSO	Incidents are reported to the Operations Committee each month in the H&S report.

12. Decontamination Procedures

A decontamination pad has been established for personnel decontamination and equipment decontamination.

12.1 Personnel Decontamination Station

A personnel decontamination station where employees can drop equipment and remove PPE will be set up at the decontamination pad by the Contractor. It will be equipped with basins for water and detergent, and trash bag(s), or cans for containing disposable PPE and discarded materials. Once personnel have decontaminated at this station and taken off their PPE, they will proceed to a sink where they will wash themselves wherever they have potentially been exposed to any contaminants (e.g., hands, face, etc.)

The following specific decontamination procedure will be used as necessary by GEI personnel or subcontractor personnel wearing PPE from Level D through Level C.

- ***Step 1 –*** Equipment drop (respirator, tools, monitoring equipment, etc.) Decontaminate as appropriate (per GEI's field representative's instructions).
- ***Step 2 –*** Boot wash/rinse (wash with non-foaming detergent, rinse with fresh water spray). Remove boots. If inner and outer gloves are worn, wash outer gloves, remove and save for later use, or remove and discard outer gloves and place in trash bag/can provided in the decontamination area.
- ***Step 3 –*** Hard hat removal; wash if visibly contaminated (use same wash as in Step 2).
- ***Step 4 –*** If Tyvek® (or equivalent) suit was worn and is visibly contaminated, remove and place in trash bag/can provided in the decontamination area or decontaminate (wash) and store for reuse. Contaminated washable coveralls should be removed and bagged for washing.
- ***Step 5 –*** Respirator and/or eye protection removal (as applicable). Wash (per Step 2) to remove visible contamination.
- ***Step 6 –*** Remove outer gloves.
- ***Step 7 –*** Wash potentially exposed skin (use water and soap at indoor sink).
- ***Step 8 –*** Disinfect respirator per manufacturer's recommendations.

Contaminated PPE (gloves, suits, etc.) will be decontaminated and stored for reuse or placed in plastic bags (or other appropriate containers) and disposed of in an approved facility.

Decontamination wastewater and used cleaning fluids will be collected and disposed of in accordance with applicable state and federal regulations.

12.2 Heavy Equipment Decontamination

Heavy equipment decontamination will be performed by the Contractor within the limits of the on-site decontamination pad in accordance with the contract specifications. A steam generator and brushes will be used to clean demolition equipment and other tools. No heavy equipment will be permitted to leave the Site unless it has been thoroughly decontaminated.

Wastewater from the heavy equipment and personnel decontamination areas will be collected and disposed of in accordance with applicable state and federal regulations. The Contractor will be responsible for ultimate disposal of investigation-derived wastes.

12.3 Decontamination Equipment Requirements

The following equipment, if required, should be in sufficient supply to implement decontamination procedures for GEI's equipment.

- Buckets
- Alconox™ detergent concentrate
- Hand pump sprayers
- Long handled soft bristle brushes
- Large sponges
- Cleaning wipes for respirators
- Bench or stool(s)
- Methanol and/or Nitric Acid
- Liquid detergent and paper towels
- Plastic trash bags

The Contractor performing decontamination procedures is responsible for verifying that the above materials, as required for their operation, are in sufficient supply.

13. Supplemental Contingency Plan Procedures

13.1 Hazard Communication Plan

GEI personnel have received hazard communication training as part of their annual health and safety training and new employee health and safety orientation training. Hazardous materials used on the Site will be properly labeled, stored, and handled. SDS will be available to potentially exposed employees.

13.2 Fire

In the event of a fire personnel will evacuate the area. GEI's field representative will contact the local fire department with jurisdiction and report the fire. Notification of evacuation will be made to the PM and the Safety Team. The field representative will account for GEI personnel and subcontractor personnel and report their status to the PM.

13.3 Medical Support

In case of minor injuries, on-site care will be administered with the Site first aid kit. For serious injuries, call 911 and request emergency medical assistance. Seriously injured persons should not be moved, unless they are in immediate danger. Notify the PM and the Safety Team of the emergency.

Section 1 and Table 1 of this HASP contain detailed emergency information, including directions to the nearest hospital, and a list of emergency services and their telephone numbers. In addition, Appendix A includes maps to the hospital and/or occupational health clinic. GEI field personnel will carry a cellular telephone.

13.4 Severe Weather

The contingency plan for severe weather includes reviewing the expected weather to determine if severe weather is in the forecast. Severe weather includes high winds over 30 miles per hour (mph), heavy rains or snow squalls, thunderstorms, tornados, and lightning storms. If severe weather is approaching, the decision to evacuate GEI personnel and subcontractor personnel from the Site will be the responsibility of GEI's field representative. Notification of evacuation will be made to the PM and the Safety Team. The field representative will account for GEI personnel and subcontractor personnel and report their status to the PM. If safe, work can resume 30 minutes after the last clap of thunder or flash of lightening.

13.5 Spills or Material Release

If a hazardous waste spill or material release occurs, if safe, the SSO or their representative will immediately assess the magnitude and potential seriousness of the spill or release based on the following:

- SDS for the material spilled or released;
- Source of the release or spillage of hazardous material;
- An estimate of the quantity released and the rate at which it is being released;
- The direction in which the spill or air release is moving;
- Personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result;
- Potential for fire and/or explosion resulting from the situation; and
- Estimates of area under influence of release.

If the spill or release is determined to be within the on-site emergency response capabilities, the SSO will verify implementation of the necessary remedial action. If the release is beyond the capabilities of the Site personnel, personnel will be evacuated from the immediate area and the local fire department will be contacted. The SSO will notify the PM and the Safety Team. The PM will notify National Grid, and NYSDEC will be notified either by National Grid or GEI, whichever is decided by National Grid upon its notification by GEI. The PM will notify National Grid and National Grid will determine if the spill needs to be reported.

- New York State Spill Hotline 1-800-457-7362
- National Response Center 1-800-424-8802.

All petroleum spills that occur within New York State must be reported to the New York State Spill Hotline within 2 hours of discovery, except spills which meet all of the following criteria:

- The quantity is known to be less than 5 gallons; and
- The spill is contained and under the control of the spiller; and
- The spill has not and will not reach the State's water or any land; and
- The spill is cleaned up within 2 hours of discovery.

14. Health and Safety Plan Sign-Off

GEI personnel conducting site activities will be familiar with the information in this HASP. After reviewing this plan, please sign the copy in the project files, and bring a copy of the plan with you to the Site. By signing this site-specific HASP, you are agreeing that you have read, understand, and will adhere to the provisions described in this plan while working on the Project Site below.

Site Name: Williamsburg Works Site

Investigation: Remedial Investigation

GEI Project No: 093060

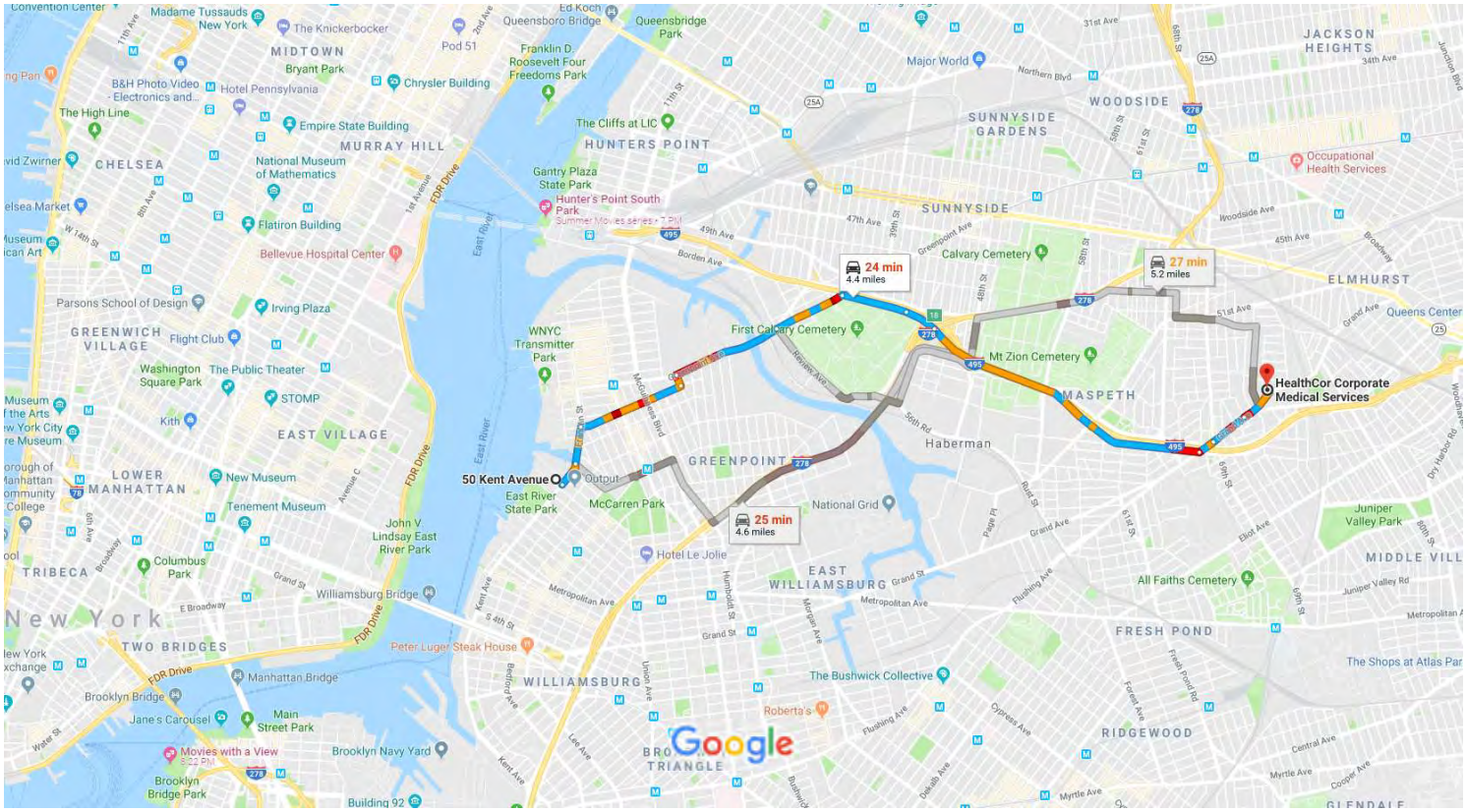
Print Name	Signature
Project Manager: Melissa Felter	

Appendix A

Map to Hospital and Occupational Health Clinic

50 Kent Avenue, Brooklyn, NY to HealthCor Corporate Medical Services

Drive 4.4 miles, 24 min



50 Kent Ave
Brooklyn, NY 11249

Take Franklin St to Calyer St

2 min (0.3 mi)

1. Head northeast on Kent Ave toward N 12th St

0.1 mi

2. Continue onto Franklin St

0.2 mi

Follow Calyer St to Greenpoint Ave

4 min (0.6 mi)

3. Turn right onto Calyer St

0.6 mi

4. Turn left onto Moultrie St

322 ft

Continue on Greenpoint Ave. Take Exit 18 and Borden Ave to Grand Ave in Queens

14 min (3.5 mi)

5. Turn right onto Greenpoint Ave

0.6 mi

6. Slight right to stay on Greenpoint Ave

0.4 mi

7. Turn right onto the Interstate 495 E ramp to Long Island Expressway/Eastern Long Island

0.3 mi

8. Use the 2nd from the left lane to follow signs for I-278 E/La Guardia/Airport/Bronx/I-495 Alt/Maurice Ave

0.2 mi

9. Keep left at the fork to continue on Exit 18, follow signs for Maurice Ave and merge onto Borden Ave
   Pass by McDonald's (on the right in 1.0 mi)

1.5 mi

10. Turn left onto Grand Ave

463 ft

11. Continue straight to stay on Grand Ave
    Pass by Iavarone Bros. (on the right)

0.2 mi

12. Continue straight to stay on Grand Ave
    Destination will be on the left

0.2 mi

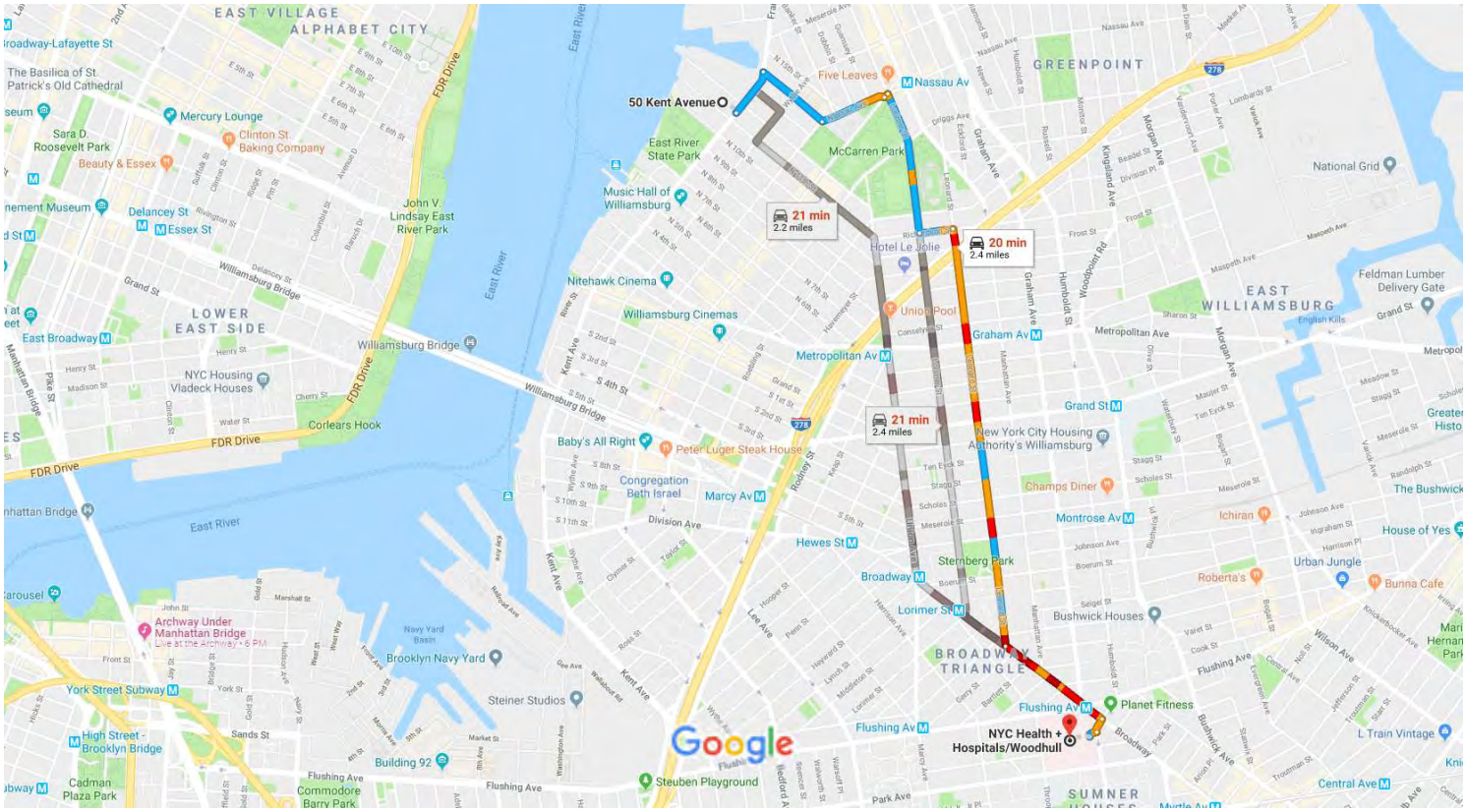
HealthCor Corporate Medical Services

73-01 Grand Ave, Maspeth, NY 11378

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

50 Kent Avenue, Brooklyn, NY to NYC Health + Hospitals/Woodhull

Drive 2.4 miles, 20 min



Map data ©2018 Google 1000 ft

50 Kent Ave
Brooklyn, NY 11249

1. Head northeast on Kent Ave toward N 12th St — 32 s (0.1 mi)

Take Lorimer St and Leonard St to Broadway — 13 min (1.9 mi)

2. Turn right onto N 14th St — 0.2 mi
3. N 14th St turns left and becomes Nassau Ave — 0.2 mi
4. Turn left onto Bedford Ave — 59 ft
5. Turn right onto Lorimer St — 0.4 mi
6. Turn left onto Richardson St — 459 ft
7. Turn right at the 1st cross street onto Leonard St — 1.1 mi

Drive

3 min (0.3 mi)

8. Turn left onto Broadway
   Pass by McDonald's (on the right)

0.3 mi

9. Turn right onto Marcus Garvey Blvd/Sumner Ave

197 ft

10. Turn right
    Destination will be on the right

27 s (135 ft)

NYC Health + Hospitals/Woodhull

760 Broadway, Brooklyn, NY 11206

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Appendix B

Safety Data Sheets

HOVENSA

NFPA 704 (Section 16)

MATERIAL SAFETY DATA SHEET

Benzene **MSDS No. 0166**

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-99)

HOVENSA L.L.C.
1 Estate Hope
Christiansted, VI 00820-5652

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): **Safety Department (340) 692-3000**

SYNONYMS: Benzol; Coal Naphtha; coal tar naphtha; Cyclohexatriene; Phenyl hydride
See Section 16 for Abbreviations and Acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS (rev. Apr-98)

INGREDIENT NAME	EXPOSURE LIMITS		CONCENTRATION PERCENT BY WEIGHT
Benzene CAS NUMBER: 71-43-2	OSHA PEL-TWA/STEL: ACGIH TLV-TWA: US Coast Guard:	1 / 5 ppm 0.5 / 2.5 ppm, A1, skin same as OSHA	100

3. HAZARDS IDENTIFICATION (rev. Apr-98; Tox-98)

EMERGENCY OVERVIEW
DANGER!
FLAMMABLE - BLOOD TOXIN AND CARCINOGEN - ABSORBED THROUGH THE SKIN - CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause blood disease, including anemia and leukemia.

EYES
Moderate to severe irritant. Contact with liquid or vapor may cause irritation.

SKIN
Moderate to severe irritant. May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritation to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

Effects to the blood (including decreased platelet and white blood cell counts), cardiovascular system, nervous system, retina, lungs, gastrointestinal system, spleen, and kidneys have been reported from large, acute (short) and repeated or prolonged exposures.

CHRONIC EFFECTS and CARCINOGENICITY
Benzene is a regulated human carcinogen. Benzene has the potential to cause bone marrow depression, aplastic anemia (low red blood cell count) and other blood diseases, including leukemia, after repeated and prolonged exposure. Benzene can cause liver and kidney toxicity.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Pre-existing chronic respiratory disease, liver or kidney dysfunction, or blood, cardiovascular and central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Apr-98)

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

NOTE TO PHYSICIAN
OSHA and US Coast Guard require that a person exposed to benzene in an emergency have a urine sample taken at the end of the shift and have a urine phenol test performed within 72 hours. For results equal to or greater than 75 ml/L of urine, employees must have a complete blood count every month for three months after the emergency exposure. See OSHA 29 CFR 1910.1028 or USCG 49 CFR 193.

5. FIRE FIGHTING MEASURES (rev. Jan-99)

FLAMMABLE PROPERTIES:

FLASH POINT:	12 ^{o}F (-11^{o}C)
AUTOIGNITION TEMPERATURE:	928 ^{o}F (498 ^{o}C)
OSHA/NFPA FLAMMABILITY CLASS:	1B (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.3%
UPPER EXPLOSIVE LIMIT (%):	7.9%

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Apr-98)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Apr-98)

HANDLING PRECAUTIONS

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES
Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Apr-98)

ENGINEERING CONTROLS
Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION
Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION
Gloves constructed of Viton are recommended for heavy exposure; Viton, nitrile, PVC, or neoprene for intermittent exposure. Chemical protective clothing such as DuPont Barricade ® or equivalent recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Mar-95)

APPEARANCE
A clear, water-like liquid

ODOR
A sweet, aromatic odor.

ODOR THRESHOLD
4.7 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	176 °F (80 °C)
VAPOR PRESSURE:	74.6 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	2.8
SPECIFIC GRAVITY (H_2O = 1):	0.87
EVAPORATION RATE:	High
PERCENT VOLATILES:	100 %
SOLUBILITY (H_2O):	Insoluble to slightly soluble

10. STABILITY and REACTIVITY (rev. Mar-95)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Apr-98; Tox-98)

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 9.4 ml/kg Acute Oral LD50 (mouse): 4.7 g/kg
Acute inhalation LC50: 10,000 ppm (rat; 7 hours) Eye irritation (rabbit): mild to moderate
Primary dermal irritation (rabbits): mild to moderate

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: YES IARC: (1) NTP: YES ACGIH: (A1)

Numerous epidemiological (human) and animal studies have reported an increased incidence or a causal relationship between leukemia and benzene exposure.

Mutagenicity: positive

12. ECOLOGICAL INFORMATION (rev. Apr-98)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS (rev. Apr-98)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Apr-98)

DOT PROPER SHIPPING NAME:	Benzene
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1114
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

15. REGULATORY INFORMATION (rev. Apr-98)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

Benzene is a CERCLA Section 103 "hazardous substance" subject to CERCLA and SARA Section 304 reporting requirements.

Reportable Quantity: 10 pounds

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	100

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Apr-98)

NFPA® HAZARD RATING	HEALTH:	2	Moderate
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	3 *	Serious
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
			* Chronic

SUPERSEDES MSDS DATED: 04/23/98

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than

N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212) 642-4900
API	American Petroleum Institute (202) 682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General Info: (800) 467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617) 770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

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Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Material Safety Data Sheet

HYDROGEN SULFIDE

August 31, 1995

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. Product Identification

Synonyms: Sulfuretted Hydrogen; Hepatic Gas; Hydrosulfuric Acid
Chemical Name: Hydrogen Sulfide
Chemical Family: Inorganic Acid
Chemical Formula: H2S
CAS Reg. No.: 7783-06-4
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. Hazardous Components

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Hydrogen Sulfide	7783-06-4	100	10 ppm	10 ppm@

@ Short term exposure limit is 15 ppm.

C. Personal Protection Information

Ventilation: Use adequate ventilation to control exposure below recommended levels.

Respiratory Protection: For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator. If conditions immediately dangerous to life or health (IDLH) exist, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA) equipment.

Eye Protection: For splash protection use chemical goggles and face shield.

Skin Protection: Gloves and coveralls of rubber or neoprene construction if liquid contact could occur. Avoid

unnecessary skin contamination with material.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. Handling and Storage Precautions

Proper personal protective equipment must be used when handling this chemical.

Do not get liquefied gas into eyes, on skin, or on clothing. May cause freeze burns upon direct contact. Do not breathe vapor, mist, fume or dust. May be harmful. Launder contaminated clothing before reuse. Use only with adequate ventilation. Wash thoroughly after handling.

Keep away from heat, sparks, and flames. Secure container to prevent damage. Store in a well-ventilated area. Store in tightly closed container. Bond and ground during transfer. Do not puncture or incinerate container.

Handle cylinders with care. Protect cylinders from physical damage. Containers should not be subjected to temperatures above 125F. Do not heat cylinders by any means to increase the product discharge rate. Use a check valve or trap in the discharge line to prevent backflows into the cylinders. All electrical equipment should be non-sparking or explosion proof. Test atmosphere periodically for H2S. Do not rely on sense of smell for H2S release. Use product in a closed system.

E. Reactivity Data

Stability:	Stable
Conditions to Avoid:	Heat, flame, or other sources of ignition.
Incompatibility (Materials to Avoid):	Concentrated nitric acid, sulfuric acid, and other strong oxidizers. Vapors will combust spontaneously when mixed with chlorine, nitrogen trifluoride, or oxygen trifluoride vapors. Distinct hydrogen sulfide odor can be masked by high concentrations of vapors or gas of other chemicals.
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Sulfur Oxides formed when burned.

F. Health Hazard Data

Recommended Exposure Limits:

See Section B.

Acute Effects of Overexposure:

Eye: May be irritating to eyes at levels near the permissible exposure limit. Liquid may cause freeze burns.

Skin: Gas not expected to be irritating to skin. Liquid may cause freeze burns, irritation, reddening or swelling.

Inhalation: Toxic by inhalation. Release of liquefied product may create atmospheres which can rapidly exceed lethal levels. Acute low level exposure that exceeds the permissible exposure limit will result in irritation of the nose and throat, headache, dizziness, nausea, and nervousness.

Ingestion: Liquid may cause freeze burns and death.

Subchronic and Chronic Effects of Overexposure:

Humans breathing up to 8 ppm of hydrogen sulfide over a two month period experienced nausea, headache, shortness of breath, sleep disturbance, eye and throat irritation.

Other Health Effects:

The odor of hydrogen sulfide may not be recognized after prolonged inhalation due to paralysis of the sense of smell. Effects from inhaling the fumes may lead to chronic bronchitis, respiratory irritation, increased loss of pulmonary function, and tearing of the eyes.

Health Hazard Categories:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	_X_	_X_
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___	Specify - Skin & Eye Hazard - Freeze burns;		
Highly Toxic	___	___	Lung Hazard-Irritant; Nerve Toxin		

First Aid and Emergency Procedures:

NOTE: For freeze burns, immediately flush effected area with tap water for at least fifteen minutes, seek immediate medical attention.

Eye: Flush eyes with running water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Immediately remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.

Ingestion: If illness or adverse symptoms develop, seek medical attention.

Prompt medical attention is mandatory in all cases of overexposure to hydrogen sulfide. Rescue personnel should be equipped with NIOSH/MSHA approved self-contained breathing apparatus (SCBA). Rescue personnel should recognize the hazards of overexposure due to olfactory fatigue. The use of rescue equipment which might contain ignition sources or cause static discharges should be avoided.

Nitrite treatment as medical therapy has been used in persons overexposed to hydrogen sulfide, but the benefits of this treatment are still considered by some to be of questionable usefulness.

Therapy can only be undertaken by qualified emergency medical personnel.

Treatment should be initiated with inhalation of amyl nitrite for fifteen to thirty seconds of each minute until 10 ml of a 3% solution of sodium nitrite can be injected intravenously at a rate of 2.5 to 5 ml per minute. Sodium nitrite injections may be repeated if necessary.

G. Physical Data

Appearance:	Colorless Gas or Liquefied Gas
Odor:	Repulsive (rotten egg) Odor
Boiling Point:	-75F (-60C)
Vapor Pressure:	394.0 psia @ 100F (37.8C)
Vapor Density (Air = 1):	1.176 @ 60F (15.6C)(Calculated)
Solubility in Water:	Slight
Specific Gravity (H2O = 1):	0.79 @ 60F (15.6C) Saturation Pressure
Percent Volatile by Volume:	100
Evaporation Rate (Ethyl Ether = 1):	>1
Viscosity:	Not Applicable

H. Fire and Explosion Data

Flash Point (Method Used):	Flammable Gas
Flammable Limits (% by Volume in Air):	LEL - 4 UEL - 44
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Shut off source, if possible. Water for or spray may be used to cool exposed containers and equipment. Use NIOSH/MSHA approved self-contained breathing apparatus. Wear protective equipment and/or garments described in Section C.
Fire and Explosion Hazards:	Sulfur oxides formed when burned. Vapors are heavier than air and may travel to an ignition source and flashback. Autoignition temperature is 500F (260C).

I. Spill, Leak and Disposal Procedures

Precautions Required if Material is Released or Spilled:

Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source. Ventilate confined area.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):

Incinerate or place in permitted waste management facility.

J. DOT Transportation

Shipping Name:	Hydrogen sulfide, liquefied
Hazard Class:	2.3 (Poisonous gas)
ID Number:	UN 1053

```
         Packing Group: Not applicable
               Marking: Hydrogen Sulfide, liquefied, UN1053, RQ* Inhalation
                        hazard
                 Label: Poison gas and Flammable gas
               Placard: Poisonous gas/1053
Hazardous Substance/RQ: Hydrogen sulfide/100#
  Shipping Description: Hydrogen sulfide, liquefied, 2.3 (Poisonous gas),
                        UN 1053, RQ*, Poison - Inhalation Hazard Zone B
  Packaging References: 49 CFR 173.304, 173.314, 173.315
```

* Enter the letters "RQ" as shown only if the hazardous substance is present in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) shown for the hazardous substance.

K. RCRA Classification - Unadulterated Product as a Waste

Ignitable (D001); Hydrogen Sulfide (U135)

Prior to disposal, consult your environmental contact to determine if the TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. Protection Required for Work on Contaminated Equipment

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. If repair of user's equipment is required, purge equipment with an inert gas prior to repairing.

M. Hazard Classification

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
_X_ Compressed Gas	___ Explosive	___ Pyrophoric
_X_ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. Additional Comments

As of the preparation date, this product did not contain a chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

```
NFPA 704 Hazard Codes - - - - - - - - Signals

                                      Least - 0
   Health      : 3                    Slight - 1
   Flammability: 4                    Moderate - 2
```

Reactivity : 0	High - 3
Special Haz.: -	Extreme - 4

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Material Safety Data Sheet
Phenol Liquid

Section 1 - Chemical Product and Company Identification

MSDS Name: Phenol Liquid
Catalog Numbers: A88I-500, A931I-1, A931I-200, A931I-4, A931I-500, S801181, S801181MF
Synonyms: Phenylic acid
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-95-2	Phenol	89	203-632-7
7732-18-5	Water	11	231-791-2

Hazard Symbols: T
Risk Phrases: 34 24/25

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 175 deg F. **Danger!** Corrosive. **Combustible liquid and vapor.** Toxic. Harmful if swallowed, inhaled, or absorbed through the skin. May cause severe respiratory and digestive tract irritation with possible burns. Causes severe eye and skin burns. May cause liver and kidney damage. May cause reproductive and fetal effects. Eye contact may result in permanent eye damage. May cause central nervous system effects.
Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye: Contact with liquid or vapor causes severe burns and possible irreversible eye damage.
Skin: Causes severe skin irritation. Harmful if absorbed through the skin. Direct skin contact results in white, wrinkled discoloration, followed by severe burns. Phenol solutions may be absorbed through the skin ra pidly to cause systemic poisoning and possible death.
Ingestion: Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Causes digestive tract burns with immediate pain, swelling of the throat, convulsions, and possible coma.
Inhalation: Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. May be fatal if exposed to high concentrations. May also cause pallor, loss of appetite, nausea, vomiting, diarrhea, weakness, darkened urine, headache, sweating, convulsions, cyanosis (bluish skin due to deficient oxygenation of the blood), unconsciousness, fatigue, pulmonary edema & coma.
Chronic: Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause liver and kidney damage. May cause fetal effects. Repeated skin contact may cause dermatitis with dark pigmentation of the skin.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes

while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure. SPEEDY ACTION IS CRITICAL! Destroy contaminated shoes.
Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
Flash Point: 175e deg F (79.44 deg C)
Autoignition Temperature: 1319 deg F (715.00 deg C)
Explosion Limits, Lower:1.8
Upper: 8.6
NFPA Rating: (estimated) Health: 4; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not ingest or inhale. Use only in a chemical fume hood. Wash clothing before reuse. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat and flame. Keep away from sources of ignition. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Phenol	5 ppm TWA; skin - potential for cutaneous absorption	5 ppm TWA; 19 mg/m3 TWA 250 ppm IDLH	5 ppm TWA; 19 mg/m3 TWA
Water	none listed	none listed	none listed

OSHA Vacated PELs: Phenol: 5 ppm TWA; 19 mg/m3 TWA Water: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear neoprene gloves, apron, and/or clothing. Selection of specific glove materials should be based on your conditions of use in your application in consultation with your Safety Officer and manufacturer's glove recommendations.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless

Odor: sweetish odor
pH: 6 aqueous solution.
Vapor Pressure: .35 mm Hg @25C
Vapor Density: 3.2
Evaporation Rate:<0.01 (butyl acetate=1)
Viscosity: 1.51 cp@80C
Boiling Point: 360 deg F
Freezing/Melting Point:109 deg F
Decomposition Temperature: Not available.
Solubility: 6.75% in water
Specific Gravity/Density:1.0576
Molecular Formula:H6H6O
Molecular Weight:28.0834

Section 10 - Stability and Reactivity

Chemical Stability: Stable.
Conditions to Avoid: Temperatures above recommended temperatures.
Incompatibilities with Other Materials: Incompatible with strong oxidizing agents, alkalies, nitric acid, calcium hypochlorite, and halogens, Mixture with nitrobenzene and aluminum chloride may violently explode. Coagulates colodion and proteins. Hot liquid phenol will attack aluminum, magnesium, lead, and zinc metals. Mixtures with nitrobenzene and aluminum chloride may violently explode.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 108-95-2: SJ3325000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 108-95-2:
Draize test, rabbit, eye: 5 mg Severe;
Draize test, rabbit, skin: 500 mg/24H Severe;
Draize test, rabbit, skin: 100 mg Mild;
Inhalation, mouse: LC50 = 177 mg/m3;
Inhalation, rat: LC50 = 316 mg/m3;
Oral, mouse: LD50 = 270 mg/kg;
Oral, rat: LD50 = 317 mg/kg;
Skin, rabbit: LD50 = 630 mg/kg;
Skin, rat: LD50 = 669 mg/kg;
CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg;
Carcinogenicity:
CAS# 108-95-2:
ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: IARC Group 3 - not classifiable CAS# 7732-18-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: The IARC has determined that there is inadequate evidence fo r carcinogenicity of phenol in humans and experiment aal animals.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Other Studies: Rabbit skin irritation: severe. Rabbit eye irritation: sever e.

Section 12 - Ecological Information

Ecotoxicity: Daphnia: EC50=4.0mg/l; 96hour; ia: EC50=12.0mg/l; 48 hour; No data
Environmental: Will not be expected to significantly bioconcentrate in aquatic organisms.
Physical: In water, phenol will not be expected to significantly hydrolyze.
Other: 96-hour LC50=11 mg/l in Gammarus fasciatus. 48-hour LC=11.2 mg/l in Leuciscus idus.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: CAS# 108-95-2: waste number U188.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	PHENOL SOLUTIONS				PHENOL SOLUTION
Hazard Class:	6.1				6.1(9.2)
UN Number:	UN2821				UN2821
Packing Group:	II				II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 108-95-2 is listed on the TSCA inventory.

CAS# 7732-18-5 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-95-2: Effective Date: 6/1/87; Sunset Date: 6/1/97

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs

CAS# 108-95-2: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 108-95-2: 500 lb TPQ (lower threshold); 10,000 lb TPQ (upper thre shold)

SARA Codes

CAS # 108-95-2: acute, chronic, flammable.

Section 313

This material contains Phenol (CAS# 108-95-2, 89%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 108-95-2 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 108-95-2 is listed as a Hazardous Substance under the CWA. CAS# 108-95-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 108-95-2 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 108-95-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 34 Causes burns.

R 24/25 Toxic in contact with skin and if swallowed.

Safety Phrases:

S 28 After contact with skin, wash immediately with...
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 108-95-2: 2
CAS# 7732-18-5: No information available.

Canada - DSL/NDSL

CAS# 108-95-2 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D1A, E.

Canadian Ingredient Disclosure List

CAS# 108-95-2 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits

CAS# 108-95-2: OEL-ARAB Republic of Egypt:TWA 5 ppm (19 mg/m3);Skin OEL-AUSTRALIA:TWA 5 ppm (19 mg/m3);Skin OEL-BELGIUM:TWA 5 ppm (19 mg /m3);Skin OEL-CZECHOSLOVAKIA:TWA 20 mg/m3;STEL 40 mg/m3 OEL-DENMARK: TWA 5 ppm (19 mg/m3);Skin OEL-FINLAND:TWA 5 ppm (19 mg/m3);STEL 10 pp m (38 mg/m3);Skin OEL-FRANCE:TWA 5 ppm (19 mg/m3);Skin OEL-GERMANY:T WA 5 ppm (19 mg/m3);Skin OEL-HUNGARY:TWA 4 mg/m3;STEL 8 mg/m3;Skin O EL-JAPAN:TWA 5 ppm (19 mg/m3);Skin OEL-THE NETHERLANDS:TWA 5 ppm (19 mg/m3);Skin OEL-THE PHILIPPINES:TWA 5 ppm (10 mg/m3);Skin OEL-POLAND :TWA 10 ppm OEL-RUSSIA:TWA 5 ppm;STEL 0.3 mg/m3;Skin OEL-SWEDEN:TWA 1 ppm (4 mg/m3);STEL 2 ppm (8 mg/m3);Skin OEL-SWITZERLAND:TWA 5 ppm (19 mg/m3);STEL 10 ppm (38 mg/m3);Skin OEL-THAILAND:TWA 5 ppm (19 mg/m 3) OEL-TURKEY:TWA 5 ppm (19 mg/m3);Skin OEL-UNITED KINGDOM:TWA 5 ppm (19 mg/m3);STEL 10 ppm;Skin OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TL V

Section 16 - Additional Information

MSDS Creation Date: 6/01/1999
Revision #5 Date: 10/08/2003

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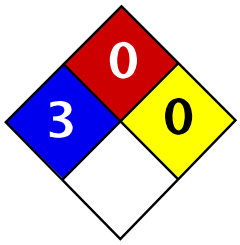

Health	3
Fire	1
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
Sodium Cyanide MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium Cyanide

Catalog Codes: SLS2314, SLS3736

CAS#: 143-33-9

RTECS: VZ7525000

TSCA: TSCA 8(b) inventory: Sodium Cyanide

CI#: Not available.

Synonym:

Chemical Name: Sodium Cyanide

Chemical Formula: NaCN

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium Cyanide	143-33-9	100

Toxicological Data on Ingredients: Sodium Cyanide: ORAL (LD50): Acute: 6.44 mg/kg [Rat]. DERMAL (LD50): Acute: 10.4 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to skin, eyes, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of acids, of moisture.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Dangerous on contact with acids, acid fumes, water or stream. It will produce toxic and flammable vapors of CN-H and sodium oxide.
Contact with acids and acid salts causes immediate formation of toxic and flammable hydrogen cyanide gas.
When heated to decomposition it emits toxic fumes hydgrogen cyanide and oxides of nitrogen

Special Remarks on Explosion Hazards: Fusion mixtures of metal cyanides with metal chlorates, perchlorated or nitrates causes a violent explosion

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Corrosive solid. Poisonous solid.
Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C (75.2°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
STEL: 5 (mg/m3) from ACGIH (TLV) [United States] SKIN
CEIL: 4.7 from NIOSH
CEIL: 5 (mg/m3) from NIOSHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Granular solid. Flakes solid.)

Odor:
Faint almond-like odor.
Odorless when perfectly dry. Emits odor of hydrogen cyanide when damp.

Taste: Not available.

Molecular Weight: 49.01 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 1496°C (2724.8°F)

Melting Point: 563°C (1045.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.595 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Vapor Density of Hydrogen Cyanide gas: 0.941

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:
Soluble in cold water.
Slightly soluble in Ethanol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, moisture, incompatibles.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity:
Corrosive in presence of aluminum.
Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Violent reaction with fluorine gas, magnesium, nitrates, nitric acid.
Dangerous on contact with acids, acid fumes, water or stream. It wil produce toxic and flammable vapors of CN-H and sodium oxide.
Cyanide may react with CO2 in ordinary air to form toxic hydrogen cyanide gas.
Strong oxidizers such as acids, acid salts, chlorates, and nitrates.
Contact with acids and acid salts causes immediate formation of toxic and flammable hydrogen cyanide gas.

Special Remarks on Corrosivity: Corrosive to aluminum

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 6.44 mg/kg [Rat].
Acute dermal toxicity (LD50): 10.4 mg/kg [Rabbit].

Chronic Effects on Humans: May cause damage to the following organs: skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects (maternal and paternal fertility) based on animal data.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health effects:
Skin: May cause itching and irritation. May be fatal if absorbed through injured skin with symtpoms similar to those noted for inhalation and ingestion.
Eyes: May cause eye irritation and eye damage.
Inhalation: May cause respiratory tract irritation. May be fatal if inhaled. The substance inhibits cellular respiration causing metabolic asphyxiation. May cause headache, weakness, dizziness, labored breathing, nausea, vomiting. May be followed by cardiovascular effects, unconciousness, convulsions, coma, and death
Ingestion: May be fatal if swallowed. May cause gastrointestinal tract irritation with nausea, vomiting. May affect behavior and nervous systems(seizures, convulsions, change in motor activity, headache, dizziness, confusion, weakness stupor, aniexity, agitation, tremors), cardiovascular system, respiration (hyperventilation, pulmonary edema, breathing difficulty, respiratory failure), cardiovascular system (palpitations, rapid heart beat, hypertension, hypotension). Massive doses by produce sudden loss of conciousness and prompt death from respiratory arrest. Smaller but still lethal doses
on the breath or vomitus.
Chronic Potential Health Effects:
Central Nervous system effects (headaches, vertigo, insomnia, memory loss, tremors, fatigue), fatigue, metabolic effects (poor appetite), cardiovascular effects (chest discomfort, palpitations), nerve damage to the eyes, or dermatitis, respiratory tract irritation, eye irritation, or death can occur.
may prolong the illness for 1 or more hours. A bitter almond odor may be noted

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Sodium cyanide UNNA: 1689 PG: I

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut carcinogen reporting list.: Sodium Cyanide
Illinois chemical safety act: Sodium Cyanide
New York release reporting list: Sodium Cyanide
Rhode Island RTK hazardous substances: Sodium Cyanide
Pennsylvania RTK: Sodium Cyanide
Minnesota: Sodium Cyanide
Massachusetts RTK: Sodium Cyanide
Massachusetts spill list: Sodium Cyanide
New Jersey: Sodium Cyanide
New Jersey spill list: Sodium Cyanide
Louisiana RTK reporting list: Sodium Cyanide
Louisiana spill reporting: Sodium Cyanide
California Director's List of Hazardous Substances: Sodium Cyanide
TSCA 8(b) inventory: Sodium Cyanide
TSCA 4(a) final test rules: Sodium Cyanide
TSCA 8(a) PAIR: Sodium Cyanide
TSCA 8(d) H and S data reporting: Sodium Cyanide
TSCA 12(b) one time export: Sodium Cyanide
SARA 302/304/311/312 extremely hazardous substances: Sodium Cyanide
CERCLA: Hazardous substances.: Sodium Cyanide: 10 lbs. (4.536 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-6: Reactive and very flammable material.
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS E: Corrosive solid.

DSCL (EEC):
R27/28- Very toxic in contact with skin and if swallowed.
R41- Risk of serious damage to eyes.
S1/2- Keep locked up and out of the reach of children.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28- After contact with skin, wash immediately

with plenty of water
S36/37- Wear suitable protective clothing and gloves.
S39- Wear eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Synthetic apron.
Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 01:58 PM

Last Updated: 11/06/2008 12:00 PM

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SPI Supplies Division
Structure Probe, Inc.
P.O. Box 656 West Chester, PA 19381-0656 USA
Phone: 1-(610)-436-5400 Fax: 1-(610)-436-5755
E-mail: spi3spi@2spi.com
WWW: http://www.2spi.com
Manufacturer's CAGE: 1P573

Material Safety Data Sheet

SPI #02701-AB, 02701A-AB Chrysotile "B" and SPI#02740-AB, 02740A-AB Chrysolile "B" Asbestos Standards

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Section 1: Identification

```
Date Effective.......... May 30, 2007
                         (most recent revision)

Chemical family..... Hydrous silicates of magnesia

Emergencies
Contacting CHEMTREC:

24 Hour Emergency Use Only #'s......
Worldwide phone: 1-(703)-527-3887
Worldwide FAX:   1-(703)-741-6090
Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name....  Chrysotile asbestos fiber

Emergency Overview:
Chrysotile asbestos is a known human carcinogen.
```

Section 2: Composition

Name	CAS #	EC#	Approximate Weight %
Chrysotile	12001-29-5	650-013-006	>99.99%

Confirmed carcinogen by ACGIH, IARC, OSHA AND NTP.

Section 3: Hazard Identification

Potential Health Effects:
Acute: Overexposure to breathing asbestos may cause asbestosis, pulmonary fibrosis, mesothelioma, other lung disorders or cancer. Handling of materials and smoking or eating prior to washing could be hazardous. Medical examination and x-rays are required to determine signs & symptoms of exposure.

Routes of exposure: Inhalation, Skin contact, Ingestion

Medical Conditions Aggravated by Exposure:
Pulmonary disease

Occupational Exposure Limits:

TLV: 0.1 fiber/cc (as TWA)
A1 (ACGIH 1998. For fibers longer than 5Âµm with an aspect ratio equal to or greater than 3:1 as determined at 400-450X magnification by the membrane filter method).

Incompatibilies:
Strong oxidizers, strong acids, and bases

Route of entry: Inhalation, Skin contact, Ingestion
Target organs: Lungs

Symptoms:
There are not acute signs or symptoms associated with asbestos. Diseases associated with over exposure are chronic, generally taking from 10 to 40 years to become apparent.

Section 4: First Aid Measures

Eyes: In case of contact, immediately flush eyes with copious amounts of flowing water for at least 15 minutes, retracting eye lids often. Get medical attention immediately. Contact lenses should not be worn when working with this product.

Skin: Wash skin thoroughly with mild soap and water. Flush with copious amounts of water for 15 minutes.

Inhalation: Move the exposed person to fresh air at once. Support breathing. If symptoms persist contact physician.

Ingestion: Get medical aid immediately.

Section 5: Fire Fighting Measures

Flammability classification: Not classified.
Heat resistant up to 500°C; is completely decomposed at a temperature of 1000°C.

Flash Point/Method: Not known

Auto-Ignition Temperature: Not determined

Flammable Limits: Lower: Not applicable
Upper: Not applicable

Extinguishing Media: Water, Foam, Dry Chemical

Unusual Fire Hazards: Toxic gases and asbestos particulate may be Released in a fire.

Firefighting procedures/instructions:
Use NIOSH approved self-contained breathing apparatus and full protective equipment.
Properties that could increase fire or explosion hazard:
Combustibility of this material results from paraffin lubrication.

Section 6: Accidental Release Measures

Use HEPA vacuum wet methods when feasible. Use appropriate personal protection for clean-up personnel.

Section 7: Handling and Storage

Storage and handling:
Store in well-sealed container in cool, dry area.

Section 8: Exposure Controls and Personal Protection

ANSI approved eye wash and deluge shower should be available in the work area.

Personal Protective Equipment (PPE):

Eye/Face Protection: ANSI 87.1 approved chemical safety glasses with side shield.

Protective gloves: Rubber gloves
Protective clothing: Wear protective clothing to prevent skin contact. Do NOT take working clothes home.

Respiratory Protection:
Wear NIOSH approved respirator in accordance with 29CFR1910.1001.

Other: Wash prior to eating, drinking, or smoking. Avoid ingestion or breathing of dust.

Section 9: Physical and Chemical Properties

Appearance: white or gray fibrous solid
Color: white or gray
pH: Not applicable
Odor: None
Vapor Pressure: Not applicable
Vapor Density (Air=1): Not available
Boiling Point/Range: Not available
Melting Point/Range: Decomposes above 500°C
Specific Gravity: 2.2 to 2.6 g/cc
Solubility in water: None
Softening Point: Not determined
Molecular Formula: $Mg_3Si_2H_4O_6/Mg_3(Si_2O_5)(OH)4$
Molecular Weight: 277
%Volatile by Volume: Not determined
Evaporation Rate (n-butyl acetate = 1): Not available
Viscosity: Not available

Section 10: Stability and Reactivity

Chemical Stability: The product is stable under normal use conditions.

Conditions to Avoid:
Prevent dispersion of dust. Avoid all contact. Avoid airborne concentrations at or above OSHA PEL.

Incompatibility (materials to avoid):
Strong oxidizers, strong acids, and bases.

Hazardous Products of Decomposition:
None known

Reactions with Air and Water:
Avoid airborne concentrations at or above OSHA PEL.

Section 11: Toxicological Information

RTECS# CI3478500

Section 12: Ecological Information

None available

Section 13: Disposal Considerations

Bury waste is solid landfill as required in 29CFR1910.1001. Comply with applicable OSHA, Federal, State and Local regulations.

Section 14: Transport Information

Proper Shipping Name: White asbestos (chrysotile)

DOT Hazard Class: 9

UN/NA ID: UN2590

Packing Group: III

Labels: 9

Marine Pollutant: No information

DOT Status: Not Regulated

Section 15: Regulatory Information

United States:

TSCA
This product is listed under the TSCA Inventory.

CERCLA:
This product has an RQ of 1 pound under CERCLA.

SARA:
Section 313
This product is listed under SARA Section 313.

California Prop. 65:
Asbestos a known carcinogen under California Prop. 65.

US Statements:
Confirmed carcinogen. Target organs: Lung

European/International Regulations:
European Labeling in Accordance with EC Directives

Hazard Symbols: T Toxic
Risk Phrases:
R23 Toxic by Inhalation
R45 May cause cancer
R48 Danger of serious damage to health by prolonged exposure
R49 May cause cancer by inhalation

Safety Phrases:
S53 Avoid exposure â€“ obtain special instructions before use
S45 In case of accident, or if you feel unwell, seek medical advice immediately (show the label where possible.)

Canada

This product has a WHMIS classification of D2B.

DSL/NDSL
This product is listed on the DSL List and is not listed on the NDSL List.

Section 16: Other Information

If this product should be used in ways that are outside of the intended applications in scanning electron microscope laboratories, and if it is going to be formulated into some other system, so that it becomes just another component of that other system, read the MSDS sheets for the other components before blending as the resulting mixture may have the hazards of all of its parts.

Disclaimer of Liability:

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Wednesday December 03, 2008

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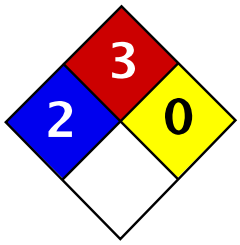

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Ethylbenzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ethylbenzene

Catalog Codes: SLE2044

CAS#: 100-41-4

RTECS: DA0700000

TSCA: TSCA 8(b) inventory: Ethylbenzene

CI#: Not available.

Synonym: Ethyl Benzene; Ethylbenzol; Phenylethane

Chemical Name: Ethylbenzene

Chemical Formula: C8H10

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ethylbenzene	100-41-4	100

Toxicological Data on Ingredients: Ethylbenzene: ORAL (LD50): Acute: 3500 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (irritant, sensitizer).
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 432°C (809.6°F)

Flash Points:
CLOSED CUP: 15°C (59°F). (Tagliabue.) OPEN CUP: 26.667°C (80°F) (Cleveland) (CHRIS, 2001)
CLOSED CUP: 12.8 C (55 F) (Bingham et al, 2001; NIOSH, 2001)
CLOSED CUP: 21 C (70 F) (NFPA)

Flammable Limits: LOWER: 0.8% - 1.6%UPPER: 6.7% - 7%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive in presence of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Vapors may form explosive mixtures in air.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 125 (ppm) from OSHA (PEL) [United States]
TWA: 435 STEL: 545 from OSHA (PEL) [United States]
TWA: 435 STEL: 545 (mg/m3) from NIOSH [United States]
TWA: 100 STEL: 125 (ppm) from NIOSH [United States]
TWA: 100 STEL: 125 (ppm) from ACGIH (TLV) [United States]
TWA: 100 STEL: 125 (ppm) [United Kingdom (UK)]
TWA: 100 STEL: 125 (ppm) [Belgium]
TWA: 100 STEL: 125 (ppm) [Finland]
TWA: 50 (ppm) [Norway]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweetish. Gasoline-like. Aromatic.

Taste: Not available.

Molecular Weight: 106.16 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 136°C (276.8°F)

Melting Point: -94.9 (-138.8°F)

Critical Temperature: 617.15°C (1142.9°F)

Specific Gravity: 0.867 (Water = 1)

Vapor Pressure: 0.9 kPa (@ 20°C)

Vapor Density: 3.66 (Air = 1)

Volatility: 100% (v/v).

Odor Threshold: 140 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:
Easily soluble in diethyl ether.
Very slightly soluble in cold water or practically insoluble in water.
Soluble in all proportions in Ethyl alcohol.
Soluble in Carbon tetrachloride, Benzene.
Insoluble in Ammonia.
Slightly soluble in Chloroform.
Solubility in Water: 169 mg/l @ 25 deg. C.; 0.014 g/100 ml @ 15 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ingnition sources (flames, sparks, static), incompatible materials, light

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials.
Sensitive to light.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): 3500 mg/kg [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
May cause damage to the following organs: central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation.
Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals:
Lethal Dose/Conc 50% Kill:
LD50 [Rabbit] - Route: Skin; Dose: 17800 ul/kg
Lowest Published Lethal Dose/Conc:
LDL[Rat] - Route: Inhalation (vapor); Dose: 4000 ppm/4 H

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data.
May cause cancer based on animals data. IARC evidence for carcinogenicity in animals is sufficient. IARC evidence of carcinogenicity in humans inadequate.
May affect genetic material (mutagenic).

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Can cause mild skin irritation. It can be absorbed through intact skin.
Eyes: Contact with vapor or liquid can cause severe eye irritation depending on concentration. It may also cause conjunctivitis. At a vapor exposure level of 85 - 200 ppm , it is mildly and transiently irritating to the eyes; 1000 ppm causes further irritation and tearing; 2000 ppm results in immediate and severe irritation and tearing; 5,000 ppm is intolerable (ACGIH, 1991; Clayton and Clayton, 1994). Standard draize test for eye irritation using 500 mg resulted in severe irritation (RTECS)
Inhalation: Exposure to high concentrations can cause nasal, mucous membrane and respiratory tract irritation and can also result in chest constriction and, trouble breathing, respiratory failure, and even death. It can also affect behavior/Central Nervous System. The effective dose for CNS depression in experimental animals was 10,000 ppm (ACGIH, 1991). Symptoms of CNS depression include headache, nausea, weakness, dizziness, vertigo, irritability, fatigue, lightheadedness, sleepiness, tremor, loss of coordination, judgement and conciousness, coma, and death. It can also cause pulmonary edema. Inhalation of 85 ppm can produce fatigue, insomnia, headache, and mild irritation of the respiratory tract (Haley & Berndt, 1987).
Ingestion: Do not drink, pipet or siphon by mouth. May cause gastroinestinal/digestive tract irritation with Abdominal pain, nausea, vomiting. Ethylbenzene is a pulmonary aspiration hazard. Pulmonary aspiration of even small amounts of the liquid may cause fatal pneumonitis. It may also affect behavior/central nervous system with

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 14 mg/l 96 hours [Fish (Trout)] (static). 12.1 mg/l 96 hours [Fish (Fathead Minnow)] (flow-through)]. 150 mg/l 96 hours [Fish (Blue Gill/Sunfish)] (static). 275 mg/l 96 hours [Fish (Sheepshead Minnow)]. 42.3 mg/l 96 hours [Fish (Fathead Minnow)](soft water). 87.6mg/l 96 hours [Shrimp].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Ethylbenzene UNNA: 1175 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Ethylbenzene
Illinois toxic substances disclosure to employee act: Ethylbenzene
Illinois chemical safety act: Ethylbenzene
New York release reporting list: Ethylbenzene
Rhode Island RTK hazardous substances: Ethylbenzene
Pennsylvania RTK: Ethylbenzene
Minnesota: Ethylbenzene
Massachusetts RTK: Ethylbenzene
Massachusetts spill list: Ethylbenzene
New Jersey: Ethylbenzene
New Jersey spill list: Ethylbenzene
Louisiana spill reporting: Ethylbenzene
California Director's List of Hazardous Substances: Ethylbenzene
TSCA 8(b) inventory: Ethylbenzene
TSCA 4(a) proposed test rules: Ethylbenzene
TSCA 8(d) H and S data reporting: Ethylbenzene: Effective Date: 6/19/87; Sunset Date: 6/19/97
SARA 313 toxic chemical notification and release reporting: Ethylbenzene

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
CLASSE D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable.
R20- Harmful by inhalation.
S16- Keep away from sources of ignition - No smoking.
S24/25- Avoid contact with skin and eyes.
S29- Do not empty into drains.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Manufacturer's Material Safety Data Sheet.
-Fire Protection Guide to Hazardous Materials, 13th ed., National Fire Protection Association (NFPA)
-Registry of Toxic Effects of Chemical Substances (RTECS)
-Chemical Hazard Response Information System (CHRIS)
-Hazardous Substance Data Bank (HSDB)
-New Jersey Hazardous Substance Fact Sheet
-Ariel Global View
-Reprotext System

Other Special Considerations: Not available.

Created: 10/09/2005 05:28 PM

Last Updated: 11/06/2008 12:00 PM

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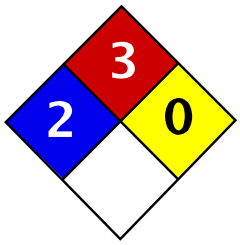

Health	2
Fire	3
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
m-Xylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: m-Xylene

Catalog Codes: SLX1066

CAS#: 108-38-3

RTECS: ZE2275000

TSCA: TSCA 8(b) inventory: m-Xylene

CI#: Not applicable.

Synonym: m-Methyltoluene

Chemical Name: 1,3-Dimethylbenzene

Chemical Formula: C6H4(CH3)2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{m-}Xylene	108-38-3	100

Toxicological Data on Ingredients: m-Xylene: ORAL (LD50): Acute: 5000 mg/kg [Rat.]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit.].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant).
Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance is toxic to blood, kidneys, the nervous system, liver.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 527°C (980.6°F)

Flash Points: CLOSED CUP: 25°C (77°F). OPEN CUP: 28.9°C (84°F) (Cleveland).

Flammable Limits: LOWER: 1.1% UPPER: 7%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid, insoluble in water.

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 150 (ppm) from ACGIH (TLV)
TWA: 434 STEL: 651 (mg/m3) from ACGIHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 139.3°C (282.7°F)

Melting Point: -47.87°C (-54.2°F)

Critical Temperature: Not available.

Specific Gravity: 0.86 (Water = 1)

Vapor Pressure: 6 mm of Hg (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.62 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:
Easily soluble in methanol, diethyl ether.
Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 5000 mg/kg [Rat.].
Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit.].

Chronic Effects on Humans: The substance is toxic to blood, kidneys, the nervous system, liver.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant).
Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
0347 Animal: embryotoxic, foetotoxic, passes through the placental barrier.
0900 Detected in maternal milk in human.
Narcotic effect; may cause nervous system disturbances.

Special Remarks on other Toxic Effects on Humans: Material is irritating to mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Xylene : UN1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: m-Xylene
Massachusetts RTK: m-Xylene
TSCA 8(b) inventory: m-Xylene
SARA 313 toxic chemical notification and release reporting: m-Xylene
CERCLA: Hazardous substances.: m-Xylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R10- Flammable.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
-Material safety data sheet emitted by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec.
-SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.
-The Sigma-Aldrich Library of Chemical Safety Data, Edition II.
-Guide de la loi et du rÃ¨glement sur le transport des marchandises dangeureuses au canada. Centre de conformitÃ© internatinal LtÃ©e. 1986.

Other Special Considerations: Not available.

Created: 10/10/2005 08:33 PM

Last Updated: 11/06/2008 12:00 PM

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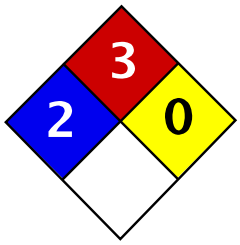

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Toluene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Toluene

Catalog Codes: SLT2857, SLT3277

CAS#: 108-88-3

RTECS: XS5250000

TSCA: TSCA 8(b) inventory: Toluene

CI#: Not available.

Synonym: Toluol, Tolu-Sol; Methylbenzene; Methacide; Phenylmethane; Methylbenzol

Chemical Name: Toluene

Chemical Formula: C6-H5-CH3 or C7-H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Toluene	108-88-3	100

Toxicological Data on Ingredients: Toluene: ORAL (LD50): Acute: 636 mg/kg [Rat]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit]. VAPOR (LC50): Acute: 49000 mg/m 4 hours [Rat]. 440 ppm 24 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to blood, kidneys, the nervous system, liver, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: CLOSED CUP: 4.4444°C (40°F). (Setaflash) OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 1.1% UPPER: 7.1%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat.
Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:
Toluene forms explosive reaction with 1,3-dichloro-5,5-dimethyl-2,4-imidazolididione; dinitrogen tetraoxide;

concentrated nitric acid, sulfuric acid + nitric acid; N_2O_4; $AgClO_4$; BrF_3; Uranium hexafluoride; sulfur dichloride. Also forms an explosive mixture with tetranitromethane.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Toxic flammable liquid, insoluble or very slightly soluble in water.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 200 STEL: 500 CEIL: 300 (ppm) from OSHA (PEL) [United States]
TWA: 50 (ppm) from ACGIH (TLV) [United States] SKIN
TWA: 100 STEL: 150 from NIOSH [United States]
TWA: 375 STEL: 560 (mg/m^3) from NIOSH [United States]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweet, pungent, Benzene-like.

Taste: Not available.

Molecular Weight: 92.14 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 110.6°C (231.1°F)

Melting Point: -95°C (-139°F)

Critical Temperature: 318.6°C (605.5°F)

Specific Gravity: 0.8636 (Water = 1)

Vapor Pressure: 3.8 kPa (@ 25°C)

Vapor Density: 3.1 (Air = 1)

Volatility: Not available.

Odor Threshold: 1.6 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2.7

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Soluble in diethyl ether, acetone.
Practically insoluble in cold water.
Soluble in ethanol, benzene, chloroform, glacial acetic acid, carbon disulfide.
Solubility in water: 0.561 g/l @ 25 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks, static), incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with strong oxidizers, silver perchlorate, sodium difluoride, Tetranitromethane, Uranium Hexafluoride.
Frozen Bromine Trifluoride reacts violently with Toluene at -80 deg. C.
Reacts chemically with nitrogen oxides, or halogens to form nitrotoluene, nitrobenzene, and nitrophenol and halogenated products, respectively.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 636 mg/kg [Rat].
Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 440 24 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
May cause damage to the following organs: blood, kidneys, the nervous system, liver, brain, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose:
LDL [Human] - Route: Oral; Dose: 50 mg/kg
LCL [Rabbit] - Route: Inhalation; Dose: 55000 ppm/40min

Special Remarks on Chronic Effects on Humans:
Detected in maternal milk in human. Passes through the placental barrier in human. Embryotoxic and/or foetotoxic in animal. May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes mild to moderate skin irritation. It can be absorbed to some extent through the skin.
Eyes: Cauess mild to moderate eye irritation with a burning sensation. Splash contact with eyes also causes conjunctivitis, blepharospasm, corneal edema, corneal abraisons. This usually resolves in 2 days.
Inhalation: Inhalation of vapor may cause respiratory tract irritation causing coughing and wheezing, and nasal discharge. Inhalation of high concentrations may affect behavior and cause central nervous system effects characterized by nausea, headache, dizziness, tremors, restlessness, lightheadedness, exhilaration, memory loss, insomnia, impaired reaction time, drowsiness, ataxia, hallucinations, somnolence, muscle contraction or spasticity, unconsciousness and coma. Inhalation of high concentration of vapor may also affect the cardiovascular system (rapid heart beat, heart palpitations, increased or decreased blood pressure, dysrhythmia,), respiration (acute pulmonary edema, respiratory depression, apnea, asphyxia), cause vision disturbances and dilated pupils, and cause loss of appetite.
Ingestion: Aspiration hazard. Aspiration of Toluene into the lungs may cause chemical pneumonitis. May cause irritation of the digestive tract with nausea, vomiting, pain. May have effects similar to that of acute inhalation.
Chronic Potential Health Effects:
Inhalation and Ingestion: Prolonged or repeated exposure via inhalation may cause central nervous system and cardiovascular symptoms similar to that of acute inhalation and ingestion as well liver damage/failure, kidney damage/failure (with hematuria, proteinuria, oliguria, renal tubular acidosis), brain damage, weight loss, blood (pigmented or nucleated red blood cells, changes in white blood cell count), bone marrow changes, electrolyte imbalances (Hypokalemia, Hypophostatemia), severe, muscle weakness and Rhabdomyolysis.
Skin: Repeated or prolonged skin contact may cause defatting dermatitis.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 313 mg/l 48 hours [Daphnia (daphnia)]. 17 mg/l 24 hours [Fish (Blue Gill)]. 13 mg/l 96 hours [Fish (Blue Gill)]. 56 mg/l 24 hours [Fish (Fathead minnow)]. 34 mg/l 96 hours [Fish (Fathead minnow)]. 56.8 ppm any hours [Fish (Goldfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may

arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Toluene UNNA: 1294 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Toluene
California prop. 65 (no significant risk level): Toluene: 7 mg/day (value)
California prop. 65 (acceptable daily intake level): Toluene: 7 mg/day (value)
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Toluene
Connecticut hazardous material survey.: Toluene
Illinois toxic substances disclosure to employee act: Toluene
Illinois chemical safety act: Toluene
New York release reporting list: Toluene
Rhode Island RTK hazardous substances: Toluene
Pennsylvania RTK: Toluene
Florida: Toluene
Minnesota: Toluene
Michigan critical material: Toluene
Massachusetts RTK: Toluene
Massachusetts spill list: Toluene
New Jersey: Toluene
New Jersey spill list: Toluene
Louisiana spill reporting: Toluene
California Director's List of Hazardous Substances.: Toluene
TSCA 8(b) inventory: Toluene
TSCA 8(d) H and S data reporting: Toluene: Effective date: 10/04/82; Sunset Date: 10/0/92
SARA 313 toxic chemical notification and release reporting: Toluene
CERCLA: Hazardous substances.: Toluene: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable.
R20- Harmful by inhalation.
S16- Keep away from sources of ignition - No smoking.
S25- Avoid contact with eyes.
S29- Do not empty into drains.
S33- Take precautionary measures against static discharges.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:30 PM

Last Updated: 11/06/2008 12:00 PM

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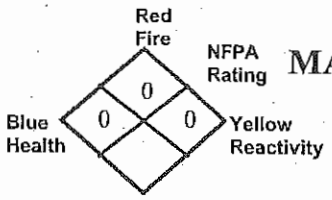
Alconox ®



MATERIAL SAFETY DATA SHEET

Alconox, Inc.
30 Glenn Street
White Plains, NY 10603

24 Hour Emergency Number – Chem-Tel (800) 255-3924

I. IDENTIFICATION

Product Name (as appears on label)	ALCONOX
CAS Registry Number:	Not Applicable
Effective Date:	January 1, 2001
Chemical Family:	Anionic Powdered Detergent
Manufacturer Catalog Numbers for sizes	1104, 1125, 1150, 1101, 1103 and 1112

II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

There are no hazardous ingredients in ALCONOX as defined by the OSHA Standard and Hazardous Substance List 29 CFR 1910 Subpart Z.

III. PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point (F):	Not Applicable
Vapor Pressure (mm Hg):	Not Applicable
Vapor Density (AIR=1):	Not Applicable
Specific Gravity (Water=1):	Not Applicable
Melting Point:	Not Applicable
Evaporation Rate (Butyl Acetate=1):	Not Applicable
Solubility in Water:	Appreciable-Soluble to 10% at ambient conditions
Appearance:	White powder interspersed with cream colored flakes.
pH:	9.5 (1%)

IV. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	None
Flammable Limits:	LEL: No Data UEL: No Data
Extinguishing Media:	Water, dry chemical, CO_2, foam
Special Fire fighting Procedures:	Self-contained positive pressure breathing apparatus and protective clothing should be worn when fighting fires involving chemicals.
Unusual Fire and Explosion Hazards:	None

V. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur
Incompatibility (Materials to Avoid):	None
Hazardous Decomposition or Byproducts:	May release CO_2 on burning

VI. HEALTH HAZARD DATA

Route(s) of Entry:	Inhalation? Yes Skin? No Ingestion? Yes
Health Hazards (Acute and Chronic):	Inhalation of powder may prove locally irritating to mucous membranes. Ingestion may cause discomfort and/or diarrhea. Eye contact may prove irritating.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No
Signs and Symptoms of Exposure:	Exposure may irritate mucous membranes. May cause sneezing.
Medical Conditions Generally Aggravated by Exposure:	Not established. Unnecessary exposure to this product or any industrial chemical should be avoided. Respiratory conditions may be aggravated by powder.
Emergency and First Aid Procedures:	Eyes: Immediately flush eyes with water for at least 15 minutes. Call a physician. Skin: Flush with plenty of water. Ingestion: Drink large quantities of water or milk. Do not induce vomiting. If vomiting occurs administer fluids. See a physician for discomfort.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken if Material is Released or Spilled:	Material foams profusely. Recover as much as possible and flush remainder to sewer. Material is biodegradable.
Waste Disposal Method:	Small quantities may be disposed of in sewer. Large quantities should be disposed of in accordance with local ordinances for detergent products.
Precautions to be Taken in Storing and Handling:	Material should be stored in a dry area to prevent caking.
Other Precautions:	No special requirements other than the good industrial hygiene and safety practices employed with any industrial chemical.

VIII. CONTROL MEASURES

Respiratory Protection (Specify Type):	Dust mask - Recommended
Ventilation:	Local Exhaust-Normal Special-Not Required Mechanical-Not Required Other-Not Required
Protective Gloves:	Impervious gloves are useful but not required.
Eye Protection:	Goggles are recommended when handling solutions.
Other Protective Clothing or Equipment:	None
Work/Hygienic Practices:	No special practices required

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**** MATERIAL SAFETY DATA SHEET ****

Methanol
14280

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Methanol
Catalog Numbers:
, S75959, S75965, S75965A, S75965HPLC, S75965SPEC, A408-1, A408-4, A408SK-4 A411-20, A411-4, A412-1, A412-20, A412-200, A412-200LC, A412-4, A412-4LC, A412-500, A412-500LC, A412CU1300, A412FB115, A412FB19, A412FB200, A412FB50, A412J500, A412P-4, A412P-4LC, A412POP19, A412POP200, A412POP50, A412POPB19, A412POPB200, A412POPB50, A412RB115, A412RB19, A412RB200, A412RB50, A412RS115, A412RS200, A412RS28, A412RS50, A412SK-4, A412SS-115, A412SS-19, A412SS-200, A413-20, A413-200, A413-4, A413-500, A433F-1GAL, A433P-4, A433P1GAL, A433S-20, A433S-200, A433S-4, A434-20, A450-4, A452-1, A452-4, A452-4LC, A452J1, A452NB219, A452POP19, A452POP200, A452POP28, A452POP50, A452POPN19, A452RS-115, A452RS-19, A452RS-200, A452RS-28, A452RS-50, A452SK-1, A452SK-4, A452SS-115, A452SS-19, A452SS-200, A452SS-50, A453-1, A453-1LC, A453-500, A453J1, A454-1, A454-1LC, A454-4, A454-4LC, A454POP19, A454POP200, A454POP50, A454RS-115, A454RS-19, A454RS-200, A454RS-28, A454RS-50, A454SS-19, A454SS-28, A454SS-50, A455-1, A455POP19, A455POP200, A455POP50, A455SS19, A455SS200, A455SS50, A457-4, A935-4, A935FB200, A935POPE200, A935RB200, A936-1, A936-4, A947-4, A947-4LC, A947POP19, A947POP200, A947POP50, A947RS-115, A947RS-200, A947RS-28, A947SS-115, A947SS-19, A947SS-200, A947SS-28, A947SS-50, BP1105-1, BP1105-4, BP1105POP19, BP1105POP20, BP1105POP50, BP1105RS19, BP1105SS19, BP1105SS28, BP1105SS50, BP2618100, HC400 1GAL, NC9633361, NC9766429, NC9780215, NC9905242, NC9941388, NC9942270, NC9964975, NC9979250, SC95-1, SW2-1, TIA9474, TIA947P200L .
Synonyms:
Carbinol; Methyl alcohol; Methyl hydroxide; Monohydroxymethane; Wood alcohol; Wood naptha; Wood spirits; Columbian spirits; Methanol.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
67-56-1	Methanol	>99.0	200-659-6

Hazard Symbols: T F
Risk Phrases: 11 23/24/25 39/23/24/25

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: clear, colorless liquid. Flash Point: 11 deg C.
Danger! Flammable liquid and vapor. Causes respiratory tract irritation. May cause central nervous system depression. Poison! Cannot be made non-poisonous. Causes eye and skin irritation. May be fatal or cause blindness if swallowed. Harmful if swallowed, inhaled, or absorbed through the skin. Vapor harmful.
Target Organs: Eyes, nervous system, optic nerve.

Potential Health Effects
Eye:
Methanol is a mild to moderate eye irritant. Inhalation, ingestion or skin absorption of methanol can cause significant disturbances in vision, including blindness.
Skin:
Causes moderate skin irritation. Harmful if absorbed through the skin. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances.
Ingestion:
Harmful if swallowed. May be fatal or cause blindness if swallowed. Aspiration hazard. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.
Inhalation:
Methanol is toxic and can very readily form extremely high vapor concentrations at room temperature. Inhalation is the most common route of occupational exposure. At first, methanol causes CNS depression with nausea, headache, vomiting, dizziness and incoordination. A time period with no obvious symptoms follows (typically 8-24 hrs). This latent period is followed by metabolic acidosis and severe visual effects which may include reduced reactivity and/or increased sensitivity to light, blurred, double

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and/or snowy vision, and blindness. Depending on the severity of exposure and the promptness of treatment, survivors may recover completely or may have permanent blindness, vision disturbances and/or nervous system effects.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. Chronic exposure may cause effects similar to those of acute exposure. Methanol is only very slowly eliminated from the body. Because of this slow elimination, methanol should be regarded as a cumulative poison. Though a single exposure may cause no effect, daily exposures may result in the accumulation of a harmful amount. Methanol has produced fetotoxicity in rats and teratogenicity in mice exposed by inhalation to high concentrations that did not produce significant maternal toxicity.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.
Skin:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
Ingestion:
Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:
Effects may be delayed.
Antidote:
Ethanol may inhibit methanol metabolism.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water.
Autoignition Temperature:464 deg C (867.20 deg F)
Flash Point: 11 deg C (51.80 deg F)
Explosion Limits, lower:6.0 vol %
Explosion Limits, upper:36.00 vol %
NFPA Rating: (estimated) Health: 1; Flammability: 3; Instability: 0

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid use in confined spaces. Avoid breathing vapor or mist.
Storage:
Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep containers tightly closed.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methanol	200 ppm; 250 ppm STEL; skin - potential for cutaneous absorption	200 ppm TWA; 260 mg/m3 TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m3 TWA

OSHA Vacated PELs:
Methanol:
200 ppm TWA; 260 mg/m3 TWA

Personal Protective Equipment

Eyes:
Wear chemical goggles.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Liquid
Color:	clear, colorless
Odor:	alcohol-like - weak odor
pH:	Not available.
Vapor Pressure:	127 mm Hg @ 25 deg C
Vapor Density:	1.11 (Air=1)
Evaporation Rate:	5.2 (Ether=1)
Viscosity:	0.55 cP 20 deg C
Boiling Point:	64.7 deg C @ 760 mm Hg
Freezing/Melting Point:	-98 deg C
Decomposition Temperature:	Not available.
Solubility in water:	miscible
Specific Gravity/Density:	.7910 g/cm3 @ 20&C
Molecular Formula:	CH4O
Molecular Weight:	32.04

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
High temperatures, ignition sources, confined spaces.
Incompatibilities with Other Materials:
Strong oxidizing agents, strong acids, powdered aluminum, powdered magnesium.
Hazardous Decomposition Products:
Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, formaldehyde.
Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 67-56-1: PC1400000
LD50/LC50:
CAS# 67-56-1: Draize test, rabbit, eye: 40 mg Moderate; Draize test, rabbit, eye: 100 mg/24H Moderate; Draize test, rabbit, skin: 20 mg/24H Moderate; Inhalation, rabbit: LC50 = 81000 mg/m3/14H; Inhalation, rat: LC50 = 64000 ppm/4H; Oral, mouse: LD50 = 7300 mg/kg; Oral, rabbit: LD50 = 14200 mg/kg; Oral, rat: LD50 = 5600 mg/kg; Skin, rabbit: LD50 = 15800 mg/kg.
Human LDLo Oral: 143 mg/kg.
Inhalation; 300 ppm caused visual field changes & headache.
LDLo Skin: 393 mg/kg.
experimental animals than humans, because most animal species metabolize methanol differently. Non-primate species do not ordinarily show symptoms of metabolic acidosis or the visual effects

which have been observed in primates and humans.
Carcinogenicity:
Methanol -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No data available.
Teratogenicity:
There is no human information available. Methanol is considered to be a potential developmental hazard based on animal data. In animal experiments, methanol has caused fetotoxic or teratogenic effects without maternal toxicity.
Reproductive Effects:
See actual entry in RTECS for complete information.
Neurotoxicity:
ACGIH cites neuropathy, vision and CNS under TLV basis.
Mutagenicity:
See actual entry in RTECS for complete information.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Fish: Fathead Minnow: 29.4 g/L; 96 Hr; LC50 (unspecified)Fish: Goldfish: 350 ppm; 11 Hr; resulted in deathFish: Rainbow trout: 8000 mg/L; 48 Hr; LC50 (unspecified)Fish: Rainbow trout: LC50 = 13-68 mg/L; 96 Hr.; 12 degrees CFish: Fathead Minnow: LC50 = 29400 mg/L; 96 Hr.; 25 degrees C, pH 7.63Fish: Rainbow trout: LC50 = 8000 mg/L; 48 Hr.; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 51,000-320,000 mg/L; 30 minutes; Microtox test

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: CAS# 67-56-1: waste number U154 (Ignitable waste).

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: METHANOL
Hazard Class: 3
UN Number: UN1230
Packing Group: II
Canadian TDG
Shipping Name: METHANOL
Hazard Class: 3.61
UN Number: UN1230
Other Information: FLASHPOINT 11 C

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 67-56-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
CERCLA Hazardous Substances and corresponding RQs
CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 67-56-1: acute, flammable.
Section 313
This material contains Methanol (CAS# 67-56-1, 99.0%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.

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None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Methanol can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T F

Risk Phrases:

R 11 Highly flammable.
R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 39/23/24/25 Toxic : danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

Safety Phrases:

S 7 Keep container tightly closed.
S 16 Keep away from sources of ignition - No smoking.
S 36/37 Wear suitable protective clothing and gloves.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 67-56-1: 1

United Kingdom Occupational Exposure Limits

CAS# 67-56-1: OES-United Kingdom, TWA 200 ppm TWA; 266 mg/m3 TWA
CAS# 67-56-1: OES-United Kingdom, STEL 250 ppm STEL; 333 mg/m3 STEL

United Kingdom Maximum Exposure Limits

Canada

CAS# 67-56-1 is listed on Canada's DSL List.
This product has a WHMIS classification of B2, D1B, D2B.
CAS# 67-56-1 is listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 67-56-1: OEL-ARAB Republic of Egypt:TWA 200 ppm (260 mg/m3);Skin

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 7/21/1999 Revision #11 Date: 10/21/2002

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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**** MATERIAL SAFETY DATA SHEET ****

Nitric Acid
16550

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Nitric Acid
Catalog Numbers:
, S71972, S71972MF, S75623-2, S75623-3, S76523, A198C-212, A198C4X-212, A200-212, A200-500, A200-612GAL, A200C-212, A200C4X-212, A200C4X2001, A200C4X2122, A200C4X212L, A200J500, A200S-212, A200S-500, A200S4X-212, A200S4X212L, A200SI-212, A467-1, A467-2, A467-250, A467-500, A483-212, A509-212, A509-500, A509SK-212, S719721, S719721MF, S71972SC
Synonyms:
Azotic Acid; Engravers Nitrate; Hydrogen Nitrate.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7697-37-2	Nitric acid	69-71	231-714-2
7732-18-5	Water	29-31	231-791-2

Hazard Symbols: O C
Risk Phrases: 35 8

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear to yellow liquid.
Danger! Strong oxidizer. Contact with other material may cause a fire. Corrosive. Causes eye and skin burns. Causes digestive and respiratory tract burns. Check internal container upon receipt.
Bottles should be vented periodically to relieve preasure.
Target Organs: Eyes, skin, mucous membranes.

Potential Health Effects

Eye:
Causes severe eye burns. May cause irreversible eye injury. May cause chemical conjunctivitis and corneal damage.

Skin:
Causes skin burns. May cause deep, penetrating ulcers of the skin. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

Ingestion:
May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects.

Inhalation:
Effects may be delayed. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema.

Chronic:
Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause erosion of teeth. Effects may be delayed.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin:
Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:
Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration

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using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician:
Treat symptomatically and supportively.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Use water with caution and in flooding amounts.
Extinguishing Media:
Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Contact professional fire-fighters immediately.
Autoignition Temperature:Not available.
Flash Point: Not available.
Explosion Limits, lower:Not available.
Explosion Limits, upper:Not available.
NFPA Rating: (estimated) Health: 4; Flammability: 0; Instability: 0; Specia

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Neutralize spill with sodium bicarbonate. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not breathe dust, vapor, mist, or gas. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not get on skin or in eyes. Avoid ingestion and inhalation. Discard contaminated shoes.
Storage:
Keep away from heat, sparks, and flame. Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Bottles should be vented periodically in order to overcome pressure buildup.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Nitric acid	2 ppm; 4 ppm STEL	2 ppm TWA; 5 mg/m3 TWA 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA
Water	none listed	none listed	none listed

OSHA Vacated PELs:
Nitric acid:
2 ppm TWA; 5 mg/m3 TWA
Water:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate gloves to prevent skin exposure.

Clothing:
Wear a chemical apron. Wear appropriate clothing to prevent skin exposure.

Respirators:
Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Liquid
Color:	clear to yellow
Odor:	strong odor - acrid odor
pH:	1.0
Vapor Pressure:	6.8 mm Hg
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Viscosity:	Not available.
Boiling Point:	186.8 deg F
Freezing/Melting Point:	-43.6 deg F
Decomposition Temperature:	Not available.
Solubility in water:	Soluble in water.
Specific Gravity/Density:	1.50
Molecular Formula:	HNO3
Molecular Weight:	63.0119

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable. Decomposes when in contact with air, light, or organic matter.
Conditions to Avoid:
High temperatures, incompatible materials, ignition sources, moisture, combustible materials, reducing agents.
Incompatibilities with Other Materials:
Reducing agents, combustible materials, strong bases, alcohols, aldehydes, cyanides, metals, Incompatible with many substances..
Hazardous Decomposition Products:
Nitrogen oxides.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 7697-37-2: QU5775000 QU5900000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 7697-37-2: Inhalation, rat: LC50 = 260 mg/m3/30M; Inhalation, rat: LC50 = 130 mg/m3/4H; Inhalation, rat: LC50 = 67 ppm(NO2)/4H.
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Carcinogenicity:
Nitric acid -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information found.
Teratogenicity:
No information found.
Reproductive Effects:
No information found.
Neurotoxicity:
No information found.
Mutagenicity:
No information found.
Other Studies:
See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Other
No information available.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: NITRIC ACID
Hazard Class: 8
UN Number: UN2031
Packing Group: II

Canadian TDG
Shipping Name: NITRIC ACID
Hazard Class: 8(9.2)
UN Number: UN2031

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 7697-37-2 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
CERCLA Hazardous Substances and corresponding RQs
CAS# 7697-37-2: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 7697-37-2: 1,000 lb TPQ
SARA Codes
CAS # 7697-37-2: acute, chronic, flammable.
Section 313
This material contains Nitric acid (CAS# 7697-37-2, 69 71%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Nitric acid can be found on the following state right to know lists:
California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: O C
Risk Phrases:
R 35 Causes severe burns.
R 8 Contact with combustible material may cause fire.
Safety Phrases:
S23B Do not breathe fumes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36 Wear suitable protective clothing.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
WGK (Water Danger/Protection)
CAS# 7697-37-2: 1
CAS# 7732-18-5: No information available.
United Kingdom Occupational Exposure Limits
CAS# 7697-37-2: OES-United Kingdom, TWA 2 ppm TWA; 5.2 mg/m3 TWA
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL

United Kingdom Maximum Exposure Limits

Canada
CAS# 7697-37-2 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.
This product has a WHMIS classification of C, D1A, E.
CAS# 7697-37-2 is listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 7697-37-2: OEL-ARAB Republic of Egypt:TWA 2 ppm (5 mg/m3)
OEL-AUSTRALIA:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-BELGIUM:TWA 2 ppm (5.2 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-CZECHOSLOVAKIA:TWA 2.5 mg/m3;STEL 5 mg/m3
OEL-DENMARK:TWA 2 ppm (5 mg/m3)
OEL-FINLAND:TWA 2 ppm (5 mg/m3);STEL 5 ppm (13 mg/m3);Skin
OEL-FRANCE:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-GERMANY:TWA 10 ppm (25 mg/m3)

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OEL-HUNGARY:STEL 5 mg/m3
OEL-JAPAN:TWA 2 ppm (5.2 mg/m3)
OEL-THE PHILIPPINES:TWA 2 ppm (5 mg/m3)
OEL-POLAND:TWA 10 mg/m3
OEL-RUSSIA:TWA 2 ppm;STEL 2 mg/m3;Skin
OEL-SWEDEN:TWA 2 ppm (5 mg/m3);STEL 5 ppm (13 mg/m3)
OEL-SWITZERLAND:TWA 2 ppm (5 mg/m3);STEL 4 ppm (1 mg/m3)
OEL-THAILAND:TWA 2 ppm (5 mg/m3)
OEL-TURKEY:TWA 2 ppm (5 mg/m3)
OEL-UNITED KINGDOM:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/30/1998 Revision #10 Date: 4/01/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

MATERIAL SAFETY DATA SHEET: CRYSTAL SIMPLE GREEN®

I. PRODUCT & COMPANY INFORMATION

PRODUCT NAME: CRYSTAL SIMPLE GREEN®

OTHER NAMES: CRYSTAL SIMPLE GREEN® - SPECIALIZED CLEANER / DEGREASER
SIMPLE GREEN SAFETY TOWELS (fluid only)

COMPANY NAME: SUNSHINE MAKERS, INC.
15922 Pacific Coast Highway
Huntington Harbour, CA 92649 USA
Telephone: 800-228-0709 • 562-795-6000
Fax: 562-592-3034
Website: www.simplegreen.com

Version No. 4006
Issue Date: January 2002

For 24-hour emergency, call Chem-Tel, Inc.: 800-255-3924

USE OF PRODUCT: A specialized cleaner and degreaser for use in the industrial and institutional workplace..

II. INGREDIENT INFORMATION

The only ingredient of Crystal Simple Green® with established exposure limits is undiluted 2-butoxyethanol (<6%) (Butyl Cellosolve; CAS No. 111-76-2): the OSHA PEL and ACGIH TLV is 25 ppm (skin). Note, however, that Butyl Cellosolve is only one of the raw material ingredients that undergo processing and dilution during the manufacture of Crystal Simple Green®. Upon completion of the manufacturing process, Crystal Simple Green® does not possess the occupational health risks associated with exposure to undiluted Butyl Cellosolve. Verification of this is contained in the independent test results detailed under "Toxicological Information" on Page 3 of this MSDS.

The Butyl Cellosolve in Crystal Simple Green® is part of a chemical category (glycol ethers) regulated by the Emergency Planning and Community Right-to-Know Act (SARA, Title III, section 313); therefore, a reporting requirement exists. Based upon chemical analysis, Crystal Simple Green® contains no known EPA priority pollutants, heavy metals, or chemicals listed under RCRA, CERCLA, or CWA. Analysis by TCLP (Toxicity Characteristic Leaching Procedure) according to RCRA revealed no toxic organic or inorganic constituents.

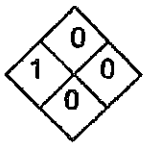
All components of Crystal Simple Green® are listed on the TSCA Chemical Substance Inventory.

III. HAZARDS IDENTIFICATION

UN Number: Not required
Dangerous Goods Class: Nonhazardous

Hazard Rating (NFPA/HMIS)

Health = 1* Reactivity = 0
Fire = 0 Special = 0



Rating Scale

0 = minimal 1 = slight
2 = moderate 3 = serious
4 = severe

*Mild eye irritant, non-mutagenic and non-carcinogenic. **None of the ingredients in Crystal Simple Green® are regulated or listed as potential cancer agents by Federal OSHA, NTP, or IARC.**

IV. FIRST AID MEASURES

SYMPTOMS OF OVEREXPOSURE AND FIRST AID TREATMENT

Eye contact: Reddening may develop. Immediately rinse the eye with large quantities of cool water; continue 10-15 minutes or until the material has been removed; be sure to remove contact lenses, if present, and to lift upper and lower lids during rinsing. Get medical attention if irritation persists.

Skin contact: Minimal effects, if any; rinse skin with water, rinse shoes and launder clothing before reuse. Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area and get medical attention if reaction persists.

Swallowing: Essentially non-toxic. Give several glasses of water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.

Inhalation: Non-toxic. Exposures to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Get medical attention if irritation persists.

V. FIRE FIGHTING MEASURES

Crystal Simple Green® is stable, not flammable, and will not burn.

Flash Point/Auto-Ignition:	Not flammable.
Flammability Limits:	Not flammable.
Extinguishing Media:	Not flammable/nonexplosive. No special procedures required.
Special Fire Fighting Procedures:	None required.

VI. ACCIDENTAL RELEASE MEASURES

Recover usable material by convenient method; residual may be removed by wipe or wet mop. If necessary, unrecoverable material may be washed to drain with large quantities of water.

VII. HANDLING, STORAGE & TRANSPORT INFORMATION

No special precautions are required. **This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations.** Crystal Simple Green® requires no special labeling or placarding to meet U.S. Department of Transportation requirements.

UN Number:	Not required
Dangerous Goods Class:	Nonhazardous

VIII. EXPOSURE CONTROLS

Exposure Limits: The Crystal Simple Green® formulation presents no health hazards to the user when used according to label directions for its intended purposes. Mild skin and eye irritation is possible (please see Eye contact and Skin contact in Section IV.).

Ventilation: No special ventilation is required during use. Large-scale uses indoors should provide an increased rate of air exchange.

Human Health Effects or Risks from Exposure: Adverse effects on human health are not expected from Crystal Simple Green®, based upon twenty years of use of Simple Green without reported adverse health incidence in diverse population groups, including extensive use by inmates of U.S. Federal prisons in cleaning operations.

Crystal Simple Green® is a mild eye irritant; mucous membranes may become irritated by concentrate-mist.

Crystal Simple Green® is not likely to irritate the skin in the majority of users. Repeated daily application to the skin without rinsing, or continuous contact of Crystal Simple Green® on the skin may lead to temporary, but reversible, irritation.

Medical Conditions Aggravated by Exposure: No aggravation of existing medical conditions is expected; dermal-sensitive users may react to dermal contact by Crystal Simple Green®.

IX. PERSONAL PROTECTION

Precautionary Measures: No special requirements under normal use conditions.
Eye Protection: Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur.
Skin Protection: No special precautions required; rinse completely from skin after contact.
Respiratory Protection: No special precautions required except during large-scale spray applications where spray mist levels are high.
Work and Hygienic Practices: Wash or rinse hands before touching eyes or contact lenses. Follow standard hygienic practices for handling cleaning agents.

X. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/odor::	Clear liquid	Vapor Pressure:	18 mm Hg @ 20 °C; 23.5 mm Hg @ 26 °C
Specific Gravity:	1.020	Vapor Density:	1.3 (air = 1)
pH of concentrate:	9.35	Density:	8.5 lbs./gallon
Evaporation:	>1 (butyl acetate = 1)		
Boiling Point:	100.6 °C (212 °F)		
Freezing Point:	-9 °C (16 °F) If product freezes, it will reconstitute without loss of efficacy when brought back to room temperature and agitated.		

VOC Composite Partial Pressure: 0 mm Hg @ 20 °C
Volatile Organic Compounds (VOCs): 0 g/L per ASTM Method D-2369. Per California AQMD's VOC test method, product must be diluted at least 2 parts of water to 1 part Crystal Simple Green® in order to meet SCAQMD Rule 1171 & Rule 1122 and BAAQMD Reguletion 8-16 VOC requirements for solvent cleaning operations.
Water Solubility: Completely soluble in water.
Detection: Crystal Simple Green® has a characteristic odor that is not indicative of any hazardous situation.

XI. STABILITY AND REACTIVITY INFORMATION

Nonreactive. Crystal Simple Green® is stable, even under fire conditions, and will not react with water or oxidizers. Hazardous polymerization will not occur.

XII. TOXICOLOGICAL INFORMATION

The information and conclusions cited in this section are based on data and testing of Simple Green®. The data are directly applicable to Crystal Simple Green® because, except for the fragrance and dyes which have been removed, it contains the same ingredients as Simple Green®.

Nonhuman Toxicity

Acute Mortality Studies:
Oral LD_{50} (rat): >5.0 g/kg body weight // Dermal LD_{50} (rabbit): >2.0 g/kg body weight

Dermal Irritation: Only mild, but reversible, irritation was found in a standard 72-hr test on rabbits. A value of 0.2 (non-irritating) was found on a scale of 8.

Eye Irritation: With or without rinsing with water, the irritation scores in rabbits at 24 hours did not exceed 15 (mild irritant) on a scale of 110.

Subchronic dermal effects: No adverse effects, except reversible dermal irritation, were found in rabbits exposed to Simple Green® (up to 2.0 g/kg/day for 13 weeks) applied to the skin of 25 males and 25 females. Only female body weight gain was affected. Detailed microscopic examination of all major tissues showed no adverse changes.

Fertility Assessment by Continuous Breeding: The Simple Green® formulation had no adverse effect on fertility and reproduction in CD-1 mice with continuous administration for 18 weeks, and had no adverse effect on the reproductive performance of their offspring.

XIII. BIODEGRADABILITY AND ENVIRONMENTAL TOXICITY INFORMATION

Biodegradability:
Like Simple Green®, Crystal Simple Green® is readily decomposed by naturally occurring microorganisms. The biological oxygen demand (BOD), as a percentage of the chemical oxygen demand (COD), after 4, 7, and 11 days was 56%, 60%, and 70%, respectively. Per OECD Closed Bottle Test, Crystal Simple Green® meets OECD and EPA recommendations for ready biodegradability.

In a standard biodegradation test with soils from three different countries, Butyl Cellosolve reached 50% degradation in 6 to 23 days, depending upon soil type, and exceeded the rate of degradation for glucose, which was used as a control for comparison.

Environmental Toxicity Information:
Crystal Simple Green® is considered practically non-toxic per EPA's aquatic toxicity scale.

XIV. DISPOSAL CONSIDERATIONS

Crystal Simple Green® is fully water soluble and biodegradable and will not harm sewage-treatment microorganisms if disposal by sewer or drain is necessary. Dispose of in accordance with all applicable local, state, and federal laws.

XV. OTHER INFORMATION

Containers:	Crystal Simple Green® residues can be completely removed by rinsing with water; the container may be recycled or applied to other uses.
Contact Point:	Sunshine Makers, Inc., Research and Development Division: 562-795-6000.

***** NOTICE *****

All information appearing herein is based upon data obtained by the manufacturer and recognized technical sources. Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, Sunshine Makers, Inc. or its distributors extends no warranties, makes no representations and assumes no responsibility as to the suitability of such information for application to purchaser's intended purposes or for consequences of its use.

Appendix C

Heat Stress and Cold Stress Guidelines

Heat Stress Guidelines

Form	Signs & Symptoms	Care	Prevention[3]
Heat Rash	Tiny red vesicles in affected skin area. If the area is extensive, sweating can be impaired.	Apply mild lotions and cleanse the affected area.	Cool resting and sleeping areas to permit skin to dry between heat exposures.
Heat Cramps	Spasm, muscular pain (cramps) in stomach area and extremities (arms and legs).	Provide replacement fluids with minerals (salt) such as Gatorade.	Adequate salt intake with meals[1]. ACCLIMATIZATION[2]
Heat Exhaustion	Profuse sweating, cool (clammy) moist skin, dizziness, confusion, pale skin color, faint, rapid shallow breathing, headache, weakness, and/or muscle cramps.	Remove from heat, sit or lie down, rest, replace lost water with electrolyte replacement fluids (water, Gatorade) take frequent sips of liquids in amounts greater than required to satisfy thirst.	ACCLIMATIZATION[2] Adequate salt intake with meals[1], only during early part of heat season. Ample water intake, frequently during the day.
Heat Stroke	HOT Dry Skin. Sweating has stopped. Mental confusion, dizziness, nausea, chills, severe headache, collapse, delirium, and/or coma.	HEAT STROKE IS A MEDICAL EMERGENCY • Remove from heat. • COOL THE BODY AS RAPIDLY AS POSSIBLE by immersing in cold (or cool) water, or splash with water and fan. • Call for Emergency Assistance. • Observe for signs of shock.	ACCLIMATIZATION[2] Initially moderate workload in heat (8 to 14 days). Monitor worker's activities.

Footnotes:

1.) American diets are normally high in salt, sufficient to aid acclimatization. However, during the early part of the heat season, (May, June), one extra shake of salt during one to two meals per day may help, so long as this is permitted by your physician. Check with your personal physician.

2.) ACCLIMATIZATION - The process of adapting to heat is indicated by worker's ability to perform hot jobs less fluid loss, lower concentrations of salt loss in sweat, and a reduced core (body) temperature and heart rate.

3.) Method to Achieve Acclimatization - Moderate work or exercise in hot temperatures during early part of heat season. Adequate salt (mineral) and water intake. Gradually increasing work time in hot temperatures. Avoid alcohol. Normally takes 8 to 14 days to achieve acclimatization. Lost rapidly, if removed from strenuous work (or exercise) in hot temperature for more than approximately 5 days.

Cold Stress Guidelines

Stress	Symptoms	What to do
Mild Hypothermia	• Body Temp 98 to 90°F • Shivering • Lack of coordination, stumbling, fumbling hands • Slurred speech • Memory loss • Pale, cold skin	• Move to warm area • Stay active • Remove wet clothes and replace with dry clothes or blankets • Cover the head • Drink warm (not hot) sugary drink
Moderate Hypothermia	• Body temp 90 to 86°F • Shivering stops • Unable to walk or stand • Confused and/or irrational	• All of the above, plus: o Call 911 o Cover all extremities completely o Place very warm objects, such as hot packs on the victim's head, neck, chest, and groin
Severe Hypothermia	• Body temp 86 to 78°F • Severe muscle stiffness • Very sleepy or unconscious • Ice cold skin • Death	• Call 911 • Treat victim very gently • Do not attempt to re-warm
Frostbite	• Cold, tingling, stinging, or aching feeling in the frostbitten area, followed by numbness • Skin color turns red, then purple, then white or very pale skin • Cold to the touch • Blisters in severe cases	• Call 911 • Do not rub the area • Wrap in soft cloth • If help is delayed, immerse in warm (not hot) water
Trench Foot	• Tingling, itching, or burning sensation • Blisters	• Soak feet in warm water, then wrap with dry cloth bandages • Drink a warm (not hot) sugary drink

Appendix D

Forms

GEI Consultants

Accident/Incident Report Form

Please complete this form and send it to your Branch Manager, HR and CHSO ***within 24 hours*** of the incident.

SECTION A — ACCIDENT/INCIDENT DETAILS

EMPLOYEE INFORMATION:

Name: _____

Home Address: _____
Street Address City State Zip Code

Contact Information: ( ) _____ ( ) _____
Primary Secondary

Date of Birth: _____

Date of Hire: _____

Branch: _____

Supervisor: _____

OTHER INJURED (IF APPLICABLE):

Name: _____

Home Address: _____
Street Address City State Zip Code

Contact Information: ( ) _____ ( ) _____
Primary Secondary

Date of Birth: _____

Date of Hire: _____

Branch: _____

Supervisor: _____

Date and Time Accident/Incident	Date and Time Reported
_____ /_____ /_____ Month Day Year	_____ /_____ /_____ Month Day Year
_____ A.M. _____ P.M.	_____ A.M. _____ P.M.

LOCATION OF INCIDENT/ACCIDENT

Project Name: _____

Client and Location: _____

or _____

Office Location: _____

INCIDENT TYPE: (Check All That Applies)

- ☐ **Personal Injury/Illness**
- ☐ **Vehicle Accident**
- ☐ **Property Damage**
- ☐ **Environmental Spill**
- ☐ **Other**

WITNESS INFORMATION

Name: _____

Contact Number: _____

Company: _____

WHAT HAPPENED TO THE INJURED PARTY: ☐ First Aid Administered ☐ Refused Treatment/Transport ☐ Transported to Hospital ☐ Returned to Work ☐ Went Home ☐ Went to Physician ☐ Unknown

Clinic/Hospital or Treating Physician: _____ Phone: _____
Name Street Address City State Zip Code

SECTION B — PERSONAL INJURY

Cause of Injury: _____

Part of Body Injured: _____ Multiple Injuries: ☐ Y ☐ N

Was PPE worn when injured? : ☐ Y ☐ N What PPE was worn? _____

WAS INJURY A RESULT OF THE USE A MOTOR VEHICLE: ☐ **YES** ☐ **NO** **(If yes, complete Section C)**

GEI Consultants

Accident/Incident Report Form

Please complete this form and send it to your Branch Manager, HR and CHSO ***within 24 hours*** of the incident.

SECTION C — AUTO ACCIDENT ONLY

DRIVER/VEHICLE INFORMATION

Name of Insured: _____

Department: _____

Driver's License Number: _____

DOB: ____/____/____ State: _____

Description of Vehicle: License Plate Number: _____

Make: _____ Model: _____ Year:_____ Color:_____

Owner: _____

Name of Other Driver: _____

Driver's License Number: _____

State: _____

Description of Vehicle: License Plate Number: _____

Make: _____ Model:_____ Year: _____ Color:_____

Insurance Carrier: _____

Policy Number: _____ Ph. Number:_____

SECTION D — PROPERTY DAMAGE OR CHEMICAL RELEASE ONLY

Type of Damage(s): _____

Cause of Damage(s): _____

Type of Chemical Released (if known): _____

Quantity of Chemical Released: _____

Spill Measures Employed: _____

SECTION E — NATURE OF ACCIDENT/INCIDENT AND EXTENT OF INJURIES/DAMAGES

(Please give a detailed description of what happened. Attach a sketch or picture if applicable)

_____

_____

_____

_____

_____

_____

_____

_____

_____

I hereby certify that the above information is true and correct to my understanding of this accident/incident.

_____ _____

Employee/Preparer's Name **Date and Time**

Daily Safety Briefing Log and Site Visitor Sign-In

Project Number:	**Project Name:**
[1]Date:	**Time:**
Briefing Conducted by:	**Signature:**

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

- ☐ General PPE Usage
- ☐ Hearing Conservation
- ☐ Respiratory Protection
- ☐ Personal Hygiene
- ☐ Exposure Guidelines
- ☐ Decon Procedures
- ☐ Confined Space
- ☐ Slips, Trips, Falls
- ☐ Heat Stress
- ☐ Cold Stresses
- ☐ Site Control
- ☐ Work Zones
- ☐ Lockout/Tagout
- ☐ Excavation Safety
- ☐ Confined Space
- ☐ Traffic Safety
- ☐ Changes to the HASP
- ☐ Initial Review of Hazard Evaluation
- ☐ Emergency Procedures (include route to hospital)
- ☐ Other (Specify):
- ☐ Other (Specify):

Daily Safety Topic Description:

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out

[1] This form is applicable for *only* 1 day of site activity.

NEAR MISS REPORT

A near miss is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee work habits, improper use of equipment, or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone's responsibility to report and/or correct these potential accidents/incidents immediately. Please complete this form as a means to report these near-miss situations. Send a copy of the completed form to the Project Manager, Regional Health and Safety Officer and the Corporate Health and Safety Officer.

Location: _____ Site Name: _____

Date: _____ Time: _____ ☐ a.m. ☐ p.m.

Weather conditions, site operations taking place during near miss. _____

Please check all appropriate conditions:

☐ Unsafe Act ☐ Unsafe equipment

☐ Unsafe Condition ☐ Unsafe use of equipment

Description of incident or potential hazard: _____

Employees or sub-contractors involved if applicable._____

Employee Signature _____ Date _____

Print Name _____

NEAR MISS INVESTIGATION

Description of the near-miss condition: _____
Causes (primary & contributing) _____
Corrective action taken (Remove the hazard, replace, repair, or retrain in the proper procedures for the task) _____
Actions not yet taken_____

Signed: _____ Date Completed: _____

Print Name
Not completed for the following reason: _____Date:_____

GEI Consultants

Project Safety Briefing Form

Project Number:	**Project Name:**	
Date:	**Time:**	**Project Manager:**
Briefing Conducted by:		**Signature:**

This sign-in log documents the project specific-briefing conducted in accordance with the HASP and GEI H&S policy. GEI personnel who perform work on site are required to attend the Project briefing and to acknowledge it's receipt. Applicable health and safety SOPs are also required to be reviewed in this briefing and attached as an appendix to the HASP. Prior to the start of the project **or upon the start of a new on-site project team member**, this form must be completed. Please email this completed form to Health&SafetyCommittee@geiconsultants.com.

TOPICS COVERED (check all those covered):

☐	General PPE Usage	☐	Excavation Safety	☐	SOP:
☐	Hearing Conservation	☐	Confined Space	☐	SOP:
☐	Respiratory Protection	☐	Traffic Safety	☐	SOP:
☐	Personal Hygiene	☐	Changes to the HASP	☐	SOP:
☐	Exposure Guidelines	☐	Site Control	☐	SOP:
☐	Decon Procedures	☐	Work Zones	☐	SOP:
☐	Emergency Procedures (include route to hospital)	☐	Lockout/Tagout	☐	SOP:
☐	Confined Space	☐	Review of Hazard Evaluation	☐	SOP:
☐	Slips, Trips, Falls	☐	Other (Specify):	☐	SOP:
☐	Heat Stress	☐	Other (Specify):	☐	SOP:
☐	Cold Stress	☐	Other (Specify):	☐	SOP:

Personnel Sign-in List

Printed Name	Signature

Appendix E

GEI's Health and Safety SOPs

STANDARD OPERATING PROCEDURES

SOP No. HS-001 Biological Hazards

1.1 Objective

The objective of this standard operating procedure (SOP) is to prevent or limit the potential for GEI personnel to encounter biological hazards during field activities.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for contact with biological hazards such as animals, insects, plants, and sewage. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with biological hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.2.1 Animals

During some site operations, animals such as stray or domesticated dogs or cats, raccoons, snakes, bears, rats, bats, etc. may be encountered. Employees should use discretion and attempt to avoid contact with animals. If these animals present a problem, efforts will be made to remove these animals from the site by contacting a licensed animal control technician.

1.2.1.1 Rabies

The rabies virus is transmitted through the bite of an infected animal or contact with saliva or brain/nervous system tissue of an infected animal. The rabies virus infects the central nervous system causing disease in the brain. The early symptoms of rabies in people are fever, headache, and general weakness or discomfort. As the disease progresses, more specific symptoms appear and may include insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation (increase in saliva), difficulty swallowing, and hydrophobia (fear of water). Death usually occurs within days of the onset of these symptoms.

If you are bitten or think you may be exposed, wash any wounds immediately and thoroughly with soap and water. Then notify the Project Manager and Corporate Health and Safety Officer (CHSO) and go to the hospital emergency room. The doctor, possibly in consultation with the state or local health department, will decide if you need a rabies vaccination. Decisions to start vaccination will be based on your type of exposure and the animal you were exposed to, as well as laboratory and surveillance information for the

geographic area where the exposure occurred. An Accident Report Form should be completed and submitted per GEI's accident reporting procedures.

1.2.2 Insects

Insects, including bees, wasps, hornets, mosquitoes, ticks, spiders, etc may be present at a job site making the chance of a bite/sting possible. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition. Some insect bites can transmit diseases such as Lyme disease or a virus such as West Nile. The following is a list of preventive measures:

- Apply insect repellent prior to performing field work and as often as needed throughout the work shift
- Wear proper protective clothing (work boots, socks and light colored clothing)
- Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many insects are most active (between dawn and dusk).
- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible
- Field personnel who may have insect allergies should have bee sting allergy medication on site and should provide this information to the Site Safety Officer (SSO) and the CHSO prior to commencing work.
- Field personnel should perform a self-check at the end of the day for ticks.

1.2.3 Tick-borne Diseases

Lyme disease is caused by infection from a deer tick that carries a spirochete. During the painless tick bite, the spirochete may be transmitted into the bloodstream often after feeding on the host for 12 to 24 hours. The ticks that cause the disease are often no bigger than a poppy seed or a comma in newsprint. The peak months for human infection are from May to September.

Symptoms appear in three stages. First symptoms usually appear from 2 days to a few weeks after a person is bitten by an infected tick. Symptoms usually consist of a ring-like red rash on the skin where the tick was attached. The rash is often bulls-eye like with red around the edges and clear in the center. The rash may be warm, itchy, tender, and/or "doughy." Unfortunately, this rash appears in only 60 to 80 percent of infected persons. An infected person also has flu-like symptoms of a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. These symptoms often disappear after a few weeks.

The second stage symptoms, which occur weeks to months later include meningitis, severe headache, drooping of the muscles on the face, called Bell's Palsy, encephalitis, numbness, withdrawal and lethargy. These symptoms may last for several weeks to several months. Third stage symptoms, which occur months or years later include arthritis, heart problems, and loss of memory. The third stage symptoms may mimic multiple sclerosis and Alzheimer's disease.

Personnel should check themselves when in areas that could harbor deer ticks, wear light color clothing and visually check themselves and their buddy when coming from wooded or vegetated areas. If a GEI employee has been bitten by a tick, the CHSO should be contacted immediately. An Accident Report form must be completed by the individual in compliance with the Accident Reporting procedure outlined in the Corporate Health and Safety Manual.

From left to right: The deer tick adult female, adult male, nymph, and larva on a centimeter scale.

The tick can be removed by pulling gently at the head with tweezers. If tweezers are not available, cover your fingers with tissue paper and use them to grasp the tick. It is important to grasp the tick as close to the site of attachment and use a firm steady pull to remove it. Wash hands immediately after with soap and water. The affected area should then be disinfected with an antiseptic wipe. All mouth parts must be removed from the skin. If the tick is removed by breaking off the mouth parts, an irritation or infection may occur. Also, the organism that is causing the disease can still enter the body through the skin. The employee will be offered the option for medical treatment by a physician, which typically involves antibiotics. If personnel feel sick or have signs similar to those above, they should notify the SSO and the CHSO immediately.

Treatment with antibiotics is effective and recovery is usually complete. In the first stage antibiotics are usually given orally. Second and third stage treatment, however is prolonged and recovery may take longer. Antibiotic treatment is usually provided intravenously for second and third stage Lyme disease.

The deer tick can also cause **Babesiosis**, an infection of the parasite Babesia Microti. Symptoms of Baesiosis may not be evident, but may also include fever, fatigue and

hemolytic anemia lasting from several days to several months. Babesiosis is most commonly diagnosed in the elderly or in individuals whose immune systems are compromised.

Ehrlichiosis is a tick-borne disease which can be caused by either of two different organisms. Human monocytic ehrlichiosis (HME) is caused by *Ehrlichia chaffeensis*, which is transmitted by the lone star tick (*Amblyomma americanum*). Human granulocytic anaplasmosis (HGA), previously known as human granulocytic ehrlichiosis (HGE), is caused by *Anaplasma phagocytophilia*, which is transmitted by the deer tick (*Ixodes scapularis*).

In New York State, most cases of ehrlichiosis have been reported on Long Island and in the Hudson Valley. Ehrlichiosis is transmitted by the bite of infected ticks, including the deer tick and the lone star tick. The symptoms of HME and HGE are the same and usually include fever, muscle aches, weakness and headache. Patients may also experience confusion, nausea, vomiting and joint pain. Unlike Lyme disease or Rocky Mountain spotted fever, a rash is not common. Infection usually produces mild to moderately severe illness, with high fever and headache, but may occasionally be life-threatening or even fatal. Symptoms appear one to three weeks after the bite of an infected tick. However, not every exposure results in infection.

Rocky Mountain spotted fever (RMSF) is a tick-borne disease caused by a rickettsia (a microbe that differs somewhat from bacteria and virus). Fewer than 50 cases are reported annually in New York State. In the eastern United States, children are infected most frequently, while in the western United States, disease incidence is highest among adult males. Disease incidence is directly related to exposure to tick-infested habitats or to infested pets. Most of the cases in New York State have occurred on Long Island. RMSF is characterized by a sudden onset of moderate to high fever (which can last for two or three weeks), severe headache, fatigue, deep muscle pain, chills and rash. The rash begins on the legs or arms, may include the soles of the feet or palms of the hands and may spread rapidly to the trunk or rest of the body. Symptoms usually appear within two weeks of the bite of an infected tick.

*(Information on Ehrlichiosis, Babesiosis, and Rocky Mountain Spotted Fever was derived from the New York State Department of Health).

1.2.4 West Nile Virus

West Nile Virus (WNV) is a mosquito-borne infection transmitted through the bite of an infected mosquito. The symptoms of WNV can be asymptomatic (no symptoms) or in more serious cases can lead to West Nile Fever. West Nile Fever can include fever, headache, tiredness, body ache, an occasional rash on the trunk of the body, and swollen lymph glands, In severe cases, people have developed West Nile Encephalitis or

Meningitis which symptoms include fever, headache, neck stiffness, tremors, coma and in some cases death. The incubation period for the disease is usually 2 to 15 days. The symptoms can range from a few days to several weeks. Most mosquitoes are not infected and the chance of infection from a mosquito bite of an on-site employee is very small.

The following precautions will be used to help reduce the risk of mosquito bites:

- Reduce mosquito-breeding areas by making sure wheelbarrows, buckets, and other containers are turned upside down when not used so that they do not collect standing water.
- Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many mosquitoes are most active (between dawn and dusk).
- Use mosquito repellant according to the manufacturer's directions when outdoors for long periods of time and when mosquitoes are most active.

Centers for Disease Control and Prevention (CDC) evaluation of information contained in peer-reviewed scientific literature and data available from the Environmental Protection Agency (EPA) has identified several EPA registered products that provide repellent activity sufficient to help people avoid the bites of disease carrying mosquitoes. Products containing these active ingredients typically provide reasonably long-lasting protection:

- **DEET** (Chemical Name: N,N-diethyl-m-toluamide or N,N-diethly-3-methyl-benzamide) 20 to 30 percent DEET
- **Picaridin** (KBR 3023, Chemical Name: 2-(2-hydroxyethyl)-1-piperidinecarboxylic acid 1-methylpropyl ester)
- **Oil of Lemon Eucalyptus** or **PMD** (Chemical Name: para-Menthane-3,8-diol) the synthesized version of oil of lemon eucalyptus
- **IR3535** (Chemical Name: 3-[N-Butyl-N-acetyl]-aminopropionic acid, ethyl ester)
- **Permethrin** (3-Phenoxybenzyl (1RS)-cis,trans-3-(2,2-dichlorovinyl) -2,2-dimethylcyclopropanecarboxylate) - Permethrin kills ticks and can be used on clothing (but not skin)

EPA characterizes the active ingredients DEET and Picaridin as "conventional repellents" and Oil of Lemon Eucalyptus, PMD, and IR3535 as "biopesticide repellents", which are derived from natural materials.

In general, higher concentrations of active ingredient provide longer duration of protection, regardless of the active ingredient, although concentrations above approximately 50 percent do not offer a marked increase in protection time. Products with less than 10 percent active ingredient may offer only limited protection, often from 1 to 2 hours. Products that offer sustained release or controlled release (micro-encapsulated) formulations, even with lower active ingredient concentrations, may provide longer protection times. Regardless of what product you use, if you start to get mosquito bites reapply the repellent according to the label instructions or remove yourself from the area with biting insects if possible.

Clothing and other products can be purchased pre-treated, or products can be treated using EPA-registered products. Permethrin is the only pesticide approved by the EPA for these uses. Permethrin binds tightly to the fabrics, resulting in little loss during washing and minimal transfer to the skin. Permethrin is poorly absorbed through the skin, although sunscreens and other products may increase the rate of skin absorption.

If you decide to use permethrin-treated clothing, consider these tips:

- Read the application instructions carefully and apply the product according to the label directions. Do not over-treat products.
- Permethrin treatments are only intended for use on fabrics; do not apply them directly to the skin or other items.
- Do not apply permethrin to clothing while it is being worn.
- Apply the products outdoors in well ventilated areas that are protected from wind.
- Hang treated fabrics outdoors and allow them to dry completely before wearing them.
- Wash permethrin treated clothing separately from other clothing items.

1.2.5 Plants

The potential for contact with poisonous plants, such as poison ivy, sumac, and oak, exists when performing fieldwork in wooded or boggy areas. These plants can cause allergic reaction when in contact with the leaves or vines.

Poison ivy can be found as vines on tree trunks or as upright bushes. Poison ivy consists of three leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison ivy is red in the early spring and turns shiny green later in the spring. Poison ivy grows throughout much of North America, including all states east of the Rocky Mountains. It is normally found in

wooded areas, especially along edge areas where the tree line breaks and allows sunshine to filter through. It also grows in exposed rocky areas, open fields and disturbed areas.

Poison sumac can be present in the form of a flat-topped shrub or tree. It has fern-like leaves, which are velvety dark green on top and pale underneath. The branches of immature trees have a velvety "down." Poison sumac has white, "hairy" berry clusters. Poison sumac grows exclusively in very wet or flooded soils, usually in swamps and peat bogs, in the eastern United States.

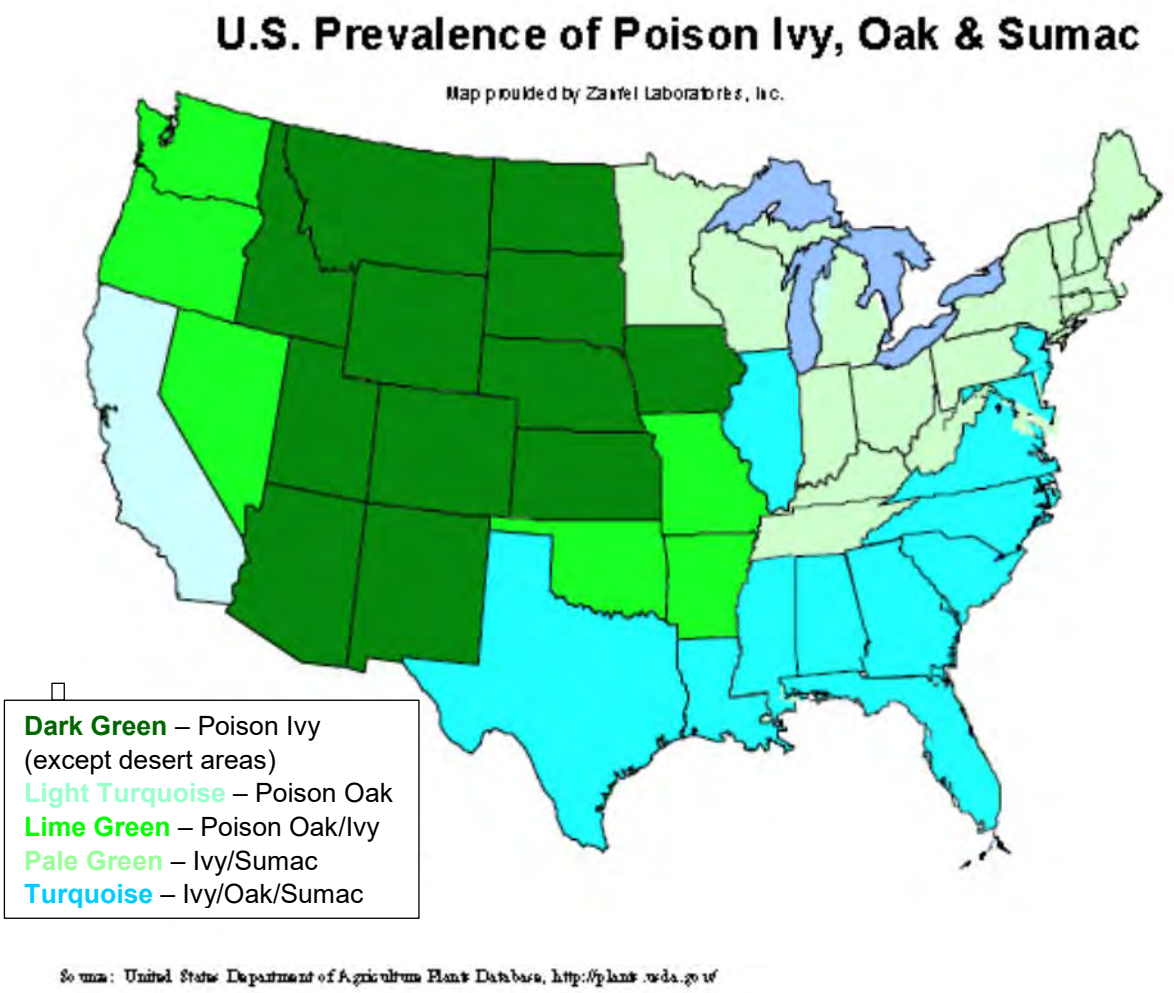
Poison oak can be present as a sparingly branched shrub. Poison oak can grow anywhere in the United States with the exception of Hawaii, Alaska, and some southwest areas that have desert climates. Poison oak is similar to poison ivy in that it has the same leaflet configuration; however, the leaves have slightly deeper notches.

Keep in mind that for each of these plants,

Poison Oak

Poison Ivy

Poison Sumac



To prevent exposure to these poisonous plants:

- Barrier skin creams, such as lotion containing bentoquatum (Tecnu®), may offer some protection prevent the occurrence of exposure symptoms.
- Wear long sleeves, long pants, boots, and gloves.

Contact with poison ivy, sumac, or oak may lead to a skin rash, characterized by reddened, itchy, blistering skin which needs first aid treatment. Susceptible individuals should identify themselves to the SSO or GEI Project Manager. If you believe you have contacted one of these plants:

- Immediately wash skin thoroughly with soap and water, taking care not to touch your face or other body parts.
- Wash exposed clothing separately in hot water with detergent.
- After use, clean tools, and soles of boots with rubbing alcohol or soap and lots of water. Urushiol can remain active on the surface of objects for up to 5 years.

- If a rash occurs, contact the CHSO and complete and submit an Accident Report Form.

1.2.6 Sewage and Bacterial Impacted Sediments

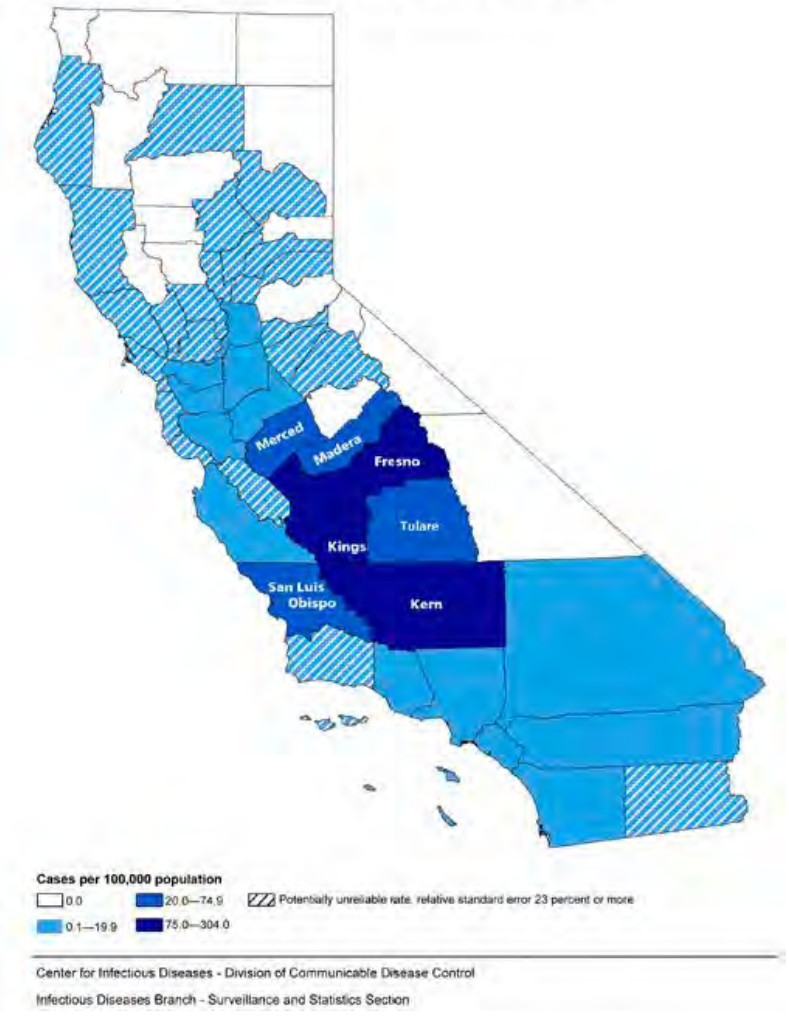
Some project work may be conducted at sites that serve or have served as a combined sewer overflow (CSO) and consequently may have received untreated sanitary sewage from numerous sources. Decomposed sewage can potentially be encountered within sites and their sediments. Sediments could contain soil and marine microorganisms, and bacterium associated with sewage. Many of these bacterium can cause illness through ingestion, direct contact, or the inhalation of a bio-aerosol. Potential respiratory exposure to biological agents can also occur through the inhalation of aerosols produced during sediment handling activities. Personal protective equipment as identified in the site-specific HASP will be worn to minimize potential exposures. Employees will follow the decontamination or disposal procedures identified in the HASP.

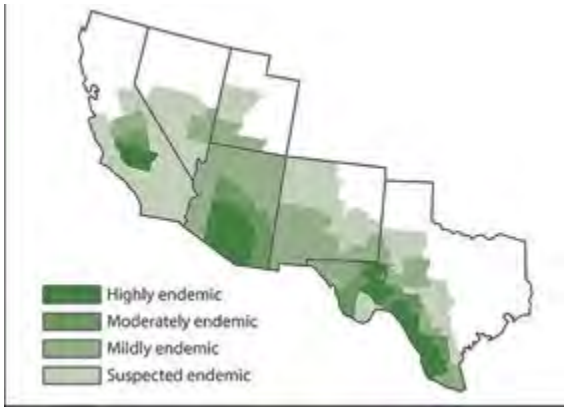
1.2.6 Fungal Spores in Soil – Valley Fever

Valley Fever is an illness that usually affects the lungs. It is caused by the fungus Coccidioides immitis that lives in the top 2 to 12 inches of soil in many parts of California. When fungal spores are present, any work activity that disturbs the soil, such as digging, grading or other earth moving operations, or vehicle operation on dirt roads, can cause the spores to become airborne, therefore increasing the risk of Valley Fever. All employees on sites where the fungus is present, and who are exposed to dusty conditions and wind-blown dusts are at increased risk of becoming infected.

Valley Fever fungal spores are too small to be seen, and there is no reliable way to test the soil for spores before working in a particular place. Valley Fever can be found throughout the southwestern United States, parts of Mexico and South America. Some California counties consistently have Valley Fever fungus present in the soil. In these regions Valley Fever is considered endemic. Health departments track the number of cases of Valley Fever illness that occur. This information is used to map illness rates as seen on the figure below.

California county-specific coccidioidomycosis incidence rates, 2011





When present, symptoms usually occur between seven to 21 days after breathing in spores, and can include:

- Cough
- Fever
- Chest pain
- Headache
- Muscle aches
- Rash on upper trunk or extremities
- Joint pain in the knees or ankles
- Fatigue

Symptoms of Valley Fever can be mistaken for other diseases such as the flu (influenza) and TB (tuberculosis), so it is important for employees to obtain medical care for an accurate diagnosis and possible treatment.

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

- Determine if the worksite is in an endemic area. Contact the local health department for more information about the risk in the county GEI is performing work that may disturb soils.
- Prepare work plans and work practices that reduce employee's exposure, which may include:
    - Provide air conditioned cabs for vehicles that generate heavy dust and make sure employees keep windows and vents closed.
    - Suspend work during heavy winds.
- When exposure to dust is unavoidable, provide National Institute for Occupational Safety and Health (NIOSH)-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or High Efficiency Particulate Air (HEPA). Employers must develop and implement a respiratory protection program in accordance with California's Occupational Safety and Health Administration (Cal/OSHA's) Respiratory Protection standard (8 CCR 5144).
- Take measures to reduce transporting spores off site, such as:
    - Clean tools, equipment, PPE and vehicles before transporting off site.
    - If employee's clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.

1.3 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.4 References

http://www.cdc.gov/ncidod/dvbid/westnile/index.htm
http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm
http://www.epa.gov/pesticides/health/mosquitoes/insectrp.htm
http://www.cdc.gov/niosh/topics/lyme/
Protecting Yourself From Ticks and Mosquitoes, NIOSH Fast Facts, Publication No. 2010-119
http://npic.orst.edu/pest/mosquito/ptc.html

1.5 Attachments

None

1.6 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-002 Infectious Materials and Bloodborne Pathogens Exposure Control Plan

1.1 Objective

GEI personnel may come in contact with potentially infectious agents when performing first aid or cardiopulmonary resuscitation (CPR). Employees may also come into contact with these materials when working at certain contaminated sites (i.e., urban sites, discarded contaminated needles or sewer outfall exposures). This standard operating procedure (SOP) has been developed to minimize the potential for exposure to employees who may contact, directly or indirectly, infectious agents.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for contact with infection materials and bloodborne pathogens. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with infectious materials or bloodborne pathogens and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

- Universal Precautions (i.e., treat all potentially infectious materials as if it were infected) will be used by GEI employees.

1.3 Exposure Control Plan

1.3.1 Standard Procedures

Sampling of potentially infectious materials will be performed in a manner that minimizes the potential for creating splashes, droplets, or aerosols. Mechanical pipetting devices will be used for manipulating sanitary sewer effluent. Mouth pipetting is prohibited.

The use of glassware or equipment with sharp or pointed edges will be kept at a minimum to reduce the potential of injury that would create a direct route of entry into the body for infectious materials.

Minor cuts, scratches, or other breaks in the skin barrier will be covered prior to the handling of infectious materials. Employees experiencing exudative lesions or weeping dermatitis will refrain from direct contact with infectious materials.

Eating, drinking, smoking, or application of cosmetics is not permitted in areas where potentially infectious materials are handled or sampled.

Employees will wash and disinfect their hands, face, or other potentially contaminated skin surfaces upon completing the handling of infectious or potentially infectious agents or after rendering first aid.

1.3.2 Personal Protective Equipment

Personal Protective Equipment (PPE) will be worn to reduce the potential of exposures to splashes or aerosols. At a minimum, this equipment will include safety glasses and appropriate gloves, but may also require the use of face, respiratory, foot, and full-body protection. Refer to the site-specific Health and Safety Plan for specific PPE requirements.

Gloves used in the handling or sampling of infectious materials will be appropriately disposed of and not reused.

1.3.3 Medical Monitoring

Medical monitoring is required for an employee when a potential workplace exposure has occurred. The employee must notify the Corporate Health and Safety Officer (CHSO) and Human Resources regarding the potential exposure as soon as possible. For infectious agents in which a medically accepted vaccination has been developed (e.g., hepatitis B virus [HBV]) potentially exposed employees will be given the option to receive an inoculation at no cost. Employees who have been exposed will be given the option to receive a confidential medical evaluation at no cost. Required records for exposed employees will be kept confidential.

1.3.4 Training

Employees with a reasonable risk for exposure must attend Bloodborne Pathogen training covering the following topics:

- An explanation of the Occupational Health and Safety Administration (OSHA) bloodborne pathogen standard.
- A general explanation of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne diseases.
- An explanation of the GEI's Bloodborne Pathogen SOP and exposure control plan.
- Appropriate methods for recognizing tasks that involve potential exposure.
- An explanation of the use and limitations of methods to prevent exposure.
- Proper types, use, handling, decontamination, and disposal of PPE.
- The availability of HBV vaccines and the procedures for obtaining a vaccination.
- Appropriate actions to take during an emergency involving bloodborne pathogens.

- Post-exposure procedures.
- An explanation of required signs and labels.

1.4 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.5 Reference

OSHA 29 CFR 1910.1030 - Bloodborne Pathogens.

1.6 Attachments

1.7 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP NO. HS-003 Container Management

1.1 Objective

This standard operating procedure (SOP) has been developed to minimize the potential for injuries to GEI employees performing container and drum handling and sampling, through proper use of engineering and administrative controls, personal protective equipment (PPE), and education.

1.2 General

This SOP is intended for use by employees engaged in work with the management of containers that may contain hazardous substances or contaminated media. The site-specific health and safety plan (HASP) should include a hazard assessment and control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Hazardous substances and contaminated media will be handled, transported, labeled, and disposed of in accordance with this paragraph. Drums and containers will meet the appropriate United States Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and Environmental Protection Agency (EPA) regulations for the wastes that they contain.

Site operations will be organized to minimize the amount of drum or container movement. Prior to movement of drums or containers, employees exposed to the transfer operation will be notified of the potential hazards associated with the contents of the drums or containers. Unlabeled drums and containers will be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

DOT specified salvage drums or containers and suitable quantities of proper absorbent will be kept available and used in areas where spills, leaks, or ruptures may occur. Where spills may occur, a spill containment program, which may be part of the HASP, will be implemented to contain and isolate the entire volume of the hazardous substance being transferred.

1.3 Opening Drums and Containers

The following procedures will be followed in areas where drums or containers are being opened:

- Employees not actually involved in opening drums or containers will be kept a safe distance from the drums or containers being opened.
- If employees must work near or adjacent to drums or containers being opened, a suitable shield that does not interfere with the work operation will be placed between the employee and the drums or containers being opened to protect the employee in case of accidental release.
- GEI employees will not handle or attempt to open bulging containers. Employees will not stand upon or work from drums or containers. GEI will contract with a hazardous waste company to handle, manage, and dispose of a bulging drum.

1.4 Material Handling Equipment

Material handling equipment, such as drum dollies, used to transfer drums and containers will be selected, positioned, and operated to minimize sources of ignition.

1.5 Radioactive Wastes

GEI does not routinely handle or manage radioactive waste. If required to do so for a project, procedures will be approved by the Corporate Health and Safety Officer (CHSO) and Regional Health and Safety Officer (RHSO).

1.6 Shock-Sensitive Wastes

GEI employees will not handle shock-sensitive waste. Shock-sensitive waste or chemicals may explode with friction, movement or heat. Some chemicals are shock-sensitive by nature-, others become shock-sensitive through drying, decomposition, or slow reactions with oxygen, nitrogen, or the container. Some chemicals that are, or can, become shock-sensitive will have that hazard noted in the safety data sheet (SDS).

- Drums and containers containing packaged laboratory wastes will be considered to contain shock-sensitive or explosive materials until they have been characterized. *Caution: Shipping of shock-sensitive wastes may be prohibited under U.S. Department of Transportation regulations. Shippers will refer to 49 CFR 173.21 and 173.50.*

1.7 Laboratory Waste Packs

GEI employees will not handle or open laboratory waste packs.

1.8 Sampling of Drum and Container Contents

Sampling of containers and drums will be done in accordance with a site-specific sampling plan that will be developed in conjunction with a site-specific HASP.

1.9 Staging Areas

Drums and containers will be identified and classified prior to packaging for shipment. Drum or container staging areas will be kept to a minimum number as approved by the client to safely identify and classify materials and prepare them for transport. Staging areas will be provided with adequate access and egress routes. Bulking of hazardous wastes will be permitted only after a thorough characterization of the materials has been completed and approved by the Client. GEI employees will not sign manifests unless a written authorization agreement is in place with the Client.

1.10 Tank and Vault Procedures

GEI employees do not routinely sample vaults and tanks. Entry procedures will be coordinated and approved by the CHSO and RHSO.

1.11 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.12 References

OSHA 1910.120 Hazardous Waste Operations and Emergency Response (j) Handling of Drums and Containers.

1.13 Attachments

None

1.14 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURE
HS-004 Driver Safety

1.1 Objective

GEI has implemented a Safe Driving Program to encourage safe driving habits and promote the ongoing safety of our staff and the communities where we work. For more information, refer to the Operation of Vehicles section of GEI's Employee Handbook.

This standard operating procedure (SOP) provides requirements and recommendations to minimize the potential risks while operating or riding in a motor vehicle.

1.2 General

GEI employees will adhere to the following requirements when operating a vehicle while conducting business on behalf of GEI. These requirements apply to GEI owned, rental, and personal vehicles used to conduct GEI business:

- Employees must maintain a valid and current driver's license.
- Employees using a personal vehicle for work-related travel must have proper insurance coverage that meets the requirements in the state in which they reside.
- Employees must wear their safety belt while in a moving vehicle.
- Vehicle accidents will be reported in accordance with GEI's accident reporting procedures. .
- Vehicles will be properly maintained and safely operated (refer to GEI's Fleet Maintenance Program).
- Employees will follow safe driving behaviors, which include limiting distractions such as manipulating radios or other equipment that may cause a distraction. Employees should not exceed the posted speed limit and should maintain a safe distance between other vehicles.
- When parking a vehicle at a job site, the employee should position the vehicle in a manner to reduce or eliminate the need to operate the vehicle in reverse. A safety cone should be placed at the rear of the vehicle after parking the vehicle and be removed prior to moving the vehicle. This procedure makes the employee aware of other vehicles, equipment, and structures within the backup radius of the vehicle.

When driving a rental vehicle or GEI vehicle that you are unfamiliar with orient yourself to the vehicle by:

- Walking around the vehicle to observe the condition of the vehicle and hazards that could be within the travel path.
- Becoming familiar with the size of the vehicle.

- Adjusting mirrors (rear and side).
- Becoming familiar with dashboard, center console, and steering controls.
- Locating the turn signals, windshield wipers, lights, emergency flashers, and the heating, air conditioning, and defrost controls.

1.3 Driving Defensively

Driving defensively means not only taking responsibility for yourself and your actions but also keeping an eye on "the other guy." Good defensive drivers may be able to anticipate what the other driver will do next. GEI recommends the following guidelines to help reduce your risks on the road.

Do not start the vehicle until each passenger and their belongings are secured in the vehicle.

- Remember that driving above or below the speed limit can increase the likelihood of a collision.
- If you notice that a car is straddling the center line, weaving, making wide turns, stopping abruptly or responding slowly to traffic signals, the driver may be impaired or using a cellular telephone.
- Avoid an impaired driver by turning right at the nearest corner or exiting at the nearest exit. If it appears that an oncoming car is crossing into your lane, pull over to the roadside, sound the horn and flash your lights.
- Notify the police if you observe motorist who is driving suspiciously.
- Follow the rules of the road. Do not contest the "right of way" or try to race another car during a merge. Be respectful of other motorists.
- Allow large vehicles, including tractor trailers, extra breaking distance, turning radius, and avoid traveling in their blind spots.
- Do not follow too closely. GEI employees should use a "three-second following distance" or a "three-second plus following distance."
- While driving be cautious, aware, and responsible.
- Use extra caution and reduce speed in construction areas and school zones.
- Be aware of pedestrians, bicyclists, and motorcyclists.

1.4 Cellular Phone Use and Other Distractions

Refer to the Human Resources policy on use of cellular telephones while operating a vehicle on company business.

1.5 Drugs and Alcohol

The use of illegal drugs or alcohol is prohibited when driving a vehicle on GEI business. Be aware of the side effects of prescription and over-the-counter medications which can impair an employee’s ability to drive.

1.6 Adverse Driving Conditions

1.6.1 Driving at Night

Vision maybe limited at night due to impairment of the driver's depth perception, color recognition, and peripheral vision. Another factor adding danger to night or early morning driving is fatigue. Drowsiness makes driving more difficult by dulling concentration and slowing reaction time.

Effective measures to minimize these hazards by preparing your car and following guidelines:

- Have your headlights properly aimed. Misaimed headlights blind other drivers and reduce your ability to see the road.
- Alcohol severely impairs your driving ability and acts as a depressant.
- Avoid smoking when you drive. Smoke's nicotine and carbon monoxide hamper night vision.
- Lights will not help the driver see better in early twilight, but they will make it easier for other drivers to see you. Do not overdrive your headlights. You should be able to stop inside the illuminated area. If you do not, you create a blind crash area in front of your vehicle.
- If an oncoming vehicle does not lower beams from high to low, avoid glare by watching the right edge of the road and using it as a steering guide.
- Make frequent stops for light snacks and exercise. If you are too tired to drive, stop in a safe area and get some rest.
- Observe driving safety as soon as the sun goes down. Twilight is one of the most difficult times to drive, because your eyes are constantly changing to adapt to the growing darkness.

1.6.2 Snow/Freezing Conditions

When snow and ice are present, be prepared by following these winter driving safety tips.

1.6.2.1 Prepare the Vehicle Before a Snowstorm

- Check under the hood and take a look at the vehicles cooling system. Make sure the vehicle contains adequate antifreeze and the hoses are in good condition.
- Test heaters and defrosters ahead of time to make sure they are in good working condition.
- Test your windshield wipers and check the condition of your wiper blades. If wipers leave streaks on your windshields, replace the blades.
- It is recommended that a windshield washer/antifreeze solution is used during winter conditions.
- Check your lights and periodically clear them of snow and dirt.
- Car batteries need extra power in cold conditions. Make sure the battery's terminals are clean and cables are secure.

- Keep your gas tank at least half full in the winter to help avoid gas line freeze up.

1.6.2.2 Driving During and After a Snowstorm

- Wear sunglasses to aid in limiting reflection from snow.
- Be aware of blind spots created by snow banks.
- Be extra cautious of pedestrians and other vehicles in intersections.
- Allow extra time for braking and increase the distance between you and the car ahead of you.
- Reduce your speed and do not exceed the posted limit.
- If you start to lose traction take your foot off the gas and gradually reduce your speed. Accelerate slowly once you feel traction is regained.
- If you start to skid, steer in the direction of the skid. Remember, steering can be more important than braking on slippery roads.

1.6.3 Driving In the Rain

To prevent losing control of your car on wet pavement, take these preventive measures.

- Prevent skids by driving slowly and carefully, especially on curves.
- Steer and brake with a light touch.
- When you need to stop or slow, do not brake hard or lock the wheels.
- Maintain mild pressure on the brake pedal.

If you skid, ease your foot off the gas, and carefully steer in the direction you want the front of the car to go. For cars without anti-lock brakes, avoid using your brakes. This procedure, known as "steering into the skid," will bring the back end of the car in line with the front. If your car has anti-lock brake systems (ABS), brake firmly as you "steer into the skid."

Hydroplaning happens when the water in front of your tires builds up faster than your car's weight can push it out of the way. The water pressure causes your car to lose contact with the road surface and slide on a thin layer of water between your tires and the road. At this point, your car can be completely out of contact with the road, and you are in danger of skidding or drifting out of your lane, or even off the road.

To avoid hydroplaning, keep the tires properly inflated and maintain good tread on the tires. If tires need to be replaced on a company vehicle, notify the branch manager or their designee. Slow down when roads are wet, and stay away from puddles. Try to drive in the tire tracks left by the cars in front of you. If you begin to hydroplane, do not brake or turn suddenly. This could throw your car into a skid. Ease your foot off the gas until the car slows and you can feel the road again. If you need to brake, do it gently with light pumping actions. If your car has ABS, then brake normally; the car's computer will mimic a pumping action, when necessary.

If weather conditions worsen to the point where the driver is not comfortable driving, pull the vehicle over to a safe location until conditions improve. Do not drive during severe weather conditions. Do not attempt to drive on roads with standing water or that have been flooded. Find an alternate route if these conditions exist.

1.6.4 Off Road

If operation of a vehicle is required off publicly or privately maintained roads or in situations where four-wheel-drive vehicles are required, the appropriate vehicle for the situation will be used.

1.7 Driver Training

GEI employees are required to complete driver safety training every 3 years. Employees will complete the examination at the end of each module and forward the training certificate to Human Resources.

1.8 Limitations

Follow safety procedures as defined in the site-specific HASP.

1.9 References

National Safety Council
Oklahoma Safety Council
GEI Consultants, Inc. Employee Handbook

1.10 Attachments

1.11 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-006 Excavations and Trenches

1.1 Objective

GEI employees may be involved with projects that include some type of excavation and trenching as part of the work activities. The following guidelines will be followed when excavations or trenches are present on GEI projects.

1.2 General

This standard operating procedure (SOP) is intended for use by employees engaged in work on project sites that include trenching and/or excavation operations. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for trenching and excavation hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Hazards associated with excavations and trenches can include collapse, falls, falling objects, hazardous atmospheres, and incidents involving mobile equipment.

GEI employees will not enter trenches or excavations that do not comply with OSHA 29 CFR 1926.650. If a project requires GEI employees to enter a trench or excavation, the trench or excavation should meet the following requirements:

- The excavation must be inspected daily by a competent person to identify potential hazards associated with the excavation. GEI generally does not act as the competent person.
- A protective system should be in place for trenches or excavations greater than 5- feet in depth.
- Employees will be protected from vehicular traffic by the use of barricades, cones and tape or other physical barriers.
- The protective system should be designed based on soil type, depth of excavation, water level, loads adjacent to the excavation, changes in weather conditions, or other operations in the area. Protective systems can include sloping or benching of the sidewalls, shoring the sidewalls using an approved support system, or shielding workers with a trench box or other similar type of support.
- If the excavation is greater than 20-feet in depth, the protection system requires a design by a registered professional engineer or based on tabulated data prepared and/or approved by a registered professional engineer.

- Excavations and trenches greater than four feet in depth require a safe access and egress including ladders, steps, or ramps. These points of access and egress are to be no greater than 25 feet of lateral travel in any direction.

- Where oxygen deficiency (atmospheres containing less than 20.7 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than four feet in depth.

When GEI is subcontracting the excavation activities:

- Care should be taken not to create new hazards like narrow walkways along edges of an excavation.
- Heavy equipment should not be parked or working at the edge of the excavation.
- Spoils should not be stockpiled within 2 feet of the trench edges.
- Confirm with subcontractor that underground utilities have been located before any excavation or trenching activities begin (refer to SOP HS-014 Utility Mark-out).
- When required guardrails will be installed for crossings and walkways to provide fall protection.
- Confirm with the subcontractor that the excavation or trench has been tested for hazardous atmospheres before entering.
- Confirm with the subcontractor that the excavation or trench has been inspected by a competent person before each work shift and after any type of precipitation. Water should be directed away from the excavation or trench whenever possible. If hazards are identified during this inspection, verify that the hazards are controlled prior to entering the trench or excavation.
- GEI employees will not work under raised or suspended loads.

In circumstances where GEI employees are working on sites where a contractual agreement with the excavation contractor does not exist and we cannot confirm the above stated conditions, entry into trenches or excavations should not be conducted.

1.3 Soil Classifications

The soil classification system means a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability.

1) Stable rock means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

2. Type A means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

a) The soil is fissured; or
b) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
c) The soil has been previously disturbed; or
d) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
e) The material is subject to other factors that would require it to be classified as a less stable material.

3) Type B means:

a) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
b) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
c) Previously disturbed soils except those which would otherwise be classed as Type C soil.
d) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
e) Dry rock that is not stable; or
f) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

4) Type C means:

a) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or
b) Granular soils including gravel, sand, and loamy sand; or
c) Submerged soil or soil from which water is freely seeping; or
d) Submerged rock that is not stable, or
e) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Where soils are configured in layers, i.e., where a layered geologic structure exists, the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

1.4 GEI Requirements for the Excavation/Trenches Competent Person

Although GEI does not normally act as the competent person for excavations and trenches this person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
  - soil analysis;
  - use of protective systems; and
  - requirements of 29 CFR Part 1926 Subpart P.
- Ability to detect:
  - conditions that could result in cave-ins;
  - failures in protective systems;
  - hazardous atmospheres; and
  - other hazards including those associated with confined spaces.
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

1.5 Test Equipment And Methods For Evaluating Soil Type

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area, as described below.

A. Pocket Penetrometer. Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, Penetrometers have error rates in the range of ± 20-40%.

   1. Shearvane (Torvane). To determine the unconfined compressive strength of the soil with a shearvane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kPa).

2. Thumb Penetration Test. The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.
3. Dry Strength Test. Dry soil that crumbles freely or with moderate pressure into individual grains is granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into smaller clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

B. Plasticity or Wet Thread Test. This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3 mm) in diameter (thick) by 2 inches (50 mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

C. Visual Test. A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. If the soil remains in clumps, it is cohesive; if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for any signs of vibration.

During a visual test, the evaluator should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sluffing, as well as for signs of surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions. In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

1.6 Shoring Types

Shoring is the provision of a support system for trench faces used to prevent movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical. Shoring systems consist of posts, wales, struts, and sheeting. There are two basic types of shoring, timber and aluminum hydraulic.

Hydraulic shoring can be a prefabricated strut and/or wale system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

- Are light enough to be installed by one worker;
- Are gauge-regulated to ensure even distribution of pressure along the trench line;
- Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movement; and
- Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

Pneumatic Shoring works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

- Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks, and their weight creates handling difficulties.
- Single-Cylinder Hydraulic Shores. Shores of this type are generally used in a water system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.
- Underpinning. This process involves stabilizing adjacent structures, foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

1.7 Shielding Types

Trench Boxes are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench boxes and the excavation side are backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand.

Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box should extend at least 18 in (0.45 m) above the surrounding area if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.

Earth excavation to a depth of 2 ft (0.61 m) below the shield is permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of possible loss of soil from behind or below the bottom of the support system. Conditions of this type require observation on the effects of bulging, heaving, and boiling as well as surcharging, vibration, adjacent structures, etc., on excavating below the bottom of a shield. Careful visual inspection of the conditions mentioned above is the primary and most prudent approach to hazard identification and control.

1.8 Sloping And Benching

Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

Soil type	height / Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°
(For a maximum excavation depth of 12 ft)		

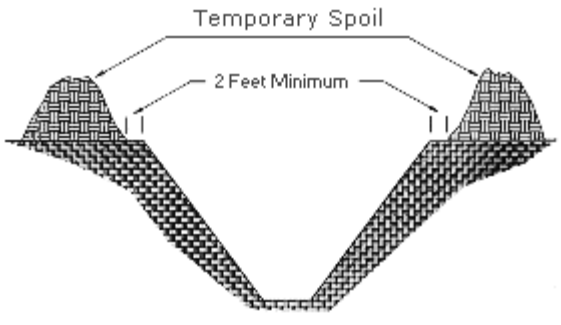
There are two basic types of benching, simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 ft (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft (1.5 m) vertical in Type A soil and 4 ft (1.2 m) in Type B soil to a total trench depth of 20 ft (6.0 m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted in cohesive soil only.

1.9 Spoil

Temporary spoil must be placed no closer than 2 ft (0.61 m) from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.



Permanent spoil should be placed at some distance from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

1.10 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

Do not enter a trench or excavation without consulting with the project manager, Corporate Health and Safety Officer (CHSO), or Regional Health and Safety Officer (RHSO).

Some states, including Massachusetts, require a trench permit prior to trenching or excavation activities. Verification of local requirements will be evaluated in the planning stage.

1.11 References

OSHA 29 CFR 1926.650 – Subpart P; *Excavations.*
OSHA Construction eTool - http://www.osha.gov/SLTC/etools/construction/index.html
OSHA Technical Manual (OTM), Section V: Chapter 2 - Excavations: Hazard Recognition In Trenching And Shoring

1.12 Attachments

None

1.13 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

HS-007 General Safety Requirements

1.1 Objective

GEI is committed to providing its employees with a safe and healthy work environment. To maintain a safe work environment, GEI has established general safety requirements to promote safe work practices.

1.2 General Health and Safety Training

GEI requires employees to complete Health and Safety Training on an annual basis. Project employees must have completed, at a minimum, GEI's General 4-Hour Health and Safety Training or when required, HAZWOPER training before beginning on-site work activities. In addition, field staff must be current in First Aid and CPR Training. Site-specific safety training will also be completed before beginning work on each project site. Further Health and Safety training requirements can be found in Section 2 of the GEI Health and Safety Manual.

1.3 Tailgate Meetings

Health and Safety tailgate meetings will be conducted by the GEI Project Manager or Site Safety Officer (SSO), and be recorded in the GEI field book or on the GEI daily safety briefing log. Employees on-site will sign the daily safety briefing log to indicate attendance.

1.4 Health and Safety Plans

GEI projects must have a health and safety plan (HASP) before beginning site work. GEI HASP templates are located on the Health and Safety page on the GEI intranet. Specific requirements for HASPs are located in Section 7 of GEI's Health and Safety Manual. After the HASP has been completed, it must be sent to the Corporate Health and Safety Officer (CHSO) and the Regional Health and Safety Officer (RHSO) for review. Project employees must read the HASP and sign the signature page to document that they have read, understood, and will comply with the requirements of the HASP. The site-specific HASP must be kept on-site at all times.

1.5 Personal Protective Equipment

Project-specific personal protective equipment (PPE) will be identified in the HASP based on the hazards present during work tasks. Required PPE must be worn on the project site. More information regarding PPE is located in Section 6 of GEI's Health and Safety Manual.

1.6 Fire Protection and Prevention

The work site should be kept clear of flammable materials and debris. GEI field personnel should know where fire extinguishers are located, and be familiar in the use of the extinguisher. Information on the correct use of a fire extinguisher is included in GEI's general health and safety training. Call 911(or other number identified in the project HASP) in the event of a fire.

1.7 Accident/Incident Reporting

The following accident reporting procedures must be followed:

- Seek medical attention.
- Notify your supervisor.
- Notify CHSO and Human Resources (HR) within two hours of the accident/incident.
- Complete Accident Reporting Form (found on the Health and Safety page of the GEI Intranet or on the GEI App) within **24 hours** and send to the CHSO and Human Resources. Refer to Section 8 of the GEI Health and Safety Manual for more information.

1.8 Near Miss Reporting

GEI employees will complete a near-miss reporting form if a hazardous or unsafe condition or near miss is observed. The near-miss reporting form is located on the Health and Safety page of the GEI Intranet. Refer to Section 8 of the GEI Health and Safety Manual for more information.

1.9 Housekeeping

Work areas, passages, and stairs will be kept clear of debris. Debris will be removed from the project site at regular intervals.

1.10 Illumination

Project sites will be illuminated either with natural or artificial illumination, in compliance with OSHA regulations.

1.11 Sanitation

Hand-washing is an essential form of protection from chemical and biological exposures and illness. GEI employees should wash their hands after performing work tasks and

regularly throughout the day. If soap and water are not available, hand sanitizers and/or wipes should be used.

1.12 Machinery, Tools, Material, and Equipment

Machinery, tools, material, and equipment will be kept in good working condition and will be inspected by a competent person. Unsafe equipment will be identified as unsafe by tagging or locking the controls to render them inoperable. Arrangements will be made to repair or dispose of damaged or unsafe equipment.

1.13 Vehicles

GEI's motor vehicles will be maintained in accordance with the GEI fleet maintenance program. Each GEI-owned vehicle will have a fire extinguisher and first aid kit. Additional fire extinguishers and first aid kits are kept in each GEI office for use in personal or rental vehicles.

1.14 Heavy Equipment

GEI employees will keep a line of sight between them and heavy equipment operators. If a GEI employee needs to communicate with heavy equipment operators, they will use hand signals or direct communication with the operator. GEI employees should not:

- Operate or climb on heavy equipment
- Approach heavy equipment while it is in operation.
- Use cellular telephones when working near operating equipment.

For more information regarding heavy equipment, refer to GEI's SOP HS-018 Heavy Equipment.

1.15 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.16 Attachments

None

1.17 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer

GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP NO. HS-009 Hazardous Substances Management

1.1 Objective

This Standard Operating Procedure (SOP) is intended to outline the steps GEI employees will take to identify potential hazards associated with exposure to hazardous substances, the risks associated with these hazards, and the proper controls to use to minimize exposure. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with biological hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.2 Hazard Identification

An initial identification of hazards should be done based on a review of available documents including lists of chemicals used on site, analytical data from soil, surface water, groundwater, air, spill history, site history, equipment on site, maps, photos, and a preliminary survey.

1.3 Risk Identification

Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances will be identified. GEI employees and GEI subcontractors who will be working on the site will be informed of risks that have been identified.

Risks to consider include, but are not limited to:

- Potential exposures exceeding the permissible exposure limits and published exposure levels.
- Potential Immediately to Life and Health (IDLH) Concentrations.
- Potential Skin Absorption and Irritation Sources.
- Potential Eye Irritation Sources.
- Potential hazardous atmospheres, including oxygen deficiency and fire and explosion hazards.

1.4 Engineering Controls, Work Practices, and Personal Protective Equipment for Employee Protection

Engineering controls, work practices, and personnel protective equipment (PPE) for substances regulated in OSHA Subpart Z (Toxic and Hazardous Substances) will be implemented in accordance with this section to protect employees from exposure to hazardous substances and safety and health hazards.

1.4.1 Engineering Controls, Work Practices, and Personal Protective Equipment for Substances Regulated in Subparts G (Occupational Health and Environment Control) and Subpart Z (Toxic and Hazardous Substances)

Engineering controls and work practices will be instituted to reduce and maintain employee exposure at or below the permissible exposure limits for substances regulated by 29 CFR Part 1910.

Engineering controls that may be feasible include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment. Work practices may include removing non-essential employees from potential exposure during opening of drums, wetting down dusty operations, and positioning employees upwind of potential hazards.

If engineering controls and work practices are not feasible, or not required, a reasonable combination of engineering controls, work practices, and PPE will be used to reduce and maintain at or below the permissible exposure limits or dose limits for substances regulated by 29 CFR Part 1910, Subpart Z.

GEI will not implement a schedule of employee rotation as a means of compliance with permissible exposure limits or dose limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation.

The provisions of 29 CFR, subpart G, Occupational Health and Environment control, will be followed.

1.4.2 Engineering Controls, Work Practices, and Personal Protective Equipment for Substances <u>Not</u> Regulated in Subparts G and Subparts Z

An appropriate combination of engineering controls, work practices, and personal protective equipment will be used to reduce and maintain employee exposure to or below published exposure levels for hazardous substances and health hazards not regulated by 29 CFR Part 1910, Subparts G and Subparts Z. GEI will use published literature and Safety Data Sheet (SDS) as a guide in making the determination of what level of protection is appropriate for hazardous substances and health hazards for which there is no permissible exposure limit or published exposure limit.

1.4.3 Decontamination Procedure

Decontamination procedure(s) will be developed, communicated to employees, and implemented before employees or equipment enter areas on site where potential for exposure to hazardous substances exists. Procedures will be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

GEI employees leaving a contaminated area will be properly decontaminated; contaminated clothing and equipment leaving a contaminated area will be properly disposed of or decontaminated.

Decontamination procedures will be monitored by the site safety officer (SSO) to determine their effectiveness. When such procedures are found to be ineffective, the site safety officer will contact the CHSO and appropriate steps will be taken to correct deficiencies.

1.4.3.1 Location

Decontamination will be performed in areas that will minimize the exposure to employees, equipment, and the environment.

1.4.3.2 Equipment and Solvents

Equipment and solvents used for decontamination will be decontaminated or disposed of properly.

1.4.3.3 Personal Protective Clothing and Equipment

Protective clothing and equipment will be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness.

Employees whose clothing comes in contact with hazardous substances will immediately remove that clothing and rinse the exposed area with water. The clothing will be disposed of or decontaminated before it is removed from the work zone.

1.4.3.4 Commercial Laundries or Cleaning Establishments

Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment will be informed of the potentially harmful effects of exposures to hazardous substances.

1.4.3.5 Showers and Changing Rooms

Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they will be provided and meet the requirements of

29 CFR 1910.141 (Sanitation). If temperature conditions prevent the effective use of water, then other effective means for cleansing will be provided and used.

1.5 Limitations

None

1.6 Attachments

None

1.7 References

OSHA 1910.120 Hazardous Waste Operations and Emergency Response
OSHA 1910 Subpart G Occupational Health and Environment Control
OSHA 1910 Subpart Z Toxic and Hazardous Substances
OSHA 1910.141 General Environmental Controls - Sanitation

1.8 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-010 Inclement Weather

1.1 Objective

Inclement weather can affect work activities and pose safety hazards to employees working in these conditions. The following guidelines will be followed when weather conditions become a safety concern.

1.2 General

This standard operating procedure (SOP) is intended for use by employees engaged in work with the potential to be affected by inclement weather. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with biological hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Employees should be aware of local weather conditions and monitor advisories issued by the National Weather Service and other local reporting services. Depending on location and season, storms are capable of producing heavy rain, floods, extreme temperatures, high wind conditions, lighting, tornados, and/or snowfall.

1.2.1 Heavy Rain

If working or driving in a storm use extreme caution. When driving, turn your lights on when the rainfall becomes heavy. Employees should be aware of the following:

- Heavy rain decreases visibility, especially when driving.
- Surfaces and tools become slippery.
- If you are working in the rain and your clothes become wet there is a risk of hypothermia when exposed to winds, even in warm temperatures.
- If the storms are going to produce thunder and/or lightning, leave the work area immediately and move to a safe area.
- Use your best judgment to determine if the rainfall becomes too heavy to continue working safely.

1.2.2 Lightning

Lightning can strike as far as 10 miles from the area where it is raining. That's about the distance you can hear thunder. **If you can hear thunder, you are within striking distance. Seek safe shelter immediately.** This can be within a building or vehicle. Wait 30 minutes after the last clap of thunder or flash of lightning before going outside again.

1.2.3 Flooding

Flooding may occur as a result of heavy rain in a short period of time. Flooding can be particularly acute in canyon areas where dry creek beds can turn into raging rivers from rainfall in distant or higher elevation areas. Be aware of this and your surroundings and move to a safe place if you begin to see signs that flooding may occur. Do not attempt to drive through areas or streets that are flooded. Seek alternate routes. Be particularly cautious at night when flooded areas are difficult to see. Urban flooding can stop traffic and increase the potential for traffic accidents and becoming trapped in vehicles.

1.2.4 Extreme Temperatures

Work activities may take place in extreme heat or cold. Be prepared if these conditions are anticipated. Have the appropriate personal protective equipment (PPE) available, exercise proper fluid intake, and take breaks to prevent heat and cold stress. For more information about these conditions see the heat stress and cold stress programs found in GEI's Health and Safety Manual.

1.2.5 High Wind and Tornados

Tropical storms are described as storms with sustained winds ranging from 39 to 73 miles per hour (mph) and hurricanes produce sustained winds that exceed 74 mph. When winds approach 40 mph (gale force winds) twigs begin to break off of trees and vehicles will veer off of the road. When winds approach **40 mph** or the GEI employee feels unsafe based on the activities being performed, stop work and seek shelter as soon as possible. Blowing or falling debris and overhanging limbs/signs can be a significant hazard. If possible, avoid driving in these conditions; 70 percent of injuries during hurricanes are a result of vehicle accidents. Note that tall or elevated equipment will have manufacturer's safe operating wind speeds defined that could be less than 40 mph. The operator's manual should be consulted prior to operation of the equipment.

A tornado is a violent, dangerous, rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. The Fujita Scale is used to rate the intensity of a tornado by examining the damage caused by the tornado after it has passed over a man-made structure. Based on the Fujita Scale or F-Scale Numbers begin at F0: 40-72 mph and go to F6: 319-379 mph (F6 is generally theoretical). Nearly three-fourths of tornados are on the weak F0-F1 scale with just over two-thirds of deaths resulting from the violent F4-F5 tornados. If tornado wind

speeds exceed the 40 mph, stop work and seek shelter immediately if a tornado is seen. If a tornado siren is sounded move immediately to safety indoors and then move to a windowless interior space, basement, stair well, or designated fall-out shelter. Windows should not be opened before an oncoming tornado. If there is no shelter available, seat belt yourself into your stationary vehicle or seek a depression or low spot on the land surface.

1.2.6 Snowfall and Ice Conditions

Working in the winter months will result in activities taking place during periods of snowfall or icy conditions. If you are working during or after snow has fallen, dress appropriately for the conditions. Snow and ice can cause working surfaces to become slippery. Clear snow and ice from work areas to prevent slip hazards. Use caution when performing snow or ice removal activities to prevent injuries. Driving in snowy and icy conditions is also hazardous. Reduce speed and use caution if you must drive in these conditions.

If the weather conditions deteriorate and you do not feel safe working in these conditions, stop work, move to a safe indoor location, and contact your Project Manager to let them know the weather, work conditions, and your location.

1.3 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection. Protection extreme weather conditions can best be accomplished if the conditions are anticipated. Monitor local weather conditions prior to starting work.

1.4 References

Center for Disease Control and Prevention – Natural Disasters and Severe Weather
http://www.bt.cdc.gov/disasters/
National Lightning Safety Institute
NOAA, National Weather Service
Office of Climate, Water, and Weather Services

1.5 Attachment

None

1.6 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer

GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-012 Noise Exposures

1.1 Objective

Working in loud environments can cause hearing damage and loss if the proper protection is not in place. The following procedures describe methods to mitigate unhealthy noise levels and protect hearing.

1.2 General

This SOP is intended for use by employees engaged in work within loud environments. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for work in loud environments and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Prior to working on a project, an Activity Analysis or Job Hazard Analysis will be performed by the Project Manager or their designee to evaluate the potential hazards and identify steps to be taken to protect workers from hazards. If projects involve high levels of noise from such sources as heavy equipment, power tools, pumps, generators, or other noise source employees should take steps to remove the noise exposure. GEI has an established Hearing Conservation Program located in the GEI Health and Safety Manual.

Hearing protection is required if noise levels in a work area are known to be above 85 decibels (dB), which can be measured with a noise meter. When decibel levels are not known, hearing protection is required if you need to raise your voice to talk to someone standing within a normal speaking distance from you.

The first option for employee protection from hazardous noise levels is to remove the hazard by taking away the source of the noise or using engineering controls to reduce the level. If this cannot be accomplished, the next control measure to be used is to remove the employee from the source. This can be done by moving the work area to a quieter location or distancing the employee from the noise source. For example, GEI employees do not need to be standing next to an operating drill rig or other heavy equipment, by distancing themselves from heavy equipment or other noise sources the need for hearing protection can be eliminated. The final option for employee protection is personal protective equipment (PPE). Disposable ear plugs are made available to GEI employees

and are to be used when required. Additional means of hearing protection will be provided, such as ear muffs, if the disposable ear plugs are not adequate.

Employees should be aware of surroundings such as moving equipment, traffic, and other site hazards when wearing hearing protection.

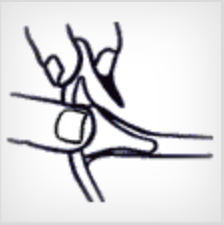
1.3 Proper Use of Hearing Protection

DISPOSABLE EAR PLUG FITTING INSTRUCTIONS

Before fitting any ear plugs, make sure your hands are clean.
Foam ear plugs are disposable and not intended for reuse.

Hold the ear plug between your thumb and forefinger. Roll and compress the entire ear plug to a small, crease-free cylinder. While still rolling, use your other hand to reach over your head and pull up and back on your outer ear. This straightens the ear canal, making way for a snug fit.

Insert the ear plug and hold for 20 to 30 seconds. This allows the ear plug to expand and fill your ear canal.



Test the fit. In a noisy environment, and with earplugs inserted, cup both hands over your ears and release. You should not notice a significant difference in the noise level. If the noise seems to lessen when your hands are cupped over your ears, your ear plugs are not fitted properly. Remove and refit following instructions.

Always remove ear plugs slowly, twisting them to break the seal. If you remove them too quickly, you could damage your ear drum.

REUSABLE EAR PLUG FITTING INSTRUCTIONS

Before fitting any ear plugs, make sure your hands are clean. Reach around your head and pull up and back on your outer ear. This straightens out the ear canal, making way for a snug fit.

Reusable ear plugs should be inspected and cleaned often in soapy water. If they become hard, torn, or deformed they should be replaced.

Hold the stem end of the ear plug and insert it well inside your ear canal until you feel it sealing and the fit is comfortable.

Test the fit. In a noisy environment, and with ear plugs inserted, cup both hands over your ears and release. You should not notice a significant difference in the noise level. If the noise seems to lessen when your hands are cupped over your ears, your ear plugs are not fitted properly. Remove and refit following instructions.

Always remove ear plugs slowly, twisting them to break the seal. If you remove them too quickly, you could damage your ear drum.

1.4 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.5 References

OHSA 29 CFR 1910.95 – Occupational Noise Exposure
OHSA 29 CFR 1926.101 – Hearing Protection
Texas American Safety Company (TASCO)

1.6 Attachment

None

1.7 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURE

SOP HS-014 Utility Mark-out

1.1 Objective

This standard operating procedure (SOP) provides guidance for utility mark-out procedures related to drilling, excavation, or other sub-surface or intrusive activities to avoid injury to GEI employees or property damage. This SOP is applicable when GEI is responsible for its operation or our subcontractor's operation for utility mark-out.

Clients or local agencies may have additional requirements or procedures for the marking of utilities. If local utility mark-out procedures differ from those described within this SOP, applicable state or municipal regulations should be followed.

1.2 General

- This SOP is intended for use by employees engaged in work with sub-surface or intrusive activities. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for subsurface hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.
- The contractor or GEI employee visits the site and marks out each exploration area with white paint, flags, or stakes. Mark-outs will be performed wearing required PPE, including eye protection when using spray paint to perform the mark-out.
- Exploration locations should be marked out with sample identification number(s) and type of sample (e.g., boring, test-pit, or monitoring well).
- The contractor compiles information about the work areas on a request form specified by the state utility mark-out program and provides this information to the mark-out program call center with a phone call or electronic submittal. Work area location maps can be sent to the utility mark-out program to clarify locations.
- The mark-out program customer service representative will provide a mark-out ticket number and a list of utilities notified upon receipt of the request information. This information will be recorded on the GEI documentation form or in other project documents.

- If known, the contractor will also notify non-member utility operators (such as apartment complexes, commercial complexes, railroads with communication cables, etc.).
- Utility companies or their sub-contractors will only mark-out, or clear, utilities under their responsibility. Generally, this means that they will only mark-out utilities within the public right-of-way up to private property boundaries. Information needed to determine the location of utilities on private properties will be requested from the property owner. This may include available property drawings or as-built figures. If this information is not available, additional non-intrusive surveys of the property may be required by a private utility locator to find underground utilities by using techniques, including ground penetrating radar (GPR).
- American Public Works Association (APWA) Uniform Color Code For Marking Underground Utility Lines are:

    1. **White** – Proposed Excavation
    2. **Pink** – Temporary Survey Markings
    3. **Red** – Electric Power Lines, Cables, Conduit and Lighting Cables
    4. **Yellow** – Gas, Oil, Steam, Petroleum, and Gaseous Material
    5. **Orange** – Communications, Alarm, Signal Lines, Cables or Conduit
    6. **Blue** – Water
    7. **Purple** – Radioactive Materials
    8. **Green** – Sanitary and Storm Sewers and Drain Lines

- Before the intrusive work activities begin, the contractor will verify that each utility company has completed a utility location for the work area or the location has been cleared by a private locator and record this on the mark-out request information sheet.
- A visual survey of the project area will be done prior to the start of intrusive activities. This visual inspection will be done to identify signs, manholes, utility boxes, or other evidence of an underground utility is present and has been considered.
- The contractor can begin work on the scheduled work date and time if the utility operators have responded, taking care to find and preserve markings that have been made.
- Completed clearance documentation will be located on the excavation site during excavation activities and kept in project files.
- When excavating near a buried utility, observe the approximate location around that utility.

- If exposing a utility, proper support and protection must be provided so that the utility will not be damaged.
- If the excavation work requires significant spans of the utility to be exposed, it is the contractor's responsibility to support them (to prevent sagging or collapse) as needed. Contact the utility operator for support, guidance, or assistance.
- When the excavation is complete, provide proper backfill for utilities that have been exposed.

- Take care not to damage the conduit or protective coating of a utility. If the contractor damages this, leave the damaged utility exposed and immediately call the utility owner.
- If a gas line is contacted, the contractor must notify police, fire, and emergency personnel, and evacuate employees according to the site evacuation procedures. No attempt should be made to tamper with or correct the damaged utility.
- If the contractor/consultant needs to dig within the approximate location of a combustible, hazardous fluid, or gas line (natural gas, propane or gasoline), soft digging is required (hand digging, vacuum extraction) to a maximum depth of five feet. The approximate location is defined as 24 inches on either side of the designated center line of the utility if the diameter is not provided or 24 inches from each outside edge if the diameter is provided.

1.3 Limitations

- Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.
- Mark-out notification time usually does not include holidays. Make sure holidays are considered and mark-out time is scheduled accordingly. Under no circumstances are intrusive activities allowed to be performed prior to the required mark-out.
- Do not use white paint if precipitation is eminent. Consider using stakes if snow is predicted.

1.4 References

Reference the website for the "Call Before You Dig – 811" for the utility mark-out agency for the state you working in prior to site work. If you have issues locating the appropriate agency, contact the Health and Safety Committee for assistance.

1.5 Attachment

Attachment A – Standard Utility Color Codes
Attachment B – GEI Utility Clearance Documentation Form

1.6 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

COLOR CODE FOR UTILITY MARKING

(BASED ON 'THE AMERICAN PUBLIC WORKS ASSOCIATION' RECOMMENDATIONS AND THE ANSI STANDARD Z-53.1 FOR SAFETY COLORS)

UTILITY	COLOR
PROPOSED EXCAVATION	WHITE
ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES	RED
POTABLE WATER	BLUE
STEAM, CONDENSATE, GAS OR OIL COMPRESSED AIR	YELLOW
TELECOMMUNICATIONS, ALARM OR SIGNAL LINES, CABLES OR CONDUIT	ORANGE
TEMPORARY SURVEY MARKINGS	PINK
SEWER AND STORM DRAINS	GREEN
CHILLED WATER, RECLAIMED WATER, IRRIGATION AND SLURRY LINES	PURPLE
OTHER	LIGHT BLUE

1.0/4902e011.pdf (12/2004)

Utility Clearance Documentation

Client: _____

Project: _____

Site: _____

Excavation/Drilling Location ID: _____

Excavator/Driller: _____

GEI PM: _____

GEI Field Team Leader: _____

Utility Drawings Reviewed: _____

Provided By: _____

Reviewed By: _____

Utility Clearance Call Date: _____

Utility Clearance Received back from (list utilities): _____

Completed By (Company): _____ Date: _____

GEI Staff Responsible for Oversight: _____

Metal Detector Survey (yes/no): _____

Drilling Location Cleared by: _____

Contractor: _____ Date: _____

GEI Staff Responsible for Oversight: _____

Private Location Clearance Required (yes/no): _____

Contractor: _____ Date: _____

Methods used for utility location (i.e. GPR, electronic pipe location) _____

GEI Staff Responsible for Oversight: _____

Hand clearing Performed: _____ Date: _____

Contractor: _____

GEI Staff Responsible for Oversight: _____

Notes: _____

Based upon the best available information, appropriate utility clearance procedures were performed for the invasive work specified. If client ordered/site specific deviations from existing GEI utility clearance procedures exist, they are approved by the client signature below.

Client Signature (Optional): _____ Date: _____

GEI, Inc. Representative: _____ Date: _____

STANDARD OPERATING PROCEDURES

SOP No. HS-016 Traffic Hazard Management

1.1 Objective

The objective of this standard operating procedure (SOP) is to prevent or limit the potential for GEI personnel to encounter traffic hazards during field activities.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for traffic hazards. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for exposure to traffic hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.3 Traffic Hazard Management

Traffic Hazard Management is the process of identifying and managing the potential risks associated with the movement of traffic through, around, or past a work area. This Traffic Hazard Management SOP is designed to assist employees in identifying and managing these hazards. Work areas should be as safe as possible. It is the responsibility of GEI employees to follow the Traffic Hazard Management plan and adhere to these safety standards. Safety is not negotiable.

Under no circumstances are GEI employees permitted to commence work in a situation that they feel puts their health and safety, or the health and safety of others, at risk.

Major risk factors for work site Traffic Hazard Management include:

- The speed of traffic past or through a work site.
- The clearance between moving traffic, workers, vehicles and equipment, and over-head power lines.
- Traffic volume and vehicle composition.
- Nature and conditions at the work site and approaches to the work site.
- Other factors such as the time of day, sight distance, weather, presence of pedestrians, or cyclists, and the type of work being carried out.

- Other hazards in proximity to the work site (e.g., power lines, open excavations) that may have conflicting measures needing to be considered when developing the plan.

1.4 Site Preparation

The following management measures will be considered whenever working in traffic areas. In addition, remain aware of the amount of traffic around the working area. The work space should be large enough for the job to be completed safely. Check permit, traffic control plans, and flagger/police detail requirements for the local jurisdiction. Perform routine checks of the work zone to make sure there are adequate levels of protection.

1.4.1 Warning Cones and Warning Signs

GEI employees will comply with the Department of Transportation's (DOT) Manual on Uniformed Traffic Control Devices (MUTCD) and/or state regulations for temporary traffic barriers (cones, barriers) and sign placement when required for working in traffic areas. Clearly define the work site by placing traffic barriers around the work space to indicate the space that is needed to safely perform the work. The traffic barrier will help make the work site more visible to other workers and moving vehicles. Place traffic barriers to give yourself adequate space to work, so equipment is not outside the space. OSHA suggests placing the first warning sign at a distance calculated to be 4 to 8 times (in feet) the speed limit (in MPH).

1.4.2 Adequate Light

Requirements for night conditions and work areas with poor visibility are similar to day requirements; however there are a number of additional things to consider, such as visibility of the work site to advancing traffic and sufficient lighting. OSHA requires lighting for workers on foot and equipment operators to be at least 5 foot-candles or greater.

Visibility of the work area can be increased by employing the following measures:

- Using parked vehicles hazard and flashing lights.
- Wearing reflective safety vest that is in good condition.
- Providing adequate lighting to illuminate the work area. This lighting should be positioned so that there is no glare to approaching drivers.
- Placing advance warning signs and cones with retro reflective stripes so that they are visible to road users.

1.4.3 Distance from the Nearest Traffic Lane

Work areas located along roadsides will have a minimum clearance as defined by DOT's MUTCD and/or state or local DOT regulations for cone and sign placement.

1.4.4 PPE

The proper personal protective equipment (PPE), as outlined in the project HASP, will be worn when appropriate. The color/type of safety vest will comply with site regulations.

1.5 Equipment Operation

Vehicles and heavy equipment operators should use a spotter when possible if it is necessary to drive in reverse to reduce risk of collision with oncoming traffic. If it is necessary to drive against the flow of traffic make sure this area is within the work zone and properly blocked off from oncoming traffic.

1.6 Pedestrian Safety

When working near pedestrian traffic, a safe walkway will be established. Refer to local regulations when establishing pedestrian walkways.

1.7 Limitations

Follow safety procedures as defined in the site-specific HASP, federal DOT, and local jurisdictions. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.8 References

DOT's Manual on Uniformed Traffic Control Devices (2009 Edition)
https://www.osha.gov/SLTC/etools/hurricane/work-zone.html

1.9 Attachments

None

1.10 Contact

GEI Corporate Health and Safety Officer
GEI East-North Regional Health and Safety Officer
GEI East-South Regional Health and Safety Officer
GEI Mid-West Regional Health and Safety Officer

GEI Western Regional Health and Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-018 Working Around Heavy Equipment

1.1 Objective

The objective of this standard operating procedure (SOP) is to prevent or limit the physical hazards when working around heavy equipment for GEI personnel.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for working near heavy equipment. The site-specific health and safety plan (HASP) should include a hazard assessment for the project for working near heavy equipment to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.3 Heavy Equipment

Heavy equipment (excavators, backhoes, drill rigs, etc.), can present many physical hazards that can result in serious injury or death if the proper safety precautions are not followed. The following is a list of precautions to be aware of when working around heavy equipment:

- Wear appropriate personal protective equipment (PPE), including a reflective, high-visibility safety vest.
- Always keep your distance from moving vehicles.
- Do not assume the vehicle operator knows where you are or where you are going. Make sure to make eye contact and receive acknowledgement of your presence with the operator. Avoid working near heavy equipment, but if unavoidable, communicate your location with the heavy equipment operators. If using hand signals, discuss the signals with the equipment operator prior to starting work.
- Watch for moving equipment. Construction sites can have a lot of activity and vehicles may be moving closer than you may think.
- Do not rely on back-up or other alarms. They may not be working or you may not hear them with the noise of other activities taking place in the area.
- Stay out of the swing radius of cranes, excavators, or other equipment that swings or rotates.
- Do not walk beside a moving vehicle, the vehicle may turn, slip, or the load may shift causing the vehicle to go off course.

- Do not ride on the outside of a moving vehicle.
- Always stay out from under a suspended load on cranes or hoists, even if it means taking the long way around.
- Do not walk behind a piece of equipment that is backing up. The operator may not see you.
- If working next to heavy equipment is unavoidable, be aware of the hazards including pinch points and moving parts. Use a spotter to watch the work area for moving equipment.
- If necessary, ask the operator to stop equipment operation to perform your work tasks.
- Verify the location and operation of emergency shut-off devices on the equipment.
- Be aware of the fuels and chemicals associated with the equipment. Have a spill prevention and response plan in place that includes the appropriate containment materials (i.e., spill kit).
- Do not wear loose fitting clothing when working around moving equipment (i.e., drill rig augers).
- Do not operate heavy equipment.
- Do not use cellular telephones near operating equipment.

1.4 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.5 References

OSHA 29 CFR 1926.600 – Subpart O; Motor Vehicles, Mechanized Equipment, and Marine Operations.
www.*toolboxtopics.com*/Construction
Caterpillar Safety – http://safety.cat.com/

1.6 Attachment

None

1.7 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-025 Manual Lifting

1.1 Objective

The purpose of the GEI Consultants, Inc. (GEI) Manual Lifting SOP is to identify and reduce potential work-related musculoskeletal disorder (WMSD) hazards. The SOP is intended to comply with state regulations and safe work practices developed by the Occupational Safety and Health Administration (OSHA). Modifications to meet these requirements will be made to this program as changing laws or regulations dictate.

1.2 General

The following Safe Lifting guidelines will be followed by GEI employees involved in manual lifting activities:

- Before manual lifting is performed, a hazard assessment must be completed. The assessment must consider size, bulk, and weight of the object(s), if mechanical lifting equipment is required, if two-man lift is required, whether vision is obscured while carrying and the walking surface and path where the object is to be carried.
- Get a co-worker to help if equipment or other item is too heavy to lift.
- If possible, use powered equipment instead of manually lifting heavy materials. Lifting equipment such as dollies, hand trucks, lift-assist devices, jacks, or carts can be provided for employees.
- Reduce lifts from shoulder height and from floor height by repositioning the shelf or bin.
- Make sure walkways are clear of tripping hazards before moving materials.
- Use your legs and keep your back in a natural position while lifting. Keep the load close to your torso.

- Test the load to be lifted to estimate its weight, size, and bulk and to determine the proper lifting method.

- Do not twist while carrying a load. Instead, shift your feet and take small steps in the direction you want to turn.
- Make sure there are appropriately marked and sufficiently safe clearances for aisles and at loading docks or passageways where mechanical-handling equipment is used.
- Properly stack loose or unboxed materials which might fall from a pile by blocking, interlocking, or limiting the height of the pile to prevent falling hazards.
- Bags, containers, bundles, etc. should be stored in tiers that are stacked, blocked, interlocked, and limited in height so that they are stable and secure to prevent sliding or collapse.
- Storage areas should be kept free from accumulation of materials that could lead to tripping, fire, or explosion.
- Work methods and stations should be designed to minimize the distance between the person and the object being handled.

Supervision must periodically evaluate work areas and employees' work techniques to assess the potential for and prevention of injuries. New operations should be evaluated to engineer out hazards before work processes are implemented.

1.3 Injury Reporting

Injuries experienced during manual lifting activities should receive prompt medical attention. If a GEI employee suffers an injury on the job, he/she is to report the injury to their immediate supervisor within 2 hours of the incident. The supervisor will immediately notify the CSHO and Director of Human Resources.

After verbal notification has been made, an Incident and Accident Report Form is to be completed by the employee and/or Project Manager and submitted to Human Resources and the CHSO within 24 hours of its occurrence. This form is available on the Health and Safety site on the GEI Intranet.

Upon notification from a Branch or Office Manager, Human Resources, and/or the receipt of the Incident and Accident Report Form, the CHSO and/or the RHSO will conduct an investigation and evaluation of the incident and the incident response. Information received will be analyzed for the hazards and risk factors associated with the incident. The CHSO will then recommend (as necessary) engineering controls, PPE, training or other appropriate measures to minimize the potential for future musculoskeletal injuries. The CHSO/RHSO will develop educational information based on lessons learned for distribution to GEI employees.

1.4 Training

Training will include general principles of ergonomics, correct maul lifting training to avoid musculoskeletal injuries, recognition of hazards and injuries, procedures for reporting hazardous conditions, and methods and procedures for early reporting of injuries.

1.5 Ergonomic Evaluation Process

1.5.1 Requesting an Evaluation

An evaluation can be requested by the employee if they have concerns about their workstation, tasks, or are experiencing discomfort while working. The employee can request an evaluation by directly contacting their supervisor, Branch Manager, RHSO, HR or the CHSO via email. The Branch Manager will be notified of the requested evaluation. The Coordinator will send the Worksheet to the employee, who will complete it and return it to the Coordinator. The Coordinator will review the Worksheet and suggest modifications to the employee. If these modifications do not resolve the issue, the Coordinator will then schedule an in-person evaluation with the employee. If an employee is experiencing discomfort at their workstation and a request for an evaluation has been made, the evaluation will occur as soon as possible to assist the employee. If the Coordinator is not available another Coordinator will be assigned the evaluation.

Coordinators will be trained to treat the information obtained during the evaluation as confidential. If there are concerns the employee does not wish to discuss with the Coordinator due to their personal nature, a representative from HR will be designated to assist with the evaluation.

1.5.2 Job Hazard Analysis

Once the evaluation has been scheduled, the Coordinator will meet with the employee at their workstation and conduct the interview and review their work area. The Ergonomic Evaluation Checklist will help guide the Coordinator through a series of questions to help evaluate the potential ergonomic safety concerns. The evaluation is designed to be a conversation between the employee and Coordinator to help develop an open dialog. During the evaluation the Coordinator will identify ergonomic risk factors and implement immediate corrective actions, if possible. In many cases, simple adjustments can be made to the work station using existing equipment. Ergonomic work practices including “ergo breaks” and stretching can also be recommended.

1.5.3 Corrective Actions

During the evaluation the Coordinator may suggest adjustments that can be made to the existing work station. The employee will be encouraged to adopt the suggestions but ultimately has the choice to accept and implement them. Once the evaluation has been completed, the Coordinator will review the evaluation and if there are concerns, they will evaluate them with the HSC. Once the HSC has discussed the evaluation and developed corrective actions, they will be documented on the Checklist. The corrective actions will be shared with the employee and the Branch Manager. Prior to equipment purchases, approval will be authorized by the local branch manager.

Broken equipment will be taken out of service, properly disposed of and replaced. If improper equipment is being used, the proper equipment will be obtained or purchased with approval. If the employee's workspace presents a hazardous condition (fire hazards, trip hazards, noise exposure, etc.) the hazard will be corrected, if possible, or the employee will be moved to a safe workspace. If the equipment being used is not an appropriate fit for the employee, a suggestion will be made in the evaluation report to obtain or purchase the equipment that fits the employee properly.

If a repetitive task is identified, options will be discussed with the Branch Manager, the HSC and/or other appropriate personnel to evaluate whether the task can be altered to facilitate a safer condition. Many times accelerated deadlines, apprehension, or lack of options cause an employee to believe they don't have a choice and will just push through to complete the task potentially causing an ergonomic injury. These types of situations need to be recognized and corrected. A proactive approach by both the Branch Manager and employee should be instituted to prevent or anticipate these situations so that the correct equipment, additional employees or better planning can be incorporated while still meeting the deadline.

The organization of the workspace is also an important ergonomic factor. Items should be placed so that frequently used equipment is within arm's reach and located on the correct side of the body for which that equipment is used to prevent unnecessary twisting or reaching. Having adequate space to complete tasks is necessary but may not be achieved if piles and unnecessary items occupy the space. The Coordinator can suggest how to take advantage of tools and organizational skills to free up space.

Other areas of concern may be outside factors that occur away from the office. If the employee conducts field work, the tasks should be completed with ergonomics in mind.

A separate evaluation of these tasks may be conducted to determine if a different process or equipment may be used to reduce any unnecessary pressure or fatigue to the employee's body. At times when employees have permission to work from home or use their GEI computers at home, in hotels while traveling, in an environment that is not ergonomically correct, employees will be encouraged to adopt the ergonomic recommendations they learn at work.

Employee's hobbies can also pose ergonomic risks. Hobbies that involve repetitive motions, prolonged postures, vibration, excessive force/overexertion and adverse environmental factors may cause ergonomic injuries that can be aggravated at work.

During the interview process, the Coordinator will try to identify these risks and discuss techniques to help alleviate discomfort and minimize additional injury. It will be up to the employee to modify anon-related work risks.

If an employee is experiencing discomfort, efforts will be made to alleviate the discomfort while at work. For example, if an employee has a physical injury that occurred outside of work that requires them to keep their leg elevated, the employee can work with their Coordinator to determine a solution. This may involve temporarily modifying their workstation or transferring to another workstation. Healthy work practices and generally good health are keys to staying comfortable at work too. Regular stretch breaks, good posture, vision check-ups, good sleep habits and maintaining a healthy weight are factors in creating a comfortable work environment. If a physical non-work related problem persists and impedes the employee from being effective at work, suggestions may be made to see a personal physician for further advice.

1.5.4 Reporting and Follow-up

Once the evaluation has been completed and the Coordinator's suggestions have been implemented, the Coordinator will document the findings on the Checklist and an evaluation report will be completed and submitted to the employee, the evaluated employee's Branch Manager, and the CHSO. Then a follow-up will be conducted by the Coordinator to evaluate whether the adjustments were successful. The timeline for follow-up will be based on the adjustments suggested and employed. If new equipment is installed, the Coordinator will follow-up after the equipment has been installed and the employee has had time to adjust to it. If an injury has been identified, the Coordinator will notify the Branch Manager and CHSO immediately following the evaluation. This will confirm on-going management of the injury.

During the follow-up evaluation the Coordinator will make visits to the employee's workstation and assess visually and through interviews determine how the changes have been received. Each of these follow-ups will be documented on the Checklist. If during the follow-up a re-adjustment or different equipment is needed, the reevaluation process will continue until the employee is comfortable.

1.6 Limitations

Follow safety procedures for manual lifting.

1.7 References

OSHA Technical Manual (OTM), Section VII: Chapter 1 - Back Disorders And Injuries

1.8 Attachments

None

1.9 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

Appendix F

National Grid Contractor Safety Requirements

FOREWORD

National Grid's vision is to be a world-class safety organization with zero injuries every day. This includes working to help ensure the safety of our employees, contractors and the community. National Grid is committed to delivering operational excellence, including excellent levels of safety internally and in cooperation with the external contractors we rely on.

The Executive Safety Committee provides review and input for Safety Policies and Procedures through the Safety Policies and Procedures Subcommittee.

The Safety department is the owner of this procedure and is responsible for maintaining and implementing this procedure, soliciting comments from stakeholders and revising as necessary.

This document, "Contractor Safety Requirements", represents the current contractor safety requirements that are unique to operations and various functional groups at National Grid. This document does not specifically reference actions that are required by OSHA, other laws, rules, or regulations. These are requirements that should be understood by the contractor and contractor compliance with all applicable federal, state and local laws, rules, and regulations is expected by National Grid as a contractual condition.

Questions regarding this procedure should be referred to the National Grid Safety Department.

This document will be updated as necessary to communicate all aspects of National Grid's contractor safety to bidders, current contractors and to reflect changes in National Grid's Safety Policies and Procedures.

Date of Review/Revision:

Revision	Date	Description
1	08/5/2004	Initial
2	3/2/2005	Additions
3	01/30/2007	Additions
4	08/01/2008	Additions
5	08/01/2010	Additions
6	02/01/2011	Audit recommendations included

Date of Review/Revision Continued:

Revision	Date	Description
7	09/11/2013	Additions included OH; technical changes; Compliance Monitoring; Ethics; Job Briefs
8	11/02/2015	Additions include Audit & IA recommendations; ISN alignment; technical changes, 1910. 269 updates
9	8/17/2016	Format update and technical changes
10	3/29/2017	Additions to sections 2.2.6 and 6.5
11	2/26/2018	Process Safety, PM&CC Electric and PM&CC Vegetation Additions

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1.0 CONTRACTOR SAFETY AT NATIONAL GRID

1.1 Definitions

Adverse Public Impact
Incident that disrupts service to the public or results in adverse public reaction.

Bulk Commodity Transportation
Activities involved in the movement of bulk commodities via truck, rail, plane or water vessel onsite and offsite on behalf of National Grid that if released could have safety and / or environmental consequences. Examples include but are not limited to: gasoline, oil, boiler chemicals, LNG, Nitrogen.

Compliance Assessments (CAs)
An act of observing and engaging in discussion with employees at a job site or work area locations. Compliance Assessments are documented using the Compliance Assessment checklist for each segment of operation and are not considered anonymous. Compliance Assessments are utilized to comply with internal policy and external regulatory requirements.

Contracted Services
Contracted Services refers to any activity that is conducted by an organization or individual under the terms of a purchase order. Contracted services may include all types of construction and maintenance services, tree trimming, building maintenance and demolition, electrical structure dismantling, site restoration, engineering design, recycling and waste disposal, drilling, rigging, electrical, and utility pole/structure maintenance.

Contractor
An independent person or company that undertakes a contract to provide materials or labor to perform a service or do a job and are responsible for the safety of his/her employees and subcontractors.

Contractor Orientation
Contractor orientation is intended to serve as a resource in order to provide the contractor with the tools necessary to educate their employees and subcontractors. The session is not intended to train the contractor management, their employees or subcontractors. The extent and content of the orientation session shall be commensurate with the scope and type of the contractor's activities.

Hazardous Conditions
A condition that can and is rectified immediately by the person who identified the hazard.

Incident
An unplanned event that has a human component and results in or could potentially result in harm to people, damage to property and/or adverse public impact.

Incident Management System (IMS)
National Grid's online incident management tool that allows the company to report safety, environmental and asset-related incidents, perform incident analysis, generate safety reports and monitor the organization's safety performance.

ISNetworld, Inc. (ISN or ISN System)
Third party contractor that is a global resource for connecting Hiring Clients with safe and reliable contractors and is a contractor information management system currently contracted with National Grid.

Job Brief
A planned interactive discussion with all contractor employees, sub-contractors and team members working on a job that occurs just prior to a job, task, project, prior to a change in planned work or when a new person arrives on site.

Major Hazard Asset (MHA)
A class of assets at National Grid, including Compressed Natural Gas (CNG), Gas Transmission (≥ 125 psig), Power Generation sites, Liquefied Natural Gas (LNG) plants, and LNG Trucking, in which any condition, or set of conditions, presents potential for a major accident to occur. Also referred to as process safety assets.

Major Accident
An event involving the release of potentially dangerous materials, the sudden and uncontrolled release of large amounts of energy (such as fires and explosions), or both. These can have catastrophic effects and can result in multiple injuries and fatalities, as well as substantial reputational, economic, property, and environmental damage

Operator Qualification (OQ)
As defined in the Code of Federal Regulations, Transportation, 49 Subpart 192.801 through 192.809 and/or DOT pipeline qualified for gas contractors doing work at National Grid. Additional state requirements pursuant to the state the contractor is working may be required.

Process Safety Management
Method of focusing and mitigating concerns of major hazards impacting safety, environmental damage and business losses. It is an organized effort to identify

and analyze the significance of hazardous situations associated with a process or activity to aid management in making critical safety decisions

Project Representative
National Grid Owner's Representative or designee who is assigned to certain contracted projects and communicates regularly with the contractor during the course of the contracted service. This person also ensures the work is being performed in accordance with the contract, including the safety requirements.

Purchase Order (P.O.)
An agreement/contract between National Grid and a contractor to provide services and/or materials. The P.O. is set up by Procurement. The term "Contract" and "P.O." are similar and may be used interchangeably. A "Blanket P.O." is set up for contractors whose work is on-going. A "one-time P.O." is set up for project work.

Qualified Electrical Worker
Those who are knowledgeable in the construction and operation of the electric power generation, transmission and/or distribution equipment involved, along with the associated hazards.

Qualified Gas Worker
Any contractor who performs covered tasks in accordance with National Grid's Operator Qualification Program and the Northeast Gas Association are required to be knowledgeable and meet all regulatory standards.

Risk Assessment
A risk assessment is the process of identifying hazards and calculating or ranking the associated risks according to: the likelihood of occurrence, the severity of the harm from the hazard, and the amount of time of exposure to the hazard.

Safe/Unsafe Act (SUSA)
The act of observing and engaging in discussion with employees at a job site or work area location. SUSA Visits focus on observation of behaviors and result in obtaining a commitment to working safely. SUSA Visits are conducted by members of management and safety personnel on a routine basis and are a vital part of managing the company and developing a safety culture. SUSA Visits are not announced and they are anonymous. For trending purposes, SUSA Visits will be documented by the observer after the discussion is complete and the observer has left the job site. SUSA Visits should focus on prevention of soft tissue injury as well as other at-risk behaviors.

Safety Observer

A person who is responsible for alerting the work team to any potential unsafe conditions or lack of compliance with approved work practices, procedures or guidelines.

Transportation Advisor
Third party agency specializing in federal and company mandated drug and alcohol testing programs.

1.2 Introduction

Safety performance is a prime consideration in the selection of contractors. National Grid will stipulate safety performance requirements and responsibilities in our contracts, purchase orders (POs) and will hold the contractor accountable for meeting the contractual requirements.

National Grid's goal is to establish a long-term working relationship with contractors who share the same safety values and demonstrate those values through their work performance.

Contractor safety at National Grid involves three broad areas:

1. **The Contractor Procurement (Selection) Process**
   Contractor safety begins with the selection of contractors who have demonstrated a strong safety record. National Grid will complete a review during the procurement process that involves determining a contractors' risk and the scope(s) of work involved. National Grid currently uses ISNetworld, Inc. as a third (3rd) party assessment process for assisting with contractor procurement. The 3rd party entity will vet and continually monitor individual contractors' compliance with applicable safety and/or risk and insurance program requirements.

2. **Safety Communication**
   Safety communication covers all the avenues and forums in which National Grid and the contractor communicates safety. Communication begins early in the bidding phase and is on-going as an integral part of the contractor-customer relationship. The goal is to ensure clarity, transparency and to limit misunderstandings.

3. **Safety Compliance**
   Safety compliance is the process of ensuring that the necessary technical provisions of the contract are being followed. National Grid will assign a project representative or other designee to provide guidance and oversight. The Contractor is responsible for their employees and subcontractors and shall be held accountable for ensuring compliance

with all applicable safety rules while working on National Grid property, rights of way (ROWs) and our assets.

1.3 Risk Ranking of Work

1. National Grid characterizes and ranks risk by the scopes of work performed. The categories are classified as high, medium or low risk. Prior to being considered for work at National Grid, contractors who perform High or Medium Risk work must be pre-qualified in ISN. See Appendix A for more information regarding the National Grid Contractor Risk Matrix.

2. Activities that are designated as “high risk” means that catastrophic event can result if safety measures are not followed. Activities designated as “medium” risk present certain opportunities for moderate to significant injuries, property or reputational damage, and/or loss of service and/or possibly business continuity. Activities designated as “low” risk may still require safety compliance and control measures, although the contractor performing the work does not necessarily need to be enrolled in ISN, if that is the only classification of work that contractor performs for National Grid.

3. The designation High Risk, Medium Risk, or Low Risk, refers only to the inherent risk associated with the work activity and is not an opinion on the ability of a contractor to work safely.

4. The Procurement Agent will notify the bidder/contractor at the beginning of the procurement process if their contracted service has been ranked as high or medium risk.

1.4 Bidder Information Request – High and Medium Risk Work

1. Any contractor bidding on high or medium risk work shall be required to complete a questionnaire regarding the Contractor’s safety program, compliance and history of occupational illnesses and injuries (ISNetworld New Vendor Onboarding application form, located on the ISNetworld website). Contractors will also be required to demonstrate that all employees, including subcontractors, are qualified.

2. ISNetworld then thoroughly reviews contractors’ qualifications against a prerequisite list of National Grid criteria. National Grid has established that contractors performing high or medium risk work MUST HAVE and MAINTAIN a grade of “C” or better in the ISN system to perform work and services for National Grid. ISN will track and manage the National Grid pre-qualified contractor bidder lists. This bidder list is the first step for a contractor in establishing a working relationship with National Grid. For

active ISN contractors, ISN will request updated information monthly. Contractors who do not have a current PO, contract, or authorized scope of work with National Grid will be considered as a Prospective bidder and will be asked to submit information quarterly. It is understood that insurance may not be maintained within National Grid standards, however, once a contractor is awarded a contract, proper and adequate insurance must be provided to ISNetworld to achieve a passing grade. Lack of insurance or inadequate insurance is an immediate "F" grade in the ISN system per National Grid criteria.

3. Project representatives may request an exemption or variance from requiring a contractor to be placed in ISNetworld for various reasons. A Supplier Exemption Request form (located in the forms section of the SHE Infonet) shall be completed, documented and signed by the business unit VP and Corporate Safety Director prior to contract award.

4. The information that the Bidder provides National Grid via ISN serves as the basis for assessing safety qualification. For this reason, it is important for contractors to maintain transparency throughout the process. National Grid and ISN will review all submitted information. Any effort in avoiding complete disclosure will disqualify the Bidder from bidding work at National Grid.

1.5 Safety Compliance

1. National Grid representatives evaluate contractor compliance by conducting routine site visits, Compliance Assessments (CA's) Safe/Unsafe Acts (SUSA) visits and attending periodic contractor safety meetings. Contractors should also perform and document safety self-assessments to ensure compliance to federal, state, local and National Grid regulations. This combined effort enhances, solidifies safety compliance and has the added benefit of quality control / quality assurance of the work performed.

2. Contractors bidding on new work shall provide worker qualifications to the National Grid procurement representative via the "Bidder Information Request" form and/or ISN National Grid On-boarding form.

3. If a safety violation is observed by a National Grid representative, the violation will be discussed with the contractor at the time of discovery.

4. Contractor employees enrolled in ISNetworld that are involved in any accident, incident or significant near-miss event, will be required to lead an investigation and root cause determination process. In addition, the contractor must implement corrective actions and establish measures to

prevent a recurrence through an incident investigation process and document the details within ISN.

5. Individual contractor personnel who habitually violate any safety rules should be identified, and the contractor should remove the individual(s) from the project. National Grid reserves the right to remove any contractor employee(s) who violate safety rules or procedures; pose a safety risk to themselves, other contractors; our employees; or the general public.

6. If a contractor is observed to be operating in a manner that creates an imminent danger to persons or property, it is the responsibility of all individuals observing the hazard to cease the hazardous operation impacted until the issue has been resolved to the satisfaction of National Grid, the Owners Representative or Safety Representative.

7. Contracts/POs shall require the contractor to immediately forward any citations, notices, or OSHA reportable cases per 29 CFR 1904.39 from a National Grid project, upon receipt to the appropriate project representative and/or ISN. The project representative shall distribute copies of the citation or notice to senior management, Safety, Procurement, and the Legal Department.

8. Willful and/or repeat violations of safety requirements by the contractor may be considered a breach of the contract and reason for contract termination.

9. If the contractor's overall safety performance is viewed as being unsatisfactory or noncompliant with contract provisions, and if the contractor is unwilling to demonstrate satisfactory program improvement, the result may be considered a breach of the contract and reason for contract termination.

10. National Grid project managers and/or construction supervisors shall document safety compliance by completing a "Contractor Performance Evaluation" for each project. This documents both positive and negative safety performance or behaviors and this feedback will be used in the decision process for awarding future contracts.

2.0 GENERAL SAFETY REQUIREMENTS

2.1 Introduction

1. All contractors are required, and expected to comply with all applicable requirements of the Occupational Safety and Health Administration (OSHA), and all other applicable federal, state and local laws, ordinances, regulations,

and other project and site-specific permits unless superseded by identified National Grid procedures.

2. This document represents policies and safety-related work methods unique to National Grid and they may be more stringent than OSHA regulations. Contractors must follow these requirements as well as their own rules or regulations that meet or exceed OSHA and other regulatory requirements.

3. National Grid will provide more detailed information and guidance regarding specific procedures prior to commencement of work.

2.2 Applicability

Applies to: All contractors, as needed

1. In any contracted task, where a safety observer is required, it is the responsibility of the contractor to provide that person and ensure that he/she is qualified to perform the role when needed.

2. A 4:1 pitch shall be maintained when using an extension ladder or the ladder shall be tied off and/or secured and 3 points of contact shall be maintained by the climber. If both hands are needed to perform work, then fall protection is required.

3. Although not preferred, if hard hats are worn backwards, the suspension adjuster must always face the rear. Class E hard hats are required for all electrical work.

4. 20KV EH overshoes are required when:
    - Workers on the ground are working within 50’ of the master ground connection point to earth.
    - Operating a wire trailer and pulling/tensioning machine.
    - Operating a winch truck or reel trailer with its payout in an energized area that may result in inadvertent contact.
    - Hand digging in close proximity to energized cables within the tolerance zone.
    - Making repairs in a trench to a faulted primary cable without de-energizing any adjacent energized primary cables within close proximity.
    - Using approved live line tools to move energized primary cables in a trench.
    - If removing underground cable rubber covering or arc suppression blankets from an energized cable.

- Working within minimum approach distance (MAD) of downed electrical wires or foot patrolling for such wires.
- If setting poles in proximity to energized lines or equipment and using truck controls from the ground.

5. National Grid expects that all cargo will be secured in accordance with U.S. DOT requirements.

    - As of January 2004, the Federal Motor Carrier Safety Administration (FMCSA) within the U.S. DOT published Cargo Securement Rules 393.100-136 Subpart I – Protection Against Shifting and Falling Cargo.

6. Chaps are required to be worn by ANY person using a chainsaw to make a cut on the ground or assisting in that cut and within striking distance. Other situations where cut off machines are used, chaps designed for the purpose of providing durable protection from abrasion, spatter and sparks from cutting ferrous metals shall be required; however, a hazard assessment should be completed to determine the need. Always use proper cutting techniques and push blades away from the body when using tools that may slip or inadvertently make contact with the leg. Never leave any equipment running while not in use.

7. All applicable contractors must meet the requirements of drug and alcohol testing in accordance with FMCSA DOT 49 CFR Part 40 and Pipeline and Hazardous Materials Safety Administration (PHMSA) DOT 49 CFR Part 199. National Grid shall monitor contractor compliance to the drug and alcohol regulatory requirements through Transportation Advisor or ISNetworld as needed.

8. Contractors who drive regularly in delivery of service for National Grid shall:

    a. Have a safe motor vehicle operations policy which must be communicated to their employees before they begin driving for company business. The contractor is expected to follow National Grid's *Safe Motor Vehicle Operations* policy to include the following:
        - Prior to moving any vehicle, the driver shall perform a "circle of safety" inspection. This is to confirm not any person, animal, equipment, or property will be injured or damaged when the vehicle is moved.

        - Drivers should back into or pull through a parking space so that when you re-enter the vehicle, the first move is forward.

- No driver shall use a hand-held mobile telephone while driving a vehicle for National Grid business.

- The driver shall eliminate or minimize sources of potential driving distractions to include, eating, smoking, reading, writing, grooming, use of any electronic devices, mirror or seat adjustment. These shall be done when the vehicle is not in motion.

b. Comply with all requirements of all federal, state and local regulations regarding safe motor vehicle operations.

c. Ensure that new and existing employees have a valid Driver's License in accordance with requirements of specific job duties and classification/type of the vehicle they are operating. Contractors must have an acceptable driving record. If their driving record is unacceptable, the driver shall not be permitted to operate a vehicle on behalf of National Grid.

d. Provide vehicles in safe operating condition, in accordance with federal state and local regulations. The vehicle should be equipped with proper safety equipment as appropriate for the vehicle type and its intended use.

e. Track and evaluate any vehicular accidents or incidents experienced by their employees. Corrective actions, such as driver coaching, corrective action driver training and medical/vision tests should be recommended and acted upon where appropriate. All accidents or near misses while performing work for National Grid shall be communicated to the National Grid project representative or designee and documented in the ISN system.

f. For more information, contact a National Grid representative for a copy of the National Grid Safety Policy *Safe Motor Vehicle Operations*

9. All contractors that require the use of heavy equipment shall ensure that competent, appropriately licensed, skilled and qualified personnel are in control of this equipment at all times. In addition, contractors shall ensure the following:

    - Equipment is inspected for safety and use at the beginning of the work period of shift. All failing or defective equipment and components shall be removed from service.

- Equipment is under the control of trained operators who are always aware of their location and the locations/presence of persons working near the equipment, its swing zones and blind spots.

- Operators shall ensure that no loose clothing or jewelry is present that could inadvertently get caught equipment controls.

- Equipment is kept free of debris, water, oil, grease, mud or anything that could create a slip/fall hazard inside the cab.

- Keep hands, feet, and clothing away from power-driven and moving parts.

- Equipment cab windows should be kept clean and free of mud, ice, snow and/or fog for maximum visibility.

- Never carry passengers on heavy equipment or any equipment unless it is equipped to do so.

- Ensure that stabilizers are extended prior to starting a task.

- Before making a swing, operators shall always look out the windows and mirrors for confirmation that the area is clear. If visual confirmation is impaired or the operator is unsure due to weather, lighting or other interferences, the operator shall cease operation until an independent spotter can check the swing area and confirm it is clear.

- All excavations shall have signs posted, demarcation and controlled to prevent unauthorized persons from entering and falling inadvertently into the excavation. Excavations shall only be opened under the supervision of a competent person for excavation.

- All pot holing/test holing and exploratory excavations shall utilize vacuum excavation whenever near known or the possibility of unknown hazards such as live electrical or gas conveyances. When using vacuum excavation in combination with air blowing/air knife tools, all persons in the immediate area shall be wearing safety glasses in addition to a full face shield.

- No one is to work under a suspended load.
- Never use a bucket to lift personnel.
- Ensure stabilizers are in the upright and stored position before moving equipment.
- Operators shall not leave heavy equipment running unless the following requirements are met:
    - Parking break is engaged and wheels are chocked (if applicable)
    - Surroundings create no hazard of unqualified personnel entering unattended equipment
    - Vehicles and equipment idling limited to that designated state and local environmental regulations (generally, 3 to 5 minutes maximum). See table below for additional information

Region	Vehicles	Idling Limit	Exemptions Include
New York	Diesel trucks	5 minutes	• Traffic conditions • Temperatures < 25°F and motionless for two hrs • Hybrid electric engine charging battery vehicles • To provide power to auxiliary sources
NYC	All Motor vehicles	3 minutes	• Emergency vehicles • Loading/unloading • Temperatures <40°F
New Hampshire	Diesel/ Gas vehicles	5 minutes >32°F 15 minutes -10°F to 32°F No Limit <-10°F and no nuisance created	• Traffic conditions • Emergency vehicles takeoff power for auxiliary uses • Vehicles being serviced or repaired • Operated solely to defrost windshield
Massachusetts	All Motor Vehicles	5 minutes	• Vehicles being serviced or repaired • Vehicles in operation for which associated power is needed • Delivery vehicle in which engine power is needed
Rhode Island	Diesel Motor Vehicles	5 minutes	• Traffic conditions • Operate defrosting, heating, or cooling equipment to ensure health and safety of the driver or passenger. • Temperatures between 0 & 32°F - 15 minutes per hour. If < 0°F idling as needed for heat • To provide power to auxiliary sources • Vehicles being serviced or repaired
Vermont	All Motor Vehicles	5 minutes within any 60-minute period	• Emergency/public safety vehicles while engaged in "official operations" • Idling necessary to operate safety equipment • Vehicles in operation for which associated power is needed • Vehicles being serviced or repaired

- All lifts that occur on National Grid properties, ROWs or near critical assets require formal lifting plans developed by the contractor and reviewed with the National Grid project representative. Some lifts will also require formal critical lifting plans and this may include PE or geotechnical assessments to ensure a stable lifting base for the crane or other apparatus.

10. All temporary, metal fencing installed or located under transmission lines shall be grounded and have signage according to National Grid grounding standards. Contact a National Grid representative for a copy of the Engineering Documents ST 03.05.001ST 03.06.001 and SP 08.00.001.

3.0 ADMINISTRATIVE SAFETY REQUIREMENTS

3.1 Worker Qualification Assurance

1. In order to meet National Grid safety requirements, the contractor must describe how workers, including subcontractors, are qualified. The contractor must supply information concerning the type of skills assessment performed, training programs and how they ensure that employees demonstrate competencies. National Grid reserves the right to review this information and request additional training requirements. All documents shall be uploaded and maintained in the ISN system. For work on process safety assets, the contractor shall ensure all workers and sub-contractors are trained and receive appropriate refresher training to maintain their appropriate level of certification and qualifications needed to perform work safely.

2. The contractor shall provide management personnel qualifications through resumes or other documents. National Grid may interview and/or approve management personnel if considered necessary.

3. For work on Process Safety assets (Gas Transmission, Generation, LNG, LNG Transportation and CNG), contractors shall provide a description of their experience in the business asset and specific tasks including similar projects, lists of licenses/certifications, and references from previous similar projects. Contractors shall be made knowledgeable of National Grid process safety requirements that are relevant to their specific work activities by the business hiring them.

3.2 Meetings

Applies to: All contractors; as needed

1. The pre-bid meeting is coordinated by National Grid Procurement to provide bidders with an opportunity to become acquainted with contractual requirements and specific safety issues concerning the project, including company-specific safety rules and known site conditions.
   a. For contractors working on Major Hazard Assets, contractual language including designation of site medical facilities, locker rooms, bathrooms, etc. should be discussed by the project team with the contractor at this time.

2. At this time, Procurement will notify the prospective bidders of the following:

   a. If they are required to submit a project safety plan (HASP) prior to the pre-construction meeting

   b. The cost of specific safety equipment, practices and personal protective equipment shall be factored into their bid/proposal.

3.3 Project Health & Safety Plan (HASP)

Applies to: Contractors performing high or medium risk work

1. Contractors who perform high or medium risk-ranked services shall submit a project-specific HASP plan prior to the start of the project and/or at pre-construction meeting. Your National Grid project representative will provide you with specific requirements of the format and/or forms to be completed.

2. For typical work that can be completed in 1-2 days, a documented job brief is sufficient to address the hazards and proper mitigations. Ask your National Grid project representative for details.

3. The *Short Version* plan shall be used for work that generally last 3-5 days. This plan shall include a completed safety hazards checklist and the Emergency Contact Sheet. Proper mitigation shall be documented in the safety hazards checklist for any applicable hazards. For examples of the Safety Hazards Checklist and the Emergency Contact Sheet, a National Grid representative can provide related forms under the *Contractor Safety* website in the Infonet.

4. The *Long Version* plan shall be used for work that will take at least 6 days or complicated projects. At a minimum, the *Long Version* safety plan shall include the following elements:

a. Roles and Responsibilities

b. Scope of Work

c. For contractors working on Major Hazard Assets - List of all equipment contractor is expected to use in work activities and indication that it meets regulatory and National Grid requirements

d. For contractors working on Major Hazard Assets - List of contractor materials to be brought onto work site for review and approval by National Grid

e. Task and hazard identification and risk assessment of the hazards

f. Hazard mitigation/control procedures and work methods

g. Incident investigation and reporting

h. Compliance and monitoring

The HASP shall be submitted to the National Grid project representative for review and approval before work commences. The National Grid project representative shall ensure the HASP meets National Grid criteria and includes all aspects of the project prior to a review by Safety. For an example of a Long Version HASP, a National Grid representative can provide related policies and procedures under the *Contractor Safety* website in the Infonet.

For contractors performing bulk commodity transportation activities, a risk assessment including the potential consequences, frequency and safeguards to be used shall be performed and included in the HASP. If a preexisting National Grid requirement is in place for managing bulk commodity transportation activities, one shall follow those requirements, with no additional risk assessment being required.

Every contracted and subcontracted employee performing work on the project shall review the HASP to ensure steps in the plan are adhered to mitigate hazards during the pre-job orientation. These mitigation steps shall be incorporated into daily job briefs.

In addition, all workers shall sign an attendance sheet during the pre-job orientation that they have reviewed the plan, will adhere to the mitigation steps and they fully understand the plan. This document will be kept at the job site and available for review as needed and if requested by any National Grid representative, or any other parties.

A. Roles and Responsibilities

The HASP shall identify who is providing project oversight and how they are qualified. For example, if the work requires excavation, there must be someone on-site who is qualified as an excavation competent person.

For multi-employer work-sites, the general contractor is responsible for all their employees and subcontractors. The safety plan shall clearly state this responsibility.

If requested to do so, Contractors shall designate a competent person to participate in or conduct a process hazard analysis (PHA) regarding a portion or the entirety of the project. National Grid will not be responsible for training the contractor on the PHA methodology.

B. Scope of Work

The Contractor shall clearly and briefly state the scope of work as provided by National Grid. The plan must specifically address the project or services requested by National Grid.

C. Task and Hazard Identification and Risk Assessment

The contractor shall perform a risk assessment by identifying all significant tasks, the anticipated hazards and hazard mitigation procedures.

The contractor's cost to provide adequate safety measures and to comply with National Grid requirements must be considered and budgeted in the bid/proposal.

D. Hazard Mitigation Procedures and Work Methods

For each hazard, the contractor shall specify measures that will be taken to eliminate, control or mitigate these hazards.

A table below is an example of a method to simply and clearly organize and present the task, hazard, and mitigation steps:

Location: Substation Yard		
Task	**Hazard**	**Mitigation Steps**
Material Handling	Contact with overhead energized lines/equipment	Off load in the clear and have a safety observer present

E. Incident Investigation and Reporting

All work related incidents involving injury or illness to employees, the public or property damage (including contractor vehicle accidents) shall be reported to the National Grid project representative and documented in the ISN system.

F. Compliance Monitoring

To ensure that both contractor employees and subcontractors will achieve safety compliance, jobs with over 100 workers at any point in time or in excess of $1 million will require a full time safety professional hired by the contractor. This safety professional must be qualified, competent and be on site anytime work is performed. Qualifications of this safety representative must be acceptable to National Grid prior to hire by the contractor and may be documented in the ISN system.

G. Environmental Compliance

Unless otherwise specified and based on the scope of work, any potential environmental risks shall be determined and addressed by the contractor following all applicable National Grid procedures. For more information, contact a National Grid representative regarding Environmental Procedure No.6 *Contracted Services* and Environmental Procedure No.25 Appendix A, *Environmental Screening Checklist.*

3.4 Contractor Orientation/Pre-Construction Meeting

Applies to: All contractors, as needed

1. A National Grid project representative, construction supervisor, or other designated National Grid representative may hold a contractor orientation or pre-construction meeting prior to the start of a project/service. Other attendees may include; the Safety department, Environmental representatives, as well as contractor management as needed.

2. It is intended to serve as a method to provide the contractor with the tools necessary to educate their employees and subcontractors on National Grid's procedures and requirements. The session is not intended to train the contractor management, their employees or subcontractors.

3. All contractors are required to attend a National Grid orientation program specific to the type of work they will be performing. Contractor management representation shall also be present meeting and all documentation of attendance shall be kept at the job site and available to any National Grid representative. For visitors and contractors working on Major Hazard Assets, site orientation shall at a minimum include the following:

   - General site hazards
   - Specific hazards involved in each task the employee may perform
   - Safety policies and work rules, including Process Safety policies
   - Location of emergency equipment like fire extinguishers, eyewash stations, and first-aid supplies
   - Smoking regulations and designated smoking areas if applicable
   - Steps to take following an accident or injury
   - Proper reporting of emergencies, accidents, and near misses
   - Selection, use, and care of personal protective equipment
   - Emergency evacuation procedures, routes, and security systems
   - Safe housekeeping rules
   - Safe use of tools and equipment
   - Hazardous materials in use and location of safety data sheets

   Site access shall not be granted to contract employees working on process safety assets until orientation is conducted.

4. The contractor's Project Health & Safety Plan will be discussed at this meeting including a final review of the safety hazards checklist to ensure proper hazard identification and mitigation plan has been implemented.

5. These hazard mitigation measures shall be reviewed and work shall not commence until these hazards have been adequately addressed. The National Grid project representative will discuss the methods by which compliance will be achieved to National Grid safety requirements with the contractor.

6. An Emergency Call List shall be exchanged with the National Grid project representative for high or medium risk projects or as applicable. This list must contain 24-hour contact information for key contractor and project

personnel, including the project representative and Safety representatives. This list should be distributed to all concerned, as determined by the project team, prior to the start of work. For contractors working on process safety assets who have an emergency response role, the emergency response plan shall be updated to clarify the contractor's role in the event of an emergency on site.

7. For routine maintenance services, a review of associated safety issues and specific facility issues, restrictions or practices, such as evacuation procedures, shall be discussed with the contractor upon initial hiring. Any changes in the facility that may affect the safety of contractor or National Grid employees or third parties must be communicated immediately.

8. Upon completion of the contractor orientation or preconstruction meeting, the contractor management official shall certify in writing that: (1) the contractor has been informed of National Grid safety requirements; (2) that employees and subcontractors have the appropriate qualifications to perform the work, and; (3) the contractor agrees to comply with all applicable safety requirements. The certification shall be completed annually in ISNetworld as an acknowledgement of the above requirements.

3.5 Job Safety Briefs

Applies to: All contractors; as needed

1. Job safety briefs shall be documented in writing. Written job safety briefs, permits, and/or plans shall be available at the job site for inspection and retained for 30 days after the job is completed.

2. National Grid reserves the right to perform a safety stand-down with any contractor for purposes including, but not limited to: recent injuries, incidents or near misses; identified hazards at job site or equivalent, and for other reasons to communicate with the contractor crew.

3. Each crew shall conduct these job safety briefs prior to each day's work at the job location, when there are changes to the day's work order or plan, and when a new worker or company joins the crew additional briefs are required.

4. Each worker must have the opportunity to voice concern. The work cannot begin until each worker signs off on the job safety brief stating that they have discussed the work, raised any questions, and agree with the plan.

5. Visitors to the work site shall be asked to read and sign the job brief acknowledging they understand contents. Contractors shall review the job brief and discuss the elements of the hazards and mitigation steps with each visitor prior to entering the job site. If a visitor refuses to sign, the general foreman will note it on the brief and will not allow the visitor to enter.

6. SITE SIGNAGE: An assessment of the work site should be conducted by the National Grid project representative overseeing the work with the contractor to determine if site signage will be needed to protect site visitors, the public or any other persons entering the work site. If Site Signage is required at the site, the signage shall be posted at the main entrance to the work site. The sign shall direct all visitors to check in with the Person in Charge (PIC), be escorted to the designated safe area and advised of all work currently in progress. The visitor is expected to comply with all related safety requirements and sign off on the Job Brief before entering the work site.

3.6 Safety Meetings

1. In addition to job safety briefs, the contractor shall have regular safety meetings with their employees and subcontractors. Contractors performing high or medium risk work shall have weekly safety meetings, while low risk contractors, at a minimum, shall have safety meetings monthly and attendance must be documented.

2. The safety meetings shall include the following topics: statistics, incidents, near misses, updates on old business and new business raised. It will include the round table discussion by the workers and the action items discussed. Meeting minutes must be documented and shall include specific action items, their due dates, persons responsible and a completion date. This documentation shall be available for inspection during the project period, and for 30 days after the project is completed. For contractors working on Process Safety assets, meeting minutes from contractor shall be shared and discussed with National Grid site management.

3. Routine Safety meetings/calls between National Grid and the Contractor shall be coordinated on a regular basis. Safety meetings may include but are not limited to SUSA/Compliance Assessments, Safety Briefs, Safety Day discussions and regularly scheduled calls to promote safety and best safety practices. Contractors working on Process Safety assets for more than 6 months shall schedule leadership visits to discuss process safety topics.

4. Contractors working on process safety assets for greater than three (3) months, or as needed, shall hold project planning meetings to discuss short term and long term work items. Project planning meetings shall include safety performance monitoring against project targets and should include a National Grid SHE representative for jobs on Major Hazard Assets in addition to a National Grid site representative.

3.7 Incident Investigation

Applies to: All contractors (regardless of risk ranking)

1. All contractors are required to report any work-related incidents involving injury or illness to employees, the public or property damage to the National Grid project representative. The first priority is to ensure that anyone injured receives medical treatment. Examples of incidents may include, but is not limited to: injury, property damage, adverse public impact, near miss, a hazardous condition and road traffic collisions (RTC).

2. Contractors will then be responsible to perform an incident investigation immediately following the incident and document root cause/corrective actions in the ISN system and to National Grid.

Incident Response Steps

In the event of an incident, the contractor shall provide details of the incident to National Grid that follows the steps below.

1. Contractor supervisor collects basic information about the incident from the employee or witnesses:
    - What happened?
    - Who and how many people were injured?
    - What treatment was administered?
    - What was the nature and seriousness of the injury?
    - Where did the incident occur?
    - When did the incident occur (date, time of day)?
    - Were there any witnesses?

2. Contractor supervisor immediately calls the project representative or other National Grid point of contact. All incidents shall be entered into the Incident Management System (IMS) as soon as possible by the National Grid project representative or National Grid designee. When dialing 1-866-322-5594, the caller will be prompted to select option 2 for anything other than an employee injury.

3. Contractor shall conduct an investigation within 24 hours of the incident that will identify contributing factors and root cause analysis relating to the incident and the corrective actions that will be taken to prevent future occurrence. This information will be documented in the ISN system.

4. Contractor vehicle accidents occurring during the performance of work will also be investigated and reported to National Grid.

Other Reporting

National Grid may periodically request the following annualized data for all work activities limited to National Grid operations:

- Lost Time Incident (LTI) rate for workers
- Restricted Work rate
- OSHA Recordable Incident (ORI) rate

4.0 TECHNICAL SAFETY REQUIREMENTS

4.1 Personal Protective Equipment (PPE) Requirements – General

Applies to: All contractors (regardless of risk ranking)

1. Basic PPE attire at construction sites and other similar work zones include, at a minimum: hard hat, safety shoes and safety glasses with side shields, and ANSI certified Class 2 or Class 3 Hi-visibility (hi-vis) clothing / vests. Contractors shall refer to the US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD) to determine the correct class of hi-vis clothing / vests or wear the higher class. The contractor and their employees, including subcontractors are expected to follow the same rules and protocols as National Grid personnel.

2. The contractor shall ensure that their employees and subcontractors use protective safety toe footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards. In addition, during inclement weather conditions or adverse events, the addition of anti-slip footwear or outer foot wear may be appropriate. Electrical Hazard (EH) rated footwear is required at all times. EH rated overshoes are required when working on or near (within Minimum Approach Distance MAD) around electrical equipment over 50 volts, when working in electric substations, excavating in and around electrical duct banks or in an area of expected downed wires per OSHA 1910.136 and ASTM standard F-2413-05.

3. Guidance for additional PPE is referenced in other sections of this document.

4.2 Flame Resistant Clothing Requirements

Applies to: All contractors; as needed

1. Flame Resistant (FR) clothing shall be worn when personnel work on energized equipment/lines or when distance and position will expose the worker to electric arc or flame hazards. FR clothing shall also be worn during live gas work as outlined in the gas PPE Matrix (Gas Policy SHE01001) and within LNG operations locations as required. FR clothing also includes arc- resistant rain gear. This additional ensemble may also be required as part of the job for contractor personnel. Contact a National Grid representative for a copy or to view the PPE matrix.

2. FR clothing shall be worn as the outermost layer of clothing and when workers measure voltages, test or ground electrical equipment/lines.

3. FR clothing shall be worn when work requires the use of rubber protective equipment or the use of insulated live line tools.

4. FR clothing shall be worn when workers control/operate electrical equipment over 50 volts at the device location or are within 10 feet of equipment which is being physically operated/ worked on by another worker.

5. Visitors are not required to wear FR clothing in substations or production plants unless they are engaged in electrical work. The National Grid project representative will be able to determine whether FR clothing will be required based on the specific contractor task. Note: Gas contractor FR requirements may differ slightly. Please refer to National Grid PPE Matrix for Gas operations within Gas Policy SHE01001 as needed.

6. FR clothing shall meet a minimum arc rating of 8 cal/cm^2 (HRC 2) for energized electrical equipment unless otherwise specified based on increased potential exposure as indicated in the Arc Flash Tables in H-807 *Arc Flash Analysis and Mitigation* program.

7. Additional FR clothing protection is required when performing work on the distribution system in NY North and New England (legacy National Grid) stations. Contact a National Grid representative for a copy. (NG Employees: If the link does not work, copy and paste the url into your internet browser)
http://us3infonet/sites/eng_delivery_svcs/Pages/ArcFlashMitigation.aspx#2015

8. Contractors who may be involved with tasks requiring the implementation of this program shall be informed by National Grid. Contractors will be required to follow all aspects of OSHA and any other applicable regulation as it applies to the tasks they perform.

4.3 Rubber Gloves and Sleeves

1. Rubber glove use is required for work on all electrical apparatus at 50 Volts or greater. Rubber gloves shall be donned before the worker leaves the ground and shall be worn until the worker returns to the ground (commonly referred to as “ground to ground”, “cradle to cradle”)
2. Class 0 gloves are required for exposures up to 1000 Volts.
3. Class 2 gloves are required for voltages between 1000-15,000 Volts.
4. Rubber sleeves must be worn where work is conducted within the MAD of primary electrical apparatus that is not tested, de-energized and grounded.
5. For voltages 23 kV and above, workers can use specialized equipment or work practices as long as these workers have been appropriately trained and qualified. National Grid may request training records from the contractor.
6. Rubber glove exceptions for specific jobs (other than those listed in this section) are permitted only with the dated, written approval of a Division Director.
7. It is the contractor’s responsibility to wear class 2 rubber gloves when grounding trucks or equipment due to a possible difference in potential.

Exceptions

No rubber gloves are required:

- When working in a properly established equi-potential zone.
- When the operator remains at the same potential as the equipment by being off the ground and on the equipment.
- When a qualified worker performs transmission “hot stick” work on lines 69 kV or greater and no other energized wires are on the pole or structure below the worker.
- When work is performed on transmission structures carrying only energized conductors (115kV and above) and the Live

Line Techniques are not being employed. While performing these activities, the worker shall utilize conductive clothing such as conductive gloves, boots, leg straps and/or any other applicable conductive clothing.

- When climbing a steel structure to perform structural reinforcements while maintaining MAD from energized conductors or apparatus.

- When climbing a steel structure to access an area that has been properly grounded.

4.4 Isolation of Energized Apparatus

1. **Non-Reclosing Criteria and Live-Line Maintenance and Construction:** The appropriate interrupting devices (breakers, reclosers, circuit switches, etc.) will be placed on NON-RECLOSING in accordance with National Grid tagging procedures.

2. **Tagging Out Lines or Apparatus**

   The National Grid Construction Supervisor or designee shall coordinate all switching and tagging in accordance with the most current EOP on Clearance and Control.

   Upon receipt of Clearance, the project representative will present the Contractor's Person in Charge with the "Contractor Permission to Work Form" (Form NG0060), which states the specific apparatus that has been de-energized and that certain device(s) are tagged in the Protective Position and will remain so until the Contractor's Person in Charge informs the construction supervisor or designee of the completion of the work utilizing the "Contractor Completion of Work" section of the "Contractor Permission to Work" form.

   The original transferred copy needs to be returned after the completion of work section is filled out & signed. In some cases the tailboard is outside & is susceptible to elements & damage; a copy shall be utilized in the field instead of the original.

   No work will be performed until the "Contractor Permission to Work Form" is received from the construction supervisor stating that the equipment has been de-energized and a clearance to work has been given. The Contractors Permission to Work Form and a written grounding plan shall be attached to the crews Job Briefing and be kept at the work location.

After the “clearance” is received from the National Grid Construction Supervisor, the various substation conductor bus and equipment to be worked will be tested and “Grounds” installed. Grounds shall be rated for the fault current of the line/equipment being grounded. (Note: Rubber Gloves and FR clothing are required when installing and removing grounds). The contractors “Person in Charge” (Construction Supervisor/General Foreman) shall be responsible for determining the location and number of grounds.

Vehicles and equipment may utilize a single 4/0 cu for grounding inside the substation. Employees working on de-energized lines and equipment shall always work between grounds.

Prior to the application of any personal protective grounds, the circuit to be worked on must be tested for the presence of voltage using an approved potential detector. The worker must verify the detector is in operating order prior to and after testing for voltage. MAD must be maintained during the testing, and appropriate PPE shall be worn. Testing for voltage shall be done at the point where the grounding devices are to be attached. All phases of the circuit to be worked on shall be tested at each location that grounds are installed.

When an Air Gap is required to create a work zone, the component (a tap) shall be removed in whole from the system. When National Grid switches out lines or apparatus, any grounds that may be installed shall only be considered a visual reference, and shall not be considered a means to protect the Contractor’s employees. The Contractor is responsible to install their personal grounds, in accordance with all OSHA, Federal, State and local safety procedures. National Grid may provide guidance on the minimum size of the grounds to be used based on circuit available fault current. Refer to *Electric Operating Procedure D002,* for applicable grounding size. Ground rods shall be fully driven into the earth away from the workers and work area. T-Bar ground rods are not to be used on National Grid property.

The National Grid Construction Supervisor shall review the contractor’s plan for the quantity and locations of grounds, ensuring that the work the contractor is performing is between grounds, covering all potential sources. All three phases shall be grounded. (In stations, from each phase to the station ground grid). Grounds shall be placed as close to the work area as reasonably possible, between the work area and all potential sources of inadvertent energization. A copy of the grounding plan shall be kept with the job safety brief.

It is the contractor's responsibility to account for all their grounds. The contractor shall provide, maintain, and enforce a ground tracking program suitable to National Grid. In the instance of a zone expanding/collapsing, remaining grounds shall be listed on the Contractor Permission to Work Form and verbally communicated to the construction supervisor.

3. Grounding Mobile Equipment

When mobile equipment requires grounding, it shall be solidly grounded by means of appropriate sized copper cable while using rubber gloves. The cable shall be fastened to a securely attached clean metallic portion of the equipment, or shall be fastened to a grounding stud provided for the purpose at one end and an adequate ground at the other end.

Non insulated booms such as digger derricks that have the possibility of encroaching the MAD shall be grounded and barricaded. The ground is to trip the circuit and the barricade is to protect anyone who may become in contact with the truck during this energization.

4. Minimum Approach Distance (MAD)

Refer to OSHA 29 CFR 1910.269 for more information and details regarding qualified and unqualified workers.

4.5 Appointment of a Safety Observer

A safety observer shall be required if an employee (operator) determines that it is difficult to accurately determine the distance between the equipment (minimum approach distance) and energized parts. The Safety Observer shall never be a substitute for minimum approach distance (MAD), personal protective equipment (PPE), insulate/isolate techniques or work area identification as a form of employee protection.

The person in charge of the work (contractor or National Grid), shall appoint a qualified employee or employees to perform the task of a safety observer. The personal in charge shall:

1. Ensure a documented job brief is completed and includes the name of the safety observer, additional subjects such as the location of gas lines, energized equipment, in or adjacent to the work area and the limits of any de-energized work area

2. Discuss the scope of work and communication techniques used to warn or notify the equipment operator of hazardous conditions.
3. Communicate any changes to work and job completion to the safety observer
4. Select another safety observer if there is a need for the existing observer to have break in service.

The safety observer is a qualified employee who has been appointed by the person in charge based on the hazard assessment and the job brief. The safety observer shall:

1. Observe the worker performing the task/activity until all hazards have been eliminated or the task/activity has been completed
2. Have shown proficiency in the task/activity being observed and have a full understanding of the job and the hazards associated with the task/activity.
3. Remain continuously focused on the task/activity being performed and not perform or assist any other job activities while observing the worker performing the task/activity
4. Notify the person in charge if there is a need to have a break in service. Work must stop until a new observer is appointed or the safety observer returns.

A safety observer shall also be required when a critical lift is being performed. A critical lift plan shall be required during the following circumstances:

1. An object is lifted over energized apparatuses or assets where a failure of the lifting equipment or rigging could result in a significant safety hazard or cause significant disruption in service to National Grid customers.
2. The crane or other lifting apparatus is anticipated to be operated above 80% of its rated capacity for the specific load chart for the lift.
3. A man basket (pinned or suspended) is to be utilized. All fall protection rules shall be followed when in a man basket.
4. Two cranes will be used in concert to lift a single object
5. Internal substation construction involving all power transformers, control houses, capacitor banks and transmission breakers.
6. Lifts in LNG or Gas plants where a hazard assessment or job brief identifies a significant risk.
7. The lifted load will be less than twice the minimum approach distance (MAD) of the nearest energized part. Until a qualified electrical worker confirms the MAD, loads and equipment shall maintain a 20 foot

distance. Once nominal voltage is established, the MAD will be according to OSHA tables.

8. The lifted load is hoisted over buildings or the general public.

4.6 Work Zone Traffic Control

1. If work activity is on or near a road, the contractor and their subcontractors shall comply with all applicable parts of the most current US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), state, local Work Zone Traffic Control requirements and the National Grid Work Zone Traffic Control Manual. Please contact your National Grid representative for a copy of the manual found in the Safety Homepage on the Infonet.

2. If pedestrian traffic is disrupted, pedestrians should be provided with a path that is reasonably safe, convenient and accessible. Pedestrians should not be led into conflicts with work site vehicles, equipment or operations.

3. If working in areas covered by state permits issued to National Grid, contractors shall comply with the provisions (work practices and notifications) of the permit language. These permits must be available on the job site upon request.

4.7 Qualified Gas Worker

Applies to gas projects/activities

1. Gas contractor employees will be operator qualified as required and defined according to the Code of Federal Regulations, Transportation, 49, Subpart 192.801 through 192.809.

2. Until these qualified employees have demonstrated proficiency in the work practices involved, they are considered employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a "qualified employee", the employee also must have demonstrated an ability to perform work safely at his or her level of training.

3. National Grid requires contractors with gas qualified employees to provide documentation on how they qualify their workers.

4. Additionally any qualifications' of contractor personnel shall be in full accordance with the Company's Operator Qualification written plan, (OQ Plan) Refer to the most current list of covered tasks in accordance with

National Grids' Operator Qualification Program and the Northeast Gas Association, (NGA).

4.8 Qualified Electrical Worker

Applies to electrical projects/activities

1. According to 1910.269(a)(2)(ii), a qualified electrical employee must be trained and competent in the following prior to starting work:

    - The skills and techniques necessary to distinguish exposed live parts of electrical equipment
    - The skills and techniques necessary to determine the nominal voltage of exposed live parts
    - The MAD specified in 1910.269 corresponding to the voltages to which the qualified employee will be exposed
    - The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment

2. Until these qualified employees have demonstrated proficiency in the work practices involved, they are considered employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a "qualified employee", the employee also must have demonstrated an ability to perform work safely at his or her level of training.

3. National Grid requires contractors with electrically qualified employees to provide documentation on how they qualify their workers.

4.9 Qualifying Non-Electrical Worker

Applies to: All qualifying non-electrical contractors working near energized lines and equipment; as needed

1. The contractor shall provide orientation for non-electrical workers entering and working within restricted areas such as a substation and those working near energized lines and equipment.

2. The information provided to these workers must meet the requirements of paragraph 1910.269(a)(2)(ii). However, the orientation and training may not be as comprehensive as the qualified electrical worker would be.

They must know:

- What is safe and not safe to touch in the specific areas they will be entering;
- The maximum voltage of the area;
- The MAD for the maximum voltage within the area;
- Proper use of personal protective equipment and in the work practices necessary for performing their specific work assignments within the area.

3. Until these workers have demonstrated proficiency in the work practices involved, they are considered to be employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times.

4.10 Asbestos, Lead and other Hazardous Materials

1. Asbestos and lead materials associated with electrical and gas equipment includes, but is not limited to: cement-type cable covering, cable wrap, wire coatings, coal tar pipe wrap, and transite panels and conduits. Asbestos and lead materials may also be present in building materials including but not limited to: paint, mastics, caulking, insulation and roofing materials.

2. Where asbestos and other hazardous material is present and likely to be disturbed, the National Grid project representative and contractor shall coordinate how the asbestos, lead or other hazardous materials will be managed and shall consult National Grid's Safety & Environmental department as appropriate.

3. Removal of this material must be done by individuals specifically trained and qualified to handle asbestos and lead. Refer to National Grid Safety Procedures, F-615, F-617 and F-619 for guidance on asbestos and lead handling and removals. For more information, contact a National Grid representative for a copy of these procedures.

Note: Contractors who will encounter asbestos or lead as part of their work shall reference in their safety plan how they will address this hazard.

4.11 Lift Plans for Work Near Energized Electrical Equipment

1. All work involving hoists, cranes or other lifting equipment **within 10' of energized electrical equipment** must have a detailed lift plan/procedure.

2. As a minimum Lift Plans shall include the following:

    a. Designated Operator and Signal person

    b. Detailed travel and flight path that ensures the boom and material being raised is controlled 100% of the time and will maintain the appropriate clearance

    c. Designated cover up and isolation to ensure employee and equipment safety in the event of an unplanned action or failure

    d. Emergency action plan with detailed instructions to respond to unplanned/uncontrolled event during the lift or positioning of the lifting equipment.

    e. Documented load weight and equipment lifting limits

    f. Rigging equipment and methods that will be used during the lifting. Sign off/approval from the management official responsible for the work

4.12 Fall Protection

1. Fall protection or fall restriction devices shall be used when working at heights over 4 feet with the exception of ladder use, when three points of contact are maintained. Examples of fall protection include appropriate guardrail systems, completed/approved scaffolding and personal fall arrest. For more information, see the National Grid Safety Procedure H806 *Fall Protection*.

2. All fall protection shall be inspected before use each day to determine if equipment is in good working condition. Defective equipment shall not be used and shall be removed from service.

3. A worker may enter or exit an aerial lift (at heights above four (4) feet) provided that fall protection such as guardrails or a fall arrest system is used while the worker moves between the lift and the working surface. Before any such transfer is made, the employee shall be properly tied-off to an adequate support, the pole or structure prior to and in the direction of the transfer.

Exceptions to fall protection shall be in accordance with Federal & State requirements.

4.13 Herbicide Application

1. Vegetation spraying shall be conducted unescorted only by contractor employees who have been designated as a Qualified Electrical Worker, where applicable.

2. The spray applicator shall have ID cards issued by Security with background checks available from the contractor.

3. National Grid management shall require a schedule of the spraying in their areas.

4. Once spraying begins, the contractor must contact local management on a daily basis to inform them of progress or changes to the schedule.

5. The contractor shall post all stations with dated signs indicating when the station was sprayed. These signs should not inhibit access to the station.

6. The contractor shall ensure that any stored materials and equipment do not get covered with “overspray”. Overspray represents a substantial safety hazard and cannot be allowed.

7. When applying herbicides, contractor employees shall wear appropriate PPE in accordance with product labels.

5.0 UNDERGROUND OPERATIONS WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to underground operations work.

5.1 PPE Requirements

All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

5.2 Enclosed Space Assessment, Ventilation, Entry and Rescue

Refer to the National Grid EOP-UG006 *Underground Inspection and Maintenance* and National Grid Safety Procedure I-902 *Enclosed Space Procedure* for more information regarding enclosed space requirements.

1. Contractors are required to follow all procedures in this document in regards to enclosed spaces (manholes, sidewalk vaults, etc.), including assessment, ventilation, entry and rescue.

2. Each enclosed space shall be tested prior to removing manhole lids and entry. Atmospheric testing shall be continuous for the duration of the entry using a calibrated, industry approved atmospheric tester.

3. When performing hot lead work or when indicated by atmospheric monitoring, engineering controls such as forced mechanical ventilation shall be used when working in National Grid manholes at all times.

4. All contractors who are qualified electrical workers will treat these spaces as “enclosed spaces” and follow non-entry rescue provisions.

5. In some situations a boom is allowed for retraction from an enclosed space. Refer to Safety Procedure I-902 for more information.

6. Steel cable or wire rope for non-entry rescue is prohibited.

5.3 Equipment Safety Inspection

1. Inspect underground facilities (manholes, vaults, hand holes, splice boxes, junction boxes, pad mount transformers, switchgear and submersible equipment, etc.) each time a crew performs work at one of these facilities. All separable components in these facilities shall be inspected by infrared instrumentation. A National Grid representative can provide details from the National Grid EOP-UG001 *Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment* for more information.

2. The infrared (IR) thermometer or camera shall, at a minimum, have a range of -25°F to 1400°F with a plus or minus 1% accuracy. For more details and current operating procedures, contact a National Grid representative regarding EOP UG001.

3. The format for data collected shall follow the National Grid EOP UG006 *Underground Inspection and Maintenance* requirements. Please contact a National Grid representative for more information.

4. "Touch Potential" testing of metal street lighting poles is required as a part of any maintenance work. For more information, a National Grid representative can provide a copy of the National Grid EOP G016 *Elevated Equipment Voltage Testing* and National Grid Work Methods Bulletin #04-26 *Touch Potential Testing of Metal Street Lighting Poles.*

5. Touch Potential testing results shall be recorded on the job safety brief and the manhole inspection form which shall be given to the National Grid Construction Supervisor or designee.

6. All contractors working for National Grid shall use materials and equipment in accordance with the manufacturing guidelines. It is the contractors' responsibility to understand the manufacturers' limits and prescribed use of their tools and equipment before each use.

7. Workers shall test and verify that the underground cable is de-energized and guillotine the cable if needed from outside the hole. Rubber gloves shall be worn at all times while performing this task.

6.0 OVERHEAD LINE WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to overhead line work.

6.1 PPE Requirements

All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0. In addition, contractors will follow ground-to-ground and cradle-to-cradle use of rubber gloves while performing work on energized overhead lines. Any foreign wire, including those on a pole or structure constitutes an energized source and requires the use of rubber gloves (ex: Cable TV, telephone, fire alarm wire, etc.).

6.2 Fall Protection

All contractors who climb structures such as wood poles or transmission towers shall utilize enhanced fall protection equipment (fall arrest devices) and techniques (ex: *Buckingham Buck-Squeeze, Miller StopFall* or *Jelco Pole Choker*). When working on wooden and steel structures, a full body harness and lanyard shall provide 100% fall protection at all times (100% tie off, Shepperd's Hook, etc.). Climbers shall never be allowed to drop or slide down a pole or structure more than two feet.

Exceptions to fall protection shall be in accordance with Federal & State requirements.

6.3 Pole/Structure Inspection

Contractor shall ascertain the structural integrity of the pole or other structure prior to installation, removal, repair or modification of the equipment on the structure.

1. Prior to climbing any pole, an inspection and test of the condition of any pole being climbed shall be performed. The weight of the employee, the equipment being installed and other working stresses (such as the removal or re-tensioning of conductors) can lead to the failure of a defective pole or one that is not designed to handle the additional stresses.

2. If the pole is found to be unsafe to climb or to work from, it must be secured so that it does not fail while an employee is on it. The pole can be secured by a line truck boom, by ropes or guys, or by lashing a new pole alongside it. [29 CFR 1910.269(q)] If measures cannot secure the pole, the contractor must cease operations and notify the National Grid Construction Supervisor or designee

6.4 Electrical Work Methods

1. Jumpers of any type shall not be used to keep transformers, risers or transformer banks energized for the purpose of changing potted porcelain cutouts. A National Grid representative can provide information to the National Grid Electric Operation Procedure (EOP) D001 *Cutouts – Open Type* for more information.

2. Potted porcelain cutouts must be changed out when work is being completed on a pole even if this is not planned in the scope of the work provided.

3. Properly rated and inspected slings, chains or tongs shall be utilized to move poles and equipment. Winch lines must not be wrapped around poles or looped around transformer ears to lift without a sling or chain.

6.5 Transmission Overhead Lines

1. For work on transmission circuits, red tape shall be placed around any energized pole, pole structure, or tower adjacent to the de-energized line.

2. When one circuit of a double circuit pole or tower line is de-energized for work, a red or orange flag shall be placed on the energized side of the pole or tower nine feet below the lowest energized conductor. In addition, a red or orange flag shall be placed on the lower cage on the side toward the energized circuit at each arm level as employees work on them or pass them.

3. All contractors using ATV's, UTV's or RTV's for transmission or forestry work, are required to follow all local OHRV requirements for PPE and driving safety. Training shall include classroom and in-field instruction as well as a formal driving assessment on an annual basis for each type of vehicle planned for use: i.e. UTV specific training for UTV's and ATV specific training for ATV use. All contractor employees must be fully trained and qualified before use Proof of individual operator training certifications for each operator shall be available at all times. US DOT rated helmets and safety glasses/goggles are required for any vehicle that does not have a seatbelt and a roll cage. In equipment with a roll cage and seatbelt, operators can utilize a hard hat and chin strap.

4. At the end of each day, unless other arrangements have been made for an extended outage, grounds will be removed and the National Grid project representative will be notified that all personnel are "clear" of the conductor bus work and equipment.

5. Wherever transmission line workers "touch" wires, a personal ground shall be installed at the work area to establish an equipotential zone, unless workers are engaged in live-line barehand work (29 CFR 1926.964)

7.0 SUBSTATIONS

In addition to the other requirements referenced in this document, this section covers requirements that are specific to substations work.

For additional information, a National Grid representative can provide a copy of the National Grid Substation Maintenance Procedure SMP 499.01.2 *Protective Grounding Procedure* under the Substation Work Methods Infonet page for specifics regarding substation grounding practices.

Grounding plans for substation, major distribution and transmission projects will be submitted to the National Grid construction supervisor a minimum of 1 week prior to construction for review. This plan will show the steps, work area limits and ground cable size and amount. Once reviewed with the National Grid and prior to

starting the job, the plan will be reviewed by the contractors with all employees and subcontractors on the project.

The use of an “Equipotential” step/platform or a conductive mat is required for access and egress from the following:

a. Crane or any other equipment, including aerial lift equipment, that is connected to the substation ground grid and/or bonded to transmission line conductors when working outside of the station fence
b. In the rights-of-way
c. In areas inside the substation where there is no ground grid present.

When work is performed inside the substation and there is a ground grid available, the “Equipotential” step/platform or conductive mat is not necessary.

All vehicles shall be grounded and barricaded per OSHA standards and the National Grid Electric Operating Procedure G026 *Mechanized Equipment Grounding*.

Proper clearances shall be maintained from adjacent energized substation bus, energized portions of substation equipment and other transmission lines at all times.

Use of proper insulated tooling (shotguns and sticks) shall be utilized per NECA standard maintaining MAD.

7.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. Contractors who perform any ground breaking activities in a substation within a pre-marked area will require Dig Safe marks to be in place; otherwise, the job must be suspended and the National Grid construction supervisor or project representative shall be notified of the condition.

3. When using non-insulated man-lifts, and if provided by the manufacturer, a secure point of attachment for lifelines, or lanyards or deceleration devices shall be utilized, independent of the means to support or suspend the employee. Workers feet shall also always remain on the floor.

7.2 Notification of Control Authority When Entering a Substation

1. When a contractor enters and exits a National Grid substation, the contractor shall ensure that the System Control Center is notified. While work is being conducted, gates must be monitored at all times or the gates shall be locked. For more information, contact a National Grid representative regarding National Grid EOPG022 *Substation Security*.

2. Unescorted entry in substations can only be provided to contractors who provide assurance that their employees and subcontractors are electrically qualified as specified in 29 CFR 1910.269. Refer to Section 4.0 of this document

3. All National Grid specifically identified bulk power stations will require NERC-CIP training, certification and approval prior to entry to those sites.

7.3 Substation Work Area Identification (SWAI)

1. Contractors who will be working in substations shall follow the SWAI procedure. National Grid will provide a copy of this procedure if required by the project. For more information, contact a National Grid representative regarding National Grid SMP499.10.2 *Substation Work Area Identification Procedure*.

2. Qualified contractors as referenced in section 4.8 of this document shall install their own work area identification. National Grid shall arrange work area identification for non-qualified workers as required.

3. Designated storage areas for items not being used will be posted in the yard and should be the only place these items are kept.

8.0 GAS OPERATIONS WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to Gas operations work. For more information, contact a National Grid representative regarding National Grid General Safety Requirements SHE1001 *Gas Policy* which can be found following this link:
http://dc-gasweb1/MelSite/WMSafetyAll.asp .

8.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. The contractor shall wear all appropriate PPE and Class 2 rubber gloves for personal protection when digging or probing within 2 feet of known electrical conductors and when the location of energized conductors is unknown.

8.2 Gas Operations

1. Any contractor who performs covered tasks shall be operator qualified (OQ) as defined in the DOT Title 49 CFR, Subpart N and all applicable state requirements pursuant to the state the contractor is working in. Additionally, any qualifications of contractor employees shall be in full accordance with the Company's Operator Qualification written plan, (OQ Plan) Refer to the most current list of covered tasks in accordance with National Grids' Operator Qualification Program and the Northeast Gas Association, (NGA).

    a. The Operator Qualified status of contractor employees must be regularly updated and accessible through the ISN system. This listing must detail employees' current tasks they are qualified for, the next recertification date, associated documentation and a documented annual acknowledgement in ISN on their qualified workers as referenced in section 3.1 of this document.

    b. Contractor personnel involved with covered tasks may require certification by National Grid and an orientation of the involved tasks and National Grid Company standards. National Grid reserves the right to validate contractor qualifications prior to performing Live Gas work.

    c. Atmospheres are to be tested with a properly calibrated Combustion Gas Indicator (CGI) or Gas Measurement Instrument (GMI) in accordance with National Grid excavation procedures as required.

    d. Each employee in an excavation shall be protected from cave-ins by an adequate protective system, such as sloping, benching or an appropriate shoring system. For more information, contact a National Grid representative regarding National Grid Safety Procedure M-1301 *Standards for Working in Excavations.*

9.0 FORESTRY AND VEGETATION MANAGEMENT

In addition to the other requirements referenced in this document, this section covers requirements that are specific to vegetation management work.

9.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. For work along roads and other areas of vehicular traffic, contractors shall wear high visibility clothing or vests.

3. Flame Resistant Clothing is not required per the applicable OSHA Forestry standard. Forestry contractors must instead wear natural fiber clothing when working within 10 feet of energized equipment.

4. Forestry contractors must wear a properly adjusted full-body fall protection harness connected to an appropriate lanyard when working from an aerial lift. The lanyard must connect to an attachment anchored to either the boom or bucket mounting hardware. Attachment points anchored through only the fiberglass portion of the bucket are not acceptable.

5. Forestry contractors will be required to wear chaps while operating a chainsaw or when assisting and/or working in close proximity to a chainsaw that is being operated.

6. Saws shall not be left unattended with the engine running.

7. When a contractor employee carries a saw, the engine shall be off and/or covered or the saw shall be carried with the blade to the rear and locked.

8. Tree crews will not be allowed to fly their buckets in between the primary and secondary cables if the MAD will be violated in process of doing so.

9.2 Equipment and Work Methods

1. Forestry contractors shall utilize fiberglass sticks and stick saws for work around energized equipment. Additionally, integrity tests shall be performed and documented annually. Test results and expirations shall be available on each vehicle as needed.

2. Forestry contractors shall perform and document dielectric testing of all aerial units annually. Test results and expirations shall be available on each vehicle as needed.

3. For lump sum or unit price mileage trimming projects, a single foreman may supervise up to four (4) bucket trucks on the same project. The minimum

qualifications for the "lead" person on each of the other trucks shall be a Journeyman Tree Trimmer or equivalent (Qualified Line Clearance Tree Trimmer). At least one other employee on the truck shall be an OSHA defined, Qualified Line Clearance Tree Trimmer Trainee. For Upstate New York only, it is understood that a Qualified Line Clearance Tree Trimmer shall carry the title, wage and benefits as outlined in IBEW LU 1249's existing contract of a Journeyman Treeman and that a Qualified Line Clearance Tree Trimmer Trainee shall carry, at a minimum, the title, wage and benefits as outlined in IBEW LU 1249's existing contract of a Treeman Trainee, 2nd year.

9.3 Training

1. Forestry contractor management will be required to attend safety council meetings hosted by National Grid as required. The contractor shall ensure that all appropriate safety personnel for the National Grid territory are in attendance.

2. Forestry contractors shall implement and provide the required training and certification programs necessary to provide OSHA defined Qualified Line Clearance Tree Trimmers or Qualified Line Clearance Tree Trimmer Trainees. Qualifications shall be provided in the ISN system. Forestry contractors shall provide an update HASP by April 1st of each year for all work being conducted at National Grid.

3. All contractors using ATV's, UTV's and RTV's for transmission or Forestry work are required to follow all local OHRV requirements for PPE and Driving safety

10.0 LNG PRODUCTION, TRANSPORT AND HANDLING

In addition to the other requirements referenced in this document, this section covers requirements that are specific to LNG Production facilities.

All contractors working at LNG plants will sign in and out of plants daily in the contractors log book. All other gas supply facilities and subcontractors require authorization under the contractor management official. If required by the project, trained National Grid plant personnel shall initially, and as needed, review and re-issue as needed, a work permit process which shall which describe the work being performed, valves with their locations and Lock-out/Tag-out numbers.

10.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0 and shall include FR outer clothing.

2. Cryogenic protective gloves/gauntlets and face shields are required when making connections to load / unload LNG. National Grid retains the right to enhance PPE requirements as conditions warrant. The use of additional PPE shall be based on the task performed and the PPE matrix for work in production plants.

10.2 Training

1. Contractors who transport LNG/propane at National Grid facilities are required to be certified in first aid/CPR and are required to complete frost-bite awareness training. Documentation of training records shall be maintained in the ISN system.

2. National Grid expects contractors working at LNG plants to meet the requirements of 49 CFR 193 Subpart H for health, training or experience and/or any applicable National Grid procedures that supersede the above requirements. Contractors shall provide documentation on their qualified workers, as referenced in section 3.1 of this document.

3. All Contractor personnel performing work in LNG plants must meet the requirements of the National Fire Protection Association (NFPA), part 59.

11.0 ELECTRIC GENERATION

In addition to the other requirements referenced in this document, this section covers requirements that are specific to Electric Generation.

11.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0

2. Hearing protection is required when working anywhere inside a generation plant and/or outside the plant where noise may be excessive. Acoustic barriers shall be maintained by the contractor as needed.

3. Safety shoes with a minimum height of six-inches are required in Generation plants.

4. Contractors working in generation plants are required to wear 8-Cal clothing protection. For additional guidance, a National Grid representative can provide reference to Electricity Distribution Operations Infonet webpage under Electric Generation's Policies and Procedures EGO-028 *Personal Protective Clothing* & EGO-029 *Personal Protective Equipment*.

11.2 Training

1. Required training may include; PCB's, asbestos, mercury, confined space awareness and excavation competent person requirements. HAZCOM is required by contractors working in generation plants as applicable.

2. Contractors who work at a National Grid Generation Station shall attend an orientation regarding plant safety and as required, US Coast Guard Maritime Security (MARSEC) policies.

3. Equipment training is required per federal, state and local regulations and National Grid procedures. Operators of any powered industrial vehicle must be qualified and documentation shall be documented.

11.3 Equipment & Excavations

1. All excavations shall be performed in accordance with EGO-0005 *Procedure for Excavation in National Grid Generation Facilities* and National Grid Safety Procedure M-1301 *Standards for Working in Excavations.* For additional information, contact a National Grid representative for copies.

2. Gasoline and diesel powered fork trucks shall NOT be used inside the plant or other enclosed facility. Only propane/electric fork trucks are permitted except where additional hazards may exist.

3. All wood products necessary for the work must be made of flame retardant material.

11.4 Equipment Isolation

For isolation of hazardous energy sources while working in Generation plants, please contact a National Grid representative regarding EGO-0010, *Control of Hazardous Energy Sources-Work Permit System.*

12.0 CIVIL CONSTRUCTION

In addition to the other requirements referenced in this document, this section covers requirements that are specific to civil construction work.

12.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. Rubber gloves shall be worn while carrying out work in and around energized or identified direct buried lines, live duct banks, transformer enclosures, manholes, switch gear and other electrical apparatus when performing civil investigations, installations or repairs.

12.2 Enclosed Space Assessment and Ventilation

Contact a National Grid representative regarding the National Grid EOP-UG006 *Underground Inspection and Maintenance* and National Grid Safety Procedure I-902 *Enclosed Space Procedure* for more information regarding enclosed space requirements.

1. Contractors are required to follow all procedures in this document in regards to enclosed spaces (manholes, sidewalk vaults, etc.), including assessment, ventilation, entry and rescue.

2. Each enclosed space shall be tested prior to removing manhole lids and entry. Atmospheric testing shall be continuous for the duration of the entry using a calibrated, industry approved atmospheric tester.

3. When performing hot work or when indicated by atmospheric monitoring, engineering controls such as forced mechanical ventilation shall be used when working in National Grid manholes at all times.

7. All contractors who are qualified electrical workers will treat these spaces as “enclosed spaces” and follow non-entry rescue provisions.

8. In some situations a boom is allowed for retraction from an enclosed space. Refer to Safety Procedure I-902 for more information.

9. Steel cable or wire rope for non-entry rescue is prohibited.

12.3 Equipment Safety Inspection

All contractors shall comply with the applicable equipment safety inspection procedures referenced in Section 5.3

12.4 Excavation Requirements

All excavation work shall be performed under the control of a competent person. All soils in National Grid territories are to be considered class “C”, considered unstable and shall require all excavations be performed in accordance with OSHA 1926.651, EGO-0005 *Procedure for Excavation in National Grid Generation Facilities* and National Grid Safety Procedure M-1301, *Standards for Working in Excavations.* For more information, contact a National Grid representative for a copy.

Crews that are performing Excavations shall include an excavation log with their job brief that states the soil type, expected depth and length as well as final depth and length. All required steps need to prevent collapse will be documented on this form as well prior to entry.

Protective systems shall be used for certain manhole installations. These scenarios are covered below:

- The hazard assessment, competent person and/or National Grid supervisor deems it necessary
- If an excavation for a manhole in a roadway is completed and installation of manhole and backfill is not able to be done before the day is complete, a protective system will be required before road plating
- Installation of any manhole 3 way or greater in size/

Where trench boxes are required to be built on site, the contractor shall submit a PE stamped plan and the location shall be designated on the excavation drawings.

All lifts (not limited to materials and equipment) shall be planned and rigged by a competent person. A lift plan shall be provided for all “critical lifts” and must be submitted by a qualified professional to the National Grid representative prior to the lift taking place.

12.5 Cable fault finding and replacements

For excavation work needed to support faulted cables and emergency cable locates, the use of Cable Avoidance Tooling (CAT) shall be used in addition to Dig Safe requirements as an added safeguard to further pin point unidentified buried cables.

For excavations within the tolerance zone, all hand digging in and around direct buried cables shall require basic PPE, non-metallic handled shovels, rubber gloves, FR clothing and EH rated work boots with over shoes.

All excavation equipment shall be grounded in accordance with NG EOP G026. For additional information, contact a National Grid representative.

The use of GPR (Ground Penetrating Radar) shall also be required to verify the Dig Safe/811 locates after award of the project and prior to excavation. This shall include electric URD, UCD and Substation projects.

12.6 Technical Review

Where and when applicable, all trench and excavation work shall be reviewed and stamped by a civil PE in the state of record and will be executed under the supervision of a trenching and excavation competent person. All leading edges of trenches and excavations shall be appropriately demarcated, clearly posted and controlled to prevent unauthorized persons from entering and inadvertently falling into the excavation. All trenches and excavations shall be closed as soon as practical/possible. All excavations shall be fully controlled for the duration of the exposure by adequately substantial means to withstand the environment and conditions expected to be present.

All pot holing/test holing and exploratory excavations shall utilize vacuum excavation whenever near known underground utilities or hazards, and when the potential for unknown hazards such as live electrical or gas conveyances exist. When using vacuum extraction in combination with air blowing/air knife tools, all persons in the immediate area shall be wearing safety glasses in addition to a full face shields.

13.0 AVIATION

1. Helicopter Crews of two or more shall perform a preflight documented job brief.

2. Helicopter work shall require the use of aviation helmets for both the pilot and passengers.

3. Helicopter pilots and passengers shall participate in the "Flying in the Wire and Obstruction Environment” training prior to flight.

4. Helicopter pilots shall meet the following minimum flight time experience:

a. 2000 hours as Pilot in Command or Second in command of a rotor craft
b. 1000 hours in a turbine rotorcraft / helicopter
c. 100 hours in a helicopter of the make and model to be utilized at National Grid
d. 300 hours flight time in Wire Environments

For more information, contact a National Grid representative for a copy of EOP T012 *Helicopter Utilization & Notifications.*

14.0 TRANSPORTATION RISKS

Contractor shall define transportation related activities that can have potential process safety consequences. National Grid shall determine if additional risk assessment is needed and contractor shall participate in the assessment. Contractor shall modify their process to mitigate risk that is determined to be intolerable.

APPENDIX A: NATIONAL GRID CONTRACTOR RISK MATRIX

National Grid Contractor Risk Matrix			
Category	**Description of Work**	**Impact of Work**	**Examples to be included in this category (including, but not limited to)**
Medium / High Risk Exposure **Tier I** **Inclusion in ISN Program is Required**	Physical Work, activity, or service that is performed on National Grid property site or is performed off-site where Owner Client has responsibility and is liable for work performed. Includes, but is not limited to, any activity requiring confined space entry, elevated work, work on operating systems involving hazardous energy, and most work requiring a general work permit, hot work permit, or confined space permit.	Work, activity, or service having: • A potential for causing a catastrophic operational incident; • Access to operations; and/or • A direct role in site operations or maintenance, where failure could result in serious harm to employee or public well-being, company assets, or the environment Also includes any Contractor personnel's job function which has no direct or very limited supervision for operational checks.	• Maintenance, Construction and demolition contractors • Chemical cleaning, tank cleaning • Electricians and Instrumentation Technicians • Movers • Welding • Heavy equipment operations • Well drilling and testing • Environmental investigation, remediation, monitoring activities • Hazardous waste handling and/or transport • Excavation • Food service and handling • Equipment Inspection (e.g., X-ray & other NDT) • On-site sampling / gauging activities (not including escorted storm water sampling) • Common carriers transporting Owner Client-owned LNG or petroleum products • Landscaping services • Snow Removal • Janitorial services

			• Vacuum truck affecting/involving process operations • Oil Spill Response Organizations (OSRO)
Low Risk Exposure **Tier II** **Inclusion in ISN Program is NOT Required**	Work that is office based such as: • Consultants that do not perform work or activities as described in the Medium/High Risk exposure category • Offsite services • On-site vendor pick-up/delivery and repair services • Work performed by public and private utilities • Personnel on-site with Visitor Status, when escorted	Work, activity, or service having an indirect role and no, or limited, access to operations or maintenance where failure could result in serious harm to employee or public well-being, company assets, or the environment.	• Mail/package/part delivery or pick-up (e.g. UPS, Fed EX, vendor-specific) • Samples pick-up by laboratory/courier • Office machine servicing (copiers, printer, computer, etc.) • Laboratory apparatus servicing • Storm water Sampling Labs/Contractors (When Escorted by Owner Client personnel) • Deliver/supply services (vending machine, bottled water, laundry) • Municipal waste pick-up • General trash removal services • Off-site repair/fabrication shops (such as pump, safety valve, piping, vehicle) • Telephone, electric, local municipal utility services • Regulatory representatives • Technical representatives • Engineering services (when escorted by Owner) • Auditors
SVP of SHE can require any contractor to be part of ISN when deemed as a potential risk to National Grid			

Appendix G

National Grid COVID-19 Health & Safety Plan

FORWARD

National Grid's vision is to be a world-class safety organization, with zero injuries every day. A critical component of achieving this vision is the careful development, implementation and maintenance of safety procedures. This guidance document, COVID-19 Health and Safety Plan, describes pandemic response measures, taken by National Grid, to help prevent the spread of COVID-19.

Questions regarding this guidance should be referred to National Grid's Safety Department.

Record of Change

Revision	Date	Description
Initial	04/28/2020	Initial creation

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1.0 SCOPE OF HEALTH & SAFETY PLAN

National Grid has developed this Health & Safety Plan (HASP) to uniformly apply pandemic response measures to help prevent the spread of the COVID-19 virus. National Grid field personnel and crews have been provided this information and communications.

2.0 PROJECT PERSONNEL

2.1 Roles and Responsibilities

National Grid shall be responsible for the safety of all its employees and shall ensure COVID-19 pandemic measures are in place. Key National Grid personnel are as follows:

Incident Command Structure

The National Grid Incident Command Structure (ICS) has been activated within all Business Units of National Grid's US Operations to respond to the COVID-19 pandemic. Members of the ICS review and approve all operational decisions, with the Incident Commander ultimately responsible for these decisions. The Incident Commander relies upon subject matter experts within the ICS, including the Operations Officer, the Safety and Health Officer, to help set standards and guidance for protective measures to be used to limit the spread of the COVID-19 virus. These Officers, in turn, utilize the expertise of other members of the organization within Operations, Safety, and Health, to assess risks associated with the work being performed and provide guidance on the most effective measures to be used by employees to protect themselves, their coworkers, our customers, and members of the public.

Field Supervisor

The Field Supervisor shall have the responsibility for monitoring and enforcing National Grid COVID-19 pandemic measures and shall ensure that all employees have received and reviewed this Health & Safety plan.

- Serve as the appointed supervisor to oversee field personnel and ensure pandemic measures are being followed
- Ensure field personnel have the appropriate pandemic supplies
- Disseminate all new National Grid COVID-19 communications to all field employees
- Where non-compliance is observed, take prompt corrective action; and
- Have the authority to order a safety stop in the event of a serious safety issue.

Crew Leader

The National Grid crew leader shall be in charge of the day-to-day details of the work to be performed. They shall ensure that work is performed in accordance with National Grid COVID-19 pandemic measures. They will:

- Walk the job site at the start of each day to ensure a safe work environment;
- Where non-compliance is observed, take prompt corrective action; and
- Have the authority to order a safety stop in the event of a serious safety issue.
- Perform the daily job safety briefing before commencing work, whenever a visitor arrives to the job site, and if there is a significant change in the work or when an extended break occurs. As part of the COVID-19 pandemic response, the COVID-19 job brief checklist (Appendix A) shall be used in addition to the applicable departmental job brief form.

Employees

National Grid employees are responsible for following all COVID-19 pandemic measures;

- Each employee is responsible for reporting to supervision any symptoms of COVID-19, of any direct contact with an individual confirmed to have COVID-19, or in contact with a person in quarantine.
- Each employee is obligated to call a safety stop when a hazardous condition is observed.
- All lone workers shall conduct a self-assessment utilizing the COVID-19 job brief checklist (Appendix A) and adhere to the guidance outlined in this plan.

National Grid Field Safety Representative

National Grid Field Safety Representatives conduct routine and random crew visits to National Grid job sites. The National Grid Field Safety Department shall act as a resource for National Grid field personnel to effectively implement this COVID-19 Health & Safety Plan and will be available on an as-needed basis for inquiries related to this HASP.

3.0 COVID-19 PANDEMIC RESPONSE MEASURES

3.1 COVID-19 Symptoms

COVID-19 Symptoms may include the following:

- Fever
- Cough

- Shortness of Breath
- Chills
- Repeated shaking with chills
- Muscle Pain
- Headache
- Sore Throat
- New loss of taste or smell

3.2 Hygiene and Social Distancing

- Wash your hands often with soap and water for at least 20 seconds, especially after using the restroom, before eating, and after blowing your nose, coughing, or sneezing. Hand washing is the best way to prevent the spread of viruses.
- If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.
- **Proper hand washing/sanitizing products will be provided to all employees**
- Maintain a minimum of 6' social distance from other employees on site while performing work and during routine breaks. When work tasks prevent this, ensure proper face coverings are continued to be worn and proper hygiene
- Avoid touching your eyes, nose, and mouth.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces using a disinfecting cleaning spray or wipe; if not available, use a soap and water solution.
- All cleaning product trash and potentially contaminated PPE will be stored in a trash bag and immediately disposed of at a National Grid facility at the end of each shift. Trash should not accumulate in any National Grid vehicle. Immediately wash hands upon disposing of trash bag.

3.3 COVID-19 PPE and Face Coverings

- Face coverings are a requirement for all National Grid employees. Face coverings must be worn by all employees:
    - When working in public places
    - When working in a customer's premises
    - When social distancing is not able to be maintained with a co-worker, customer or member of the public in a National Grid facility, barn/yard, work location or company vehicle.
- Non-Fire-Retardant/Arc Rated Face Covering– use when there is no potential for a gas ignition or electric arc flash. This can be National Grid supplied or a personal face covering. Fire Retardant Face Covering – must be used when there is potential for a gas ignition or electric arc flash.
- **Additional COVID-19 PPE guidance is provided in the attached Premise**

Entry Guidelines

3.4 COVID-19 Virus Risk Assessment and Adopted Measures

National Grid's prescribed measures (work practices, PPE, hygiene) were selected based upon the risk assessments completed by subject matter experts and reported up through the ICS for approval. They are based upon the Centers for Disease Control & Prevention (CDC) and OSHA guidance, as well as input from Operations, Safety, and Health team members. They are believed to address all risks posed to our workforce, as well as to our customers and members of the public, when jobs are conducted in public places. These measures are reviewed on a continuous basis, for both effectiveness and to ensure the latest guidance is incorporated, with changes made, as necessary, after these reviews.

4.0 COVID-19 REPORTING PROCESS

4.1 COVID-19 Job Brief Checklist

In addition to the applicable departmental job brief form, all crew leaders shall utilize the COVID-19 job brief checklist to facilitate crew discussion regarding symptoms of COVID-19 and allow for discussion to help facilitate the reporting of a COVID-19 incident. All visitors to the job site will be required to have the job brief and COVID-19 checklist reviewed with them by the crew leader prior to entry on the job site.

Remember to maintain social distancing while conducting the job brief

4.2 COVID-19 Incident Reporting

To ensure the safety of all employees and the public, any employee shall immediately contact their Supervisor and National Grid Employee Services if one of the following conditions occur:

- Employee is exhibiting symptoms of COVID-19
- Employee has been in close contact of another individual with COVID-19
- Employee has been in close contact of another individual who is currently being quarantine for a suspected case of COVID-19

Close contact is defined as being within 6' of a sick/quarantined individual for more than 15 minutes.

Please refer to the COVID-19 Suspected/Confirmed Positive Process guidance document in Appendix A.

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Appendix A – National Grid COVID-19 Communications

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A Message from John Bruckner

National Grid US Coronavirus Incident Commander

Updated Guidance on Face Coverings

April 16, 2020

The state of New York and the state of Rhode Island recently issued executive orders requiring all essential employees who are working in public places to wear face coverings when distance from the public or co-workers cannot be maintained. As a result, we are updating our company policy to align safety standards for all employees.

We had previously communicated that wearing a face covering was voluntary based on CDC recommendations. We are now **requiring** National Grid employees to wear face coverings in the situations below. Please note that this applies to both **office** and **field-based** employees, and applies across **all jurisdictions**.

Face coverings must be worn:

- ✓ When working in public places
- ✓ When working in a customer's premises
- ✓ When social distancing is not able to be maintained with a co-worker, customer or member of the public in a National Grid facility, barn/yard, work location or company vehicle.

- This directive is effective at 8:00 pm this evening for all New York employees.
- It is effective starting this Saturday for all Rhode Island and Massachusetts employees.
- If you are working from home, our company guidance remains: If you can work from home, you should.

What qualifies as a face covering?

Employees may use either a company-issued or a personal face covering, depending on preference and availability. These include:

- Disposable masks, which need to be changed daily or if significantly dirty.
- Reusable FR Balaclavas, which need to be laundered daily, according to CDC cleaning guidance.
- Reusable FR neck warmers, which need to be laundered daily, according to CDC cleaning guidance.
  - Please note: Face pieces must be made from Flame Resistant (FR) material if they are worn when working in an energized zone or there is potential for a gas ignition.

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How to get a face covering:

Our procurement and warehouse teams are working directly with teams to ensure a steady supply of face coverings.

It is our intention to provide company-supplied face coverings widely, but in instances where one is not available or preferred, a personal covering may still be used.

Operations teams should work through their normal channels to order face coverings. We will be providing further guidance to office-based colleagues on where they can access face coverings.

CDC guidance on personal face coverings can be found here:

- https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html
- https://www.cdc.gov/coronavirus/2019-ncov/downloads/DIY-cloth-face-covering-instructions.pdf

Face coverings should:

- Fit snugly but comfortably against the side of the face
- Be secured with ties or ear loops, if provided
- Include multiple layers of fabric
- Allow for breathing without restriction
- Be removed from behind head or ears to minimize hand contact with face
- Be laundered and machine dried if reusable

Cleaned, dried coverings can be kept in a clean plastic bag until needed for use

It is important to note that face coverings, whether company-issued or personal, are not a substitute for taking measures that are known to be effective in stopping the spread.

Handwashing, and maintaining a social distance of 6 feet apart from others remains the most critical guidance that we can follow.

Sincerely,

John Bruckner

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COVID-19 Job Brief Checklist

Please Distribute

Revised 5/7/2020

During this trying time it is important that we maintain our same level of focus at work locations conducting hazard assessments and identifying risks prior to the start of each task. Prior to beginning work at every location, when conditions, job focus or crew members change, after each meal period and after any prolonged interruption to the work, a **Job Briefing** shall be held.

The work to be performed shall be discussed and assigned, and the safety aspects of the job shall be reviewed. The National Grid protocol to screen all individuals to determine who may have been exposed to COVID-19 outside of work **must be reviewed** at the start of the workday and Job Briefing.

(Employees working alone shall conduct a self-assessment to determine if they may have been exposed to COVID-19 outside of work or should their condition change during the workday)

The questions are:

- ☐ Are you feeling ill in any way? For instance, do you have any of the following symptoms: A fever? A cough? Shortness of breath? Chills? Repeated shaking with chills? Muscle pain? Headache? Sore throat? New loss of taste or smell?
- ☐ Have you had close contact with a symptomatic person (e.g., fever, cough, and/or shortness of breath, chills, repeated shaking with chills, muscle pain, headache, sore throat, new loss of taste or smell) within the last 14 days?
- ☐ Have you had close contact with a person who was tested with results pending or positive for coronavirus within the last 14 days?
- ☐ Have you recently been out of state for non-work related travel (within the last 14 days)?

*Employees who answer **"YES"** to any of these questions must distance themselves from others, not enter the work area, and immediately contact their supervisor privately for further instruction.*

The employee must also contact the National Grid Employee Services Hotline 1-888-483-2123.

Employees who answer **"NO"** to all of these questions proceed with work activities as planned.

Please note on the Job Brief that you asked these COVID-19 Screening Questions.

To reduce multiple people handling the job brief during the COVID-19 pandemic crew leaders should handle all documentation and record who is present on site after they have reviewed the job brief with each employee or visitor.

REMINDER - Please be sure to follow CDC recommendations

- Maintain a minimum 6' social distance from other people
- Employees must wear a face covering: when working in public places, when working in a customers premise, or when social distancing is not able to be maintained with a co-worker, customer, or member of the public in a National Gird facility, barn/yard, work location, or company vehicle.
- Avoid touching your eyes, nose, and mouth.
- Clean and disinfect frequently touched objects and surfaces using either a EPA registered disinfectant (Lysol, Clorox, etc.), soap and water, or a bleach and water mixture (1/3rd cup bleach per gallon of water)
- Use the fold of your arm to cover a sneeze or cough
- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.
    - If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.

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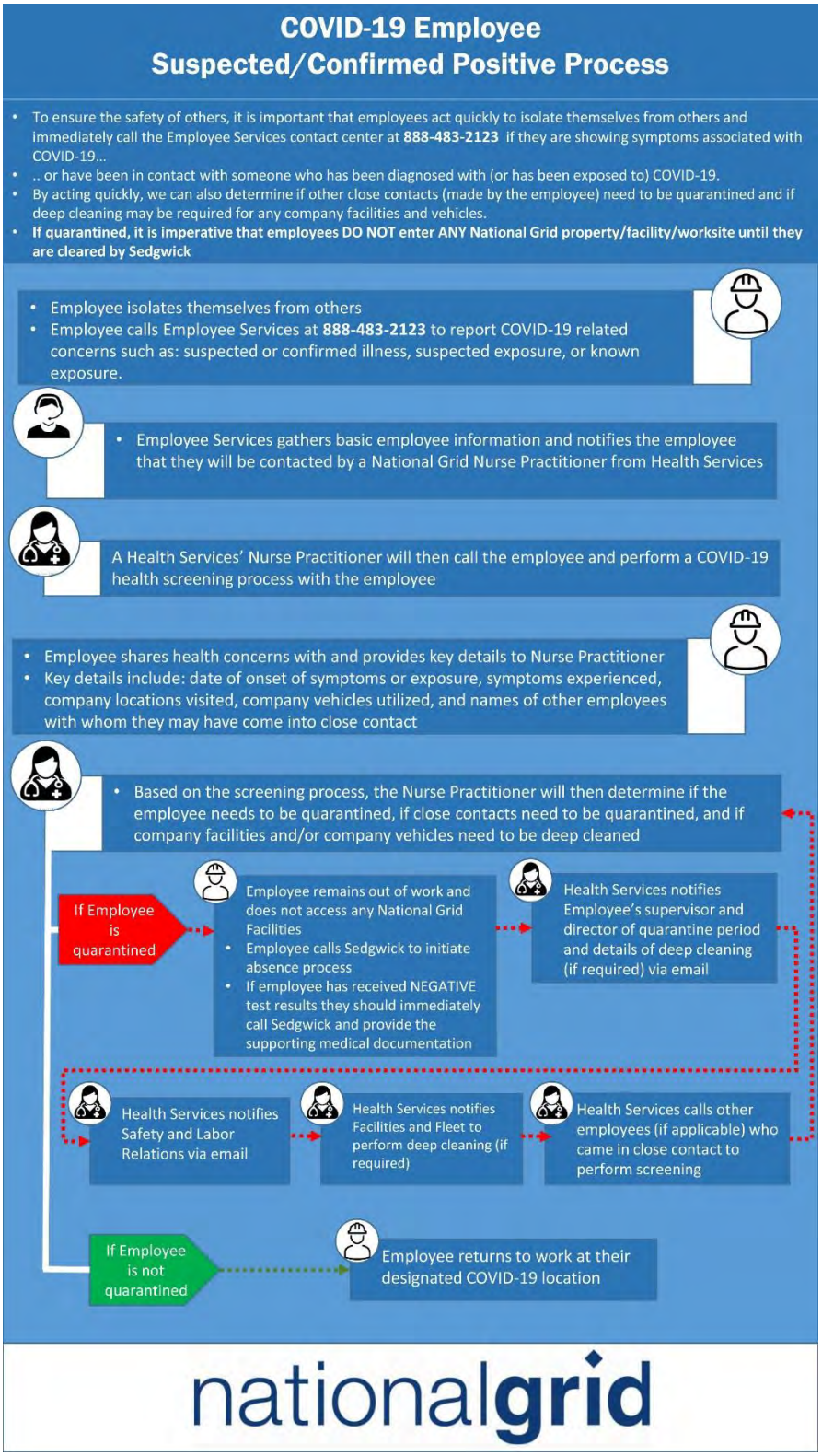

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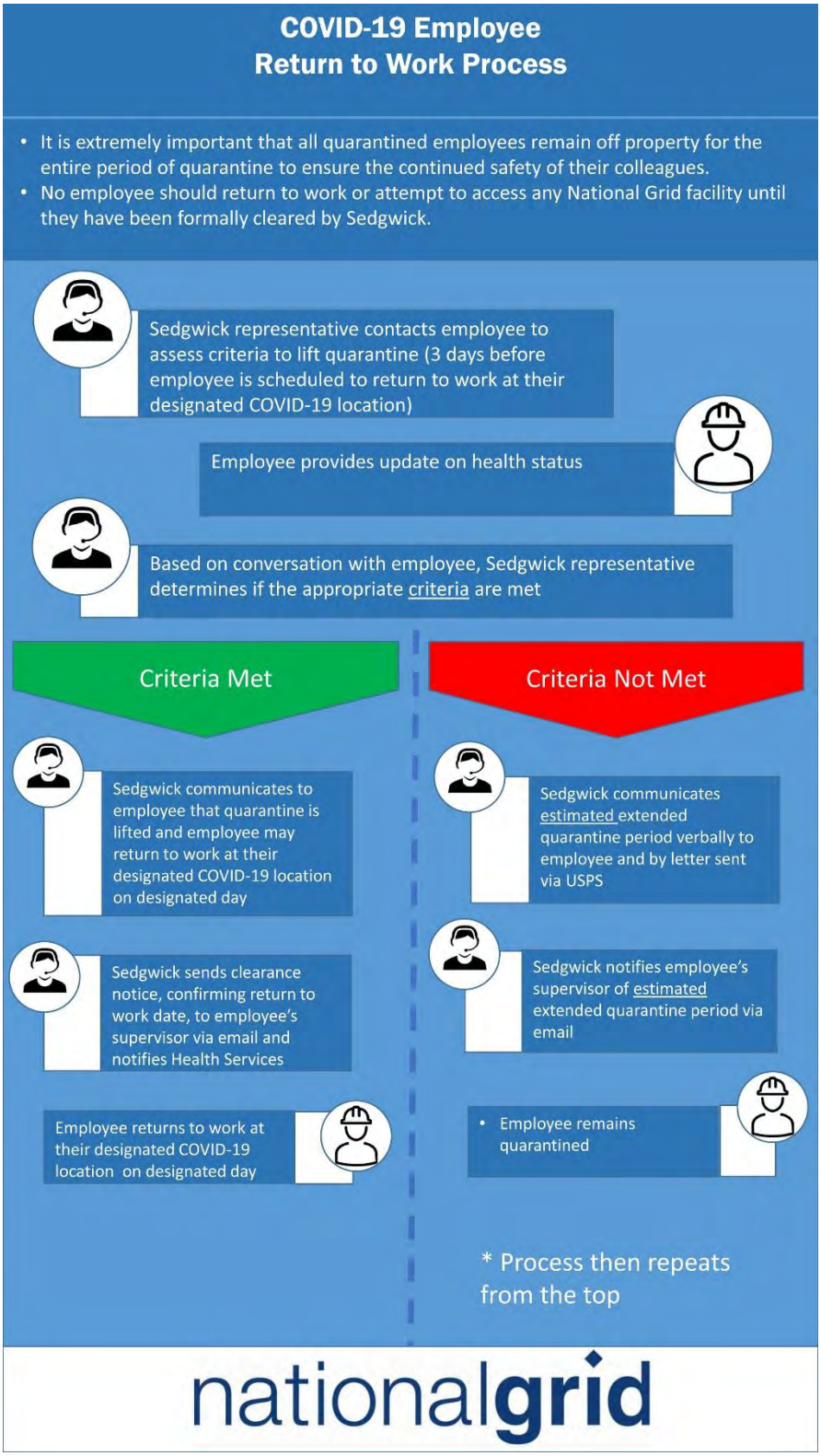

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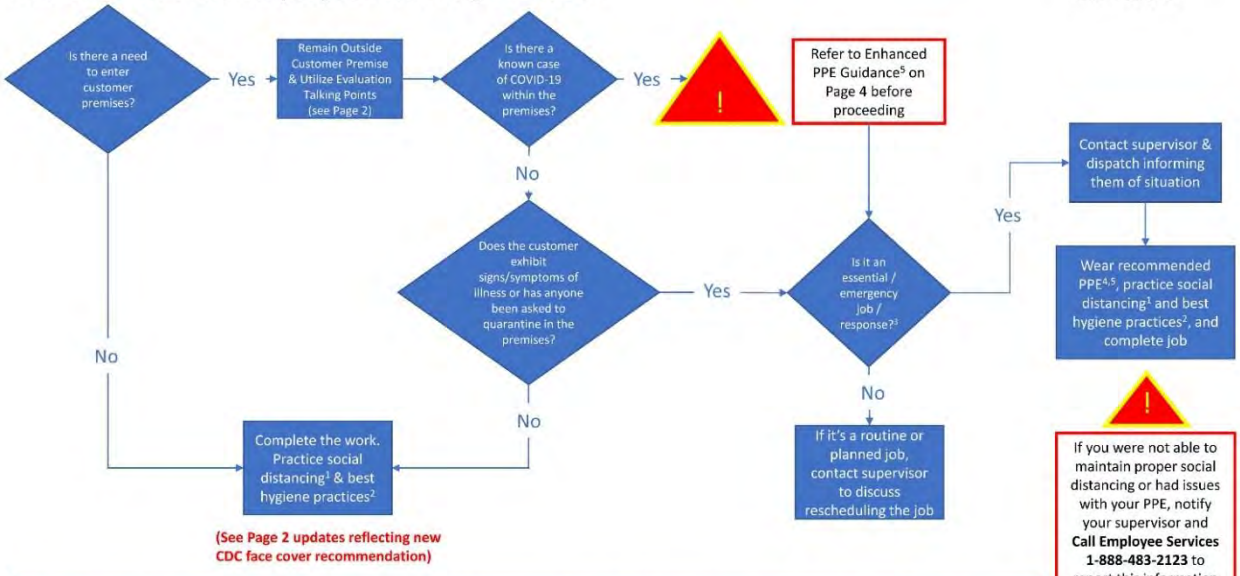
Guidance for Field Employees Entering Premises

Issued 4/7/20



(See Page 2 updates reflecting new CDC face cover recommendation)

See Page 2 for additional information on Talking Points, CDC Recommendations for (1) Social Distancing and (2) Best Hygiene Practices
See Page 3 for National Grid (3) Emergency Work at a Premises and (4) Standard PPE Guidance
See Page 4 for National Grid (5) Enhanced PPE Guidance

1

Issued 4/8/20

Talking Points - Engage Customer

Prior to entry, engage the customer and advise of social distancing practices. Here are some questions and statements.

- Does someone within the premises have a known case of COVID-19? Has someone within the premises tested positive for the COVID-19 virus?

(IF ANSWER IS 'YES' TO EITHER OF THE ABOVE QUESTIONS, REFER TO ENHANCED PPE GUIDANCE ON PAGE 4)

- Do you mind if I follow the social distancing practice today?
- Is anyone currently sick inside the premises?
- If you are feeling sick, would you mind remaining in another room while I am working This is a best practice policy my company is recommending. Can you tell me where your equipment is located?
- I will do my job, keep you updated and tell you when I am done

(1) Social Distancing

- Maintain at least 6 feet distance between yourself and the customer at all times
- Where social distancing measures cannot be maintained, face cover can be worn to help limit the spread of the virus (see National Grid's Face Cover Guidance for details)

(2) Best Hygiene Practices

- Face covering can be worn in public settings where social distancing measures cannot be maintained (see National Grid's Face Cover Guidance for details)
- Use alcohol-based hand sanitizer (at least 60% alcohol), before and after each home visit; OR wash hands using soap and water for 20 seconds

2

Issued 4/8/20

(3) Emergency Work at a Premises

On arrival, assess the premise/situation in its entirety and consider these questions.

- Is it a multi-unit building?
  - Is the unit where work is required affected?
- What work can be done without interaction/entry?
- Is entry through a side or back door possible to limit exposure?
- Can make safe actions be taken without interaction/entry?
  - Securing Outside Meter/Curb Valve
- Would a hardship be caused by isolating the service?

Note: These questions and considerations are meant to help guide in the decision making process. There may be instances where access to a premise cannot be avoided in order to address immediate public safety concerns. Please reference the Social Distancing and applicable PPE Guidance in all situations.

(4) Standard PPE Guidance for Entering a Premises (No Known COVID-19 cases are present)

- Avoid touching ANYTHING in customer premises other than company equipment and customer equipment related to the job
- Wear disposable latex or nitrile gloves to prevent touching contaminated surfaces
- Latex or nitrile gloves should be donned before entering the home
  - If work gloves are needed to perform the task, remove disposable latex or nitrile gloves and dispose of them. Don work gloves and perform task. Once task is complete remove work gloves and store them. Don a new pair of disposable latex or nitrile gloves to exit the home.
- Remove latex or nitrile gloves and dispose in way that won't create other opportunities for exposure
- Immediately wash / sanitize hands after removing latex or nitrile gloves
- All other PPE normally required for the work being performed should be used

3

Issued 4/8/20

(5) Enhanced PPE Guidance for Entering a Premise (Where a Known COVID-19 Case is Present)

The most effective way to protect the employees from contracting the virus is physical distance; if at all possible, the customer diagnosed with COVID-19 should be asked to move to a separate room before premises entry. When available and practicable, the following PPE items may be used at the premises with a known COVID-19 case present. These PPE items can be used in combination with our Social Distancing and Best Hygiene Practices to limit the spread of the virus.

- N-95 / KN-95 mask (see Page 5 for pictures of typical N-95 / KN-95 masks available)
- Reusable Face Shield
- Disposable Surgical Gloves (nitrile or latex)
- All other PPE required for doing the work (i.e. safety glasses, hard hat, etc.)
- If desired, FR-rated balaclava may be worn to provide additional protection while working

The following steps should be taken while conducting work in the premises:

- Prepare a paper or plastic bag for disposal of used PPE prior to entering the premises.
- Avoid touching ANYTHING in customer premises other than company equipment and customer equipment related to the job.
- Wear disposable latex or nitrile gloves to prevent touching contaminated surfaces.
- Any PPE should be donned before entering the home.
- If a mask is in use, avoid touching your face or adjusting the mask.
- If work gloves are needed to perform the task, remove disposable latex or nitrile gloves and dispose of them. Don work gloves and perform task. Once task is complete remove work gloves and store them. Don a new pair of disposable latex or nitrile gloves to exit the home.

Once work is completed in the home, follow these steps to safely remove the PPE items

- Remove face shield, taking care to avoid touching your face. Clean / disinfect and store properly.
- Remove mask from the back of the head first, taking care to avoid touching your face. Place used mask in a bag and dispose in normal trash.
- If balaclava has been worn, remove covering from back of head, similar to removal of mask.
- Remove latex or nitrile gloves (turn inside out while removing) and place in a bag. Dispose of bag in normal trash.
- Immediately wash / sanitize hands after removing latex or nitrile gloves, following Best Hygiene Practices.

4

Issued 4/8/20

Typical N-95 / KN-95 masks

5

Safeguarding your Vehicle

Now, more than ever, with COVID-19, precautions to safeguard your vehicle when transferring the vehicle to another employee, or when taking your vehicle in for maintenance, is very important.

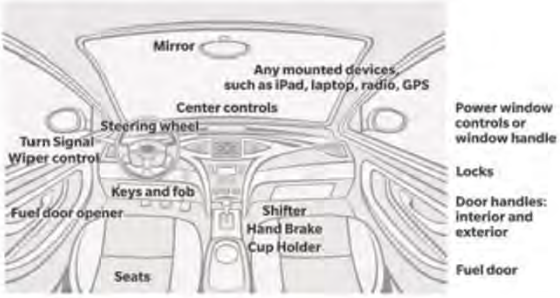
Here are some high-touch areas that should **never** be missed:

• Mirror • Center controls • Keys and fob • Wiper control • Climate control • Audio controls • Hand brake • Seats *(driver/passenger)*/Seatbelts • Fuel door opener • Windows • Headrests • Armrests	• All mounted devices *(any and all electronic devised used - i.e. iPad, laptop, radio, GPS, phone chargers)* • Steering wheel • Headlight • All cabin lighting controls • Shifter • Cup holder • Door handle*(inside and out)*/Window control/locks • Air vent • Sun visors

Use disinfectant wipes, diluted bleach solution, or damp soapy water wipes when cleaning all hard surfaces throughout the vehicle.

To guide your efforts when cleaning the vehicle, think about where droplets would fall when you sneeze or cough (*for example: do you turn your head to the side?) and remember to think about your own personal safety:*

- Be sure to wash your hands for **20 seconds** after completing the cleaning process.
- If you take your vehicle home at night, be sure to lock it to prevent it from being compromised.
- Make sure you have a mask and gloves (when/where appropriate).



Before you leave or enter the vehicle – here's a checklist to keep you safe and your team members safe as well:

Activity to Safeguard	☑
Keys / Fob	
Door Handles (interior/exterior)	
Steering Wheel, Shift Lever, Brake Lever, Wiper Stalk, Turn Signal Stalk	
Air Vents, Console, Dashboard, Cup Holder	
Exterior and Interior Fueling Latch, Cover, Cap	
Seats, Seatbelts, Headrests	
Mirrors, Windows, Window Controls	
Interior Lights	
Sun Visors	
Passenger and Driver Door Armrests, Grab Handles, Seat Adjusters	
All Electronic Devices used while in vehicle (iPads, Navigation Systems, Phone Chargers, Laptops, etc.)	

Additional considerations for crew trucks:

Handles on bin doors	
Equipment controls (bucket / digger)	

**** Please consider any other touch point identified by a crew member but not listed***

Appendix B

Community Air Monitoring Plan

Community Air Monitoring Plan
Williamsburg Works Site Parcels 3 and 4

In accordance with NYSDEC and NYSDOH requirements for a Community Air Monitoring Plan (CAMP), a perimeter air-monitoring plan will be implemented at the site during each phase of the field activities. The objective of the perimeter air-monitoring plan is to provide a measure of protection for the downwind community (i.e., off-site receptors, including residences and businesses and on-site workers not involved with the site field activities) from potential airborne contaminant releases as a direct result of field activities. The perimeter air-monitoring plan is a stand-alone document and will be available on site. The VOC Monitoring, Response Levels, and Actions are presented as follows.

Air Monitoring Response Levels and Actions

VOCs

Response Level	Actions
>5 parts per million (ppm) above background for 15-minute average	▪ Temporarily halt work activities ▪ Continue monitoring ▪ If VOC levels decrease (per instantaneous readings) below 5 ppm over background, work activities can resume
Persistent levels >5 ppm over background <25 ppm	▪ Halt work activities ▪ Identify source of vapors ▪ Corrective action to abate emissions ▪ Continue monitoring ▪ Resume work activities if VOC levels 200 feet downwind of the property boundary or half the distance to the nearest potential receptor is <5 ppm for a 15-minute average ▪ If VOC levels are >25 ppm at the perimeter of the work area, activities must be shutdown

Particulates

Response Level	Actions
>100 µg/m^3 above background for 15-minute average or visual dust observed leaving the site	▪ Apply dust suppression ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving site
>150 µg/m^3 above background for 15-minute average	▪ Stop work ▪ Re-evaluate activities ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 µg/m3 above upwind levels and no visual dust leaving site

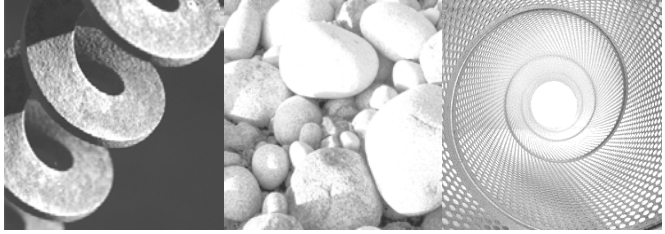
Sources:

New York State Department of Health Community Air Monitoring Plan, June 20, 2000

New York State Department of Environmental Conservation Division Technical and Administrative Guidance Memorandum – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 27, 1989.

Appendix C

Field Sampling Plan



GEI Consultants

Consulting
Engineers and
Scientists

Field Sampling Plan
Parcels 3 and 4 Portion of the Williamsburg Works Site

Brooklyn, New York
AOC Index No. A2-0552-0606
Site #: 224055

Submitted to:
National Grid
One MetroTech Center
Brooklyn, NY 11201

Submitted by:
GEI Consultants, Inc., P.C.
455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033
860-368-5300

July 2021
Project 093060

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Supplement

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Section 1

Introduction

STANDARD OPERATING PROCEDURE

1. Introduction

This document presents the Standard Operating Procedures (SOPs) for the Atlantic and New England Regions of GEI Consultants, Inc. (GEI). The primary intent of the document is to promote consistency in application of Standard Operating Procedures (SOPs) for environmental field and some office operations. Application and use of SOPs will be considered and may be discussed in annual staff reviews.

This SOP document encompasses a broad range of activities to improve the planning, implementation, and documentation of most environmental field and some office operations. The methodologies presented in this manual may not be applicable to site-specific situations. If you are uncertain about a procedure, confirm its adequacy with the project manager, client, and/or regulatory bodies to confirm that procedures are consistent with their expectations.

The document is organized according to the chronological sequence of typical work flow proceeding from project setup to field activities, data collection, and report preparation tasks.

Two types of documents are contained herein:

- General Guidance Procedures – Documents intended to be informative and not prescriptive. These documents are designed to provide necessary background information to adequately understand the process.
- Standard Operating Procedures – Documents intended to describe standard procedures and limitations.

2. SOP Layout Design

2.1. Header Information

- Each SOP contains within its name a two letter abbreviation of the general category in which it belongs (i.e. RE-001 means it is in Site Reconnaissance). The table of contents provides the definition for each abbreviation. The SOP name and number is provided in the header and footer of the document. The revision number is provided in the header of each SOP.
- The effective date is provided in the header of each SOP. The effective date provides the date when the revisions to the SOP are in effect and provides information as to the last time the SOP was updated. Each SOP should contain the most up-to-date version and effective date.

2.2. Footer Information

- Each footer contains the page number and total page numbers as well as a second reference to the SOP name. This should help organize and collate pages.

2.3. Body of Text

- Limitations are provided to describe precautions or common issues associated with the performance of the procedure.
- References provide sources consulted for development of the SOP.
- Attachments provide reference to external documentation that should be reviewed in conjunction with the SOP.
- At least one contact person is provided at the bottom of each SOP. These people should be contacted with any questions or comments on the particular SOP. The contact can clarify the SOP or edit as necessary.

2.4. Process for editing/updating SOPs

Should you need to make a global change to an existing SOP, the current .pdf version can be found on the Intranet.

In order to make your changes, you will need to request a WORD copy of the SOP from Andrea Hippler or Ryan Hoffman. Once you have made your changes, the SOP should be e-mailed to Andrea Hippler and Ryan Hoffman with a note as to what changed.

This document has been provided to all staff performing environmental field tasks for GEI's Atlantic and New England Regions.

3. Attachment

Attachment A – Acronym List

STANDARD OPERATING PROCEDURE

Abbreviations and Acronyms

AOC	Area of Concern
ASTM	American Society for Testing and Materials
BOD	Biological Oxygen Demand
BTEX	Benzene, Toluene, Ethyl Benzene, Xylenes
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Cleanup, and Liability Act
CFR	Code of Federal Regulations
COC	Chain of Custody
DL	Detection Limit
DNAPL	Dense Non-Aqueous Phase Liquid
DO	Dissolved Oxygen
DQO	Data Quality Objectives
EC	Engineering Controls
EIS	Environmental Impact Study
EPA	Environmental Protection Agency
FID	Flame Ionization Detector
FS	Feasiblity Study
FWRIA	Fish and Wildlife Resources Impact Analysis
GAC	Granular Activated Carbon
GC/MS	Gas Chromatograph/Mass Spectrometer
GFAA	Graphite Furnace Atomic Absorption Spectrometry
GIS	Geographic Information Systems
GPR	Ground-penetrating Radar
HASP	Health and Safety Plan
HOC	Halogenated Organic Compound
HDPE	High Density Polyethylene
HPLC	High Pressure Liquid Chromatography
HSO	Health and Safety Officer
IC	Institutional Controls
ICP	Inductively Coupled Plasma Atomic Emission Spectrometry
IDW	Investigation Derived Waste
LEL	Lower Explosive Limit
LNAPL	Light Non-Aqueous Phase Liquid
MCL	Maximum Contaminant Level (for EPA Drinking Water Standards)
MDL	Method Detection Limit
MGP	Manufactured Gas Plant
MSDS	Material Safety Data Sheet
NAPL	Non-aqueous Phase Liquids

NCP	National Contingency Plan
NPL	National Priority List
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
QHHEA	Qualitative Health and Human Exposure Assessment
RAO	Remedial Action Objectives
RAP	Remedial Action Plan
RCRA	Resource Conservation Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RFP	Request For Proposal
RP	Responsible Party
SARA	Superfund Amendments and Reauthorization Act
SCGs	Standards, Criteria, and Guidance
SMP	Site Management Plan
SOP	Standard Operating Procedure
SOW	Scope of Work or Statement of Work
SPLP	Synthetic Precipitate Leaching Procedure
STEL	Short-Term Exposure Limit
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Indentified Compound from Mass Spectrometry
TOC	Total Organic Carbon
TOSCA	Toxic Substance Control Act
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
USGS	United States Geologic Survey
VOC	Volatile Organic Compounds
WP	Work Plan
XRF	X-Ray Fluorescence

MEASUREMENTS

ppm	Parts per million
ppb	Parts per billion

ppbv	Parts per billion by volume
ppmv	Parts per million by volume
bgs	Below Ground Surface
msl	Mean Sea Level
ppbv	Parts per billion by volume
µg/L	Microgram per liter
µg/Kg	Microgram per kilogram
µg/m3	Microgram per cubic meter
mg/L	Milligram per liter
mg/kg	Milligram per kilogram
Mf/L	Million fibers per liter

Section 2

Pre-Mobilization Activities (PM)

STANDARD OPERATING PROCEDURE

PM-001 Utility Markout and Clearance

1. Objective

Describe typical utility markout/clearance procedures prior to and during excavation. All markout procedures should be performed in accordance with local and state regulations.

Many states, by law, require that utility companies are notified before excavation begins. Actual procedures and requirements differ by state. City/state government may have additional requirements for utility markout procedures. Check the requirements in the locality before beginning. Also check with the GEI project manager to determine whether it is most appropriate for GEI or the drilling/excavation subcontractor to handle mark out and clearance.

2. Execution

Public Utility Markouts

- The drilling/excavation locations should be marked with white paint, stakes, or flags.
- The contractor should call the appropriate one call communication network for the state the work is being conducted in. Refer to the Reference section in this SOP for contact information. Contractors shall provide all necessary information to the one call system. Sample location maps may be provided to clarify sampling locations. The contractor shall provide GEI with the utility clearance ticket number.
- If necessary, contact the municipalities or other utility owners to mark their water, sewer, or other lines if they do not belong to the one call system. The contractor should keep a record of these calls.
- Utility plans, if available, should be obtained from the property owner or municipal offices.
- Prior to excavation, a visual check should be made that all utilities companies and municipalities have marked their locations. This includes looking for signs that a utility exists, and verifying that the markings agree with a visual check. If they do not, contact the appropriate utility to remark their locations.
- Utilities will generally only markout and clear utilities in roadways or other public property up to the property boundary. Owners of fiber optic cables, natural gas pipelines, and other high hazard utilities will often markout on private property if requested. The contractor should request this. See section on private utility clearance below.
- Public agencies, utilities, contractors, other associations, manufacturers and all others involved in excavation should adopt the American Public Works Association (APWA) Uniform Color Code using ANSI standard Z535.1 Safety Colors for temporary marking and utility identification, as follow:

The APWA Uniform Color Code

1. **White** – Proposed Excavation
2. **Pink** – Temporary Survey Markings
3. **Red** – Electric Power Lines, Cables, Conduit and Lighting Cables
4. **Yellow** – Gas, Oil, Steam, Petroleum & Gaseous Material
5. **Orange** – Communications, Alarm or Signal Lines, Cables or Conduit
6. **Blue** – Potable Water
7. **Purple** – Reclaimed Water, Irrigation and Slurry Lines
8. **Green** – Sewers and Drain Lines

However, not all organization do use these colors. Make sure the color scheme is understood.

- The excavator/contractor and consultant begins work on the scheduled work date and time (if all the facility operators have responded) taking care to find and preserve any markings that have been made.
- If markings may be disturbed during work, establish offset marks to create reference points for the underground utilities. Take photographs of the markings before starting work.
- When digging near a buried utility, the excavator/contractor and consultant should be aware of their proximity to the utility and use caution.
- If there is uncertainty about the accuracy of the markings or there are too many utilities in a given location to excavate or drill safely, consideration should be given to hand-digging the first few feet, vacuum excavation, or use of a utility location company as detailed below in Private Utility Markouts.
- Some clients may require hand or vacuum clearance to a minimum depth. Check with the GEI project manager.
- If exposing a utility, the excavator/contractor should provide proper support and protection for the utility to prevent damage. Contact the utility operator for support, guidance, or assistance.
- When the excavation is complete, the excavator/contractor should provide proper backfill for any utilities that have been exposed.

Private Utility Markouts

- Utility markouts on private property should follow the steps outlined above in public utility markouts with the additions below.
- If work is conducted on private property where public utilities may not provide markouts and the property owner cannot provide accurate utility plans, it is

recommended to use a company to determine the utility locations using one or more of the following technologies:

i. Electro-Magnetic (EM) device: This technology uses an electro-magnetic field in the subsurface to accurately locate metallic lines or non-metallic lines incorporating a metallic trace wire along their surface. The field is created either by direct contact to the pipe or tracewire, or by an induced current via radio waves.
ii. Sewer Sonde: For non-metallic lines where internal access is possible (such as clean-out ports in a sewer), a beacon or 'sonde' that emits a signal to the surface receiver as it is snaked through the pipe provides the same accuracy as the EM detector. If the internal condition of the pipe is desired, a camera can be deployed instead of a simple sonde.
iii. Ground Penetrating Radar (GPR): This technology involves radar waves reflecting to a surface receiver which provides a visual real-time map of the subsurface by which anomalies (such as pipes or tanks) may be detected. It has limitations in clay or wet soils and requires a skilled operator for interpretation. GPR should be considered for high risk utilities (e.g. PVC natural gas lines without trace wire) where line-of-sight project from site entry point to a kiosk or other building is uncertain.

- Utility markout on private property should include clearance for other types of underground structures such as underground storage tanks, septic systems, utility or access tunnels, and in-ground irrigation systems.

3. Limitations

- Markout notification time usually does not include holidays. Make sure holidays are considered and markout time is scheduled accordingly. Do not conduct excavation or drilling prior to the required wait time. Do not mark excavation locations using spray paint if it is raining or snowing enough so that the paint markings will be washed away. Consider using long stakes instead of paint if snow is predicted. Excavations within the tolerance zone should be performed with non-powered hand tools until the marked utility is exposed. The tolerance zone may be determined by the utilities, law or codes.
- When excavating close to an underground utility, it is good practice for the contractor/excavator to have a spotter assist and guide the machine operator.
- Take care not to damage the conduit or protective coating of a utility. If the excavator/contractor damages this, leave the damaged utility exposed and immediately call the utility owner.
- If contact to a gas utility occurs, notify police, fire, and emergency personnel, and evacuate employees and general public. No attempt should be made to tamper with or correct the damaged utility.

4. References

Connecticut
Name: Call-Before-You-Dig (CBYD)
Telephone: 811 or 1-800-922-4455
Website: www.cbyd.com
Wait time after notification: 2 business days (excluding holidays)
Expiration of markout: 30 days

Massachusetts, Maine, New Hampshire, Rhode Island and Vermont
Name: Dig Safe
Telephone: 811 or 1-888-DIG-SAFE
Website: www.digsafe.com
Wait time after notification:
MA, ME, NH, and RI: 3 business days (excluding holidays)
VT: 2 business days (excluding holidays)
Expiration of markout: 30 days

New York State
Name: Dig Safely New York
Telephone: 811 or 1-800-962-7962
Website: www.digsafelynewyork.com
Wait time after notification: 2 business days (excluding holidays)
Expiration of markout: 30 days

New York City/Long Island
Name: New York City One Call Center
Telephone: 811 or 1-800-272-4480
Website: www.nycli1calldsi.com
Wait time after notification: 2 to 10 days (excluding holidays)
Expiration of markout: 30 days

New Jersey
Name: New Jersey One Call
Telephone: 811 or 1-800-272-1000
Website: www.nj1-call.org
Wait time after notification: 2 business days
Expiration of markout: 45 days

5. Attachment

Attachment A – Standard Utility Color Codes

6. Contact

Anne Leifer

Color Code	Utility Description
Red	Electric
Yellow	Gas-Oil
Orange	Communications
Blue	Water
Green	Sewer
White	Proposed Excavation

Section 3

Field Documentation (FD)

STANDARD OPERATING PROCEDURE

FD-001 Field Notebook

1. Objective

Describe methods for documentation of field activities.

Documentation of site activities is a crucial part of the field investigation process. The field notebook serves as the record of field activities performed or observed during the project. It provides a factual basis for preparing field observation reports, if required, and reports to clients and regulatory agencies. Example field notes are provided in Attachment A.

2. Execution

- Use a separate all-weather bound notebook for each site/location/project number. Spiral notebooks should not be used because pages can be easily removed.
- Write neatly using black or blue pen, preferably a waterproof pen. Use of pencil is also acceptable only with approval of the project manager, such as in but not limited to, certain field conditions [e.g., cold or wet weather].
- Write the project name, project number, book number (i.e., 1 of 3), and date on the front cover. On the inside cover, identify the project name, project number, and "Return Book To:" the office address of the project manager.
- Number all of the pages of the field book starting with the first entry.
- Record activities as they occur. Record only facts and observations, regardless of whether they appear to be relevant at that time.
- Identify conditions or events that could affect/impede your ability to observe conditions (e.g. snow-covered ground surface, inability to access areas of interest).
- Neatly cross out mistakes using a single line and initial them. Erasures are not permitted.
    - If an error is made on an entry in the field notebook, the individual who made the entry should make the corrections. The corrections must be initialed and dated by the person making the correction.
- Sign or initial and date the bottom of every page with an entry if the project requires such documentation.
- Place a diagonal line through unused portions of a page.
- Record the following information upon each arrival at the site:
    - Date/time/weather.
    - GEI personnel.
    - Purpose of visit/daily objectives.
    - People (client, contractor, landowners, etc.) present upon GEI arrival.

- Record the following information during the course of the day:
  - Conversations with contractors/subcontractors, clients, visitors, GEI staff, landowners (site or abutters). If possible, record complete names, titles, and affiliations.
  - Time of arrival and departure of individuals.
  - Activities as they occur.

- Additional examples of observations to record may include and are not limited to:
  - Type and quantity of monitoring well construction materials used.
  - Use of field data sheets or electronic logging equipment (e.g. boring logs, monitoring well sampling logs, etc.).
  - Ambient air monitoring data.
  - Field equipment calibration information.
  - Locations and descriptions of sampling points.
  - Contractor/Subcontractor progress.
  - Sample media (soil, sediment, groundwater, etc.).
  - Sample collection method.
  - Number and volume of sample(s) collected and sample bottle preservatives used.
  - Sample identification number (s) and date and time of sample collection.
  - Approximate volume of groundwater removed before sampling.
  - Any field observations made such as pH, temperature, turbidity, conductivity, water level, etc.
  - References for maps and photographs of the sampling site(s).
  - Information pertaining to sample documentation: bottle lot numbers/ dates, method of sample shipments, chain-of custody record numbers, and overnight shipping numbers.
  - Surveying data (including sketches with north arrows).
  - Changes in weather.
  - Rationale for critical field decisions.
  - Recommendations made to the client representative and GEI Project Manager.
  - Site sketch of conditions at the end of the day.
  - Summary of work completed/work remaining.
  - Allow time at the end of the day to complete entries in the notebook.

3. References

New Jersey DEP Field Sampling Procedures Manual, August 2005.

ASFE Daily Field Report for Geotechnical Field Observation, 2nd Edition (2001), ASFE, Inc.

4. Attachments

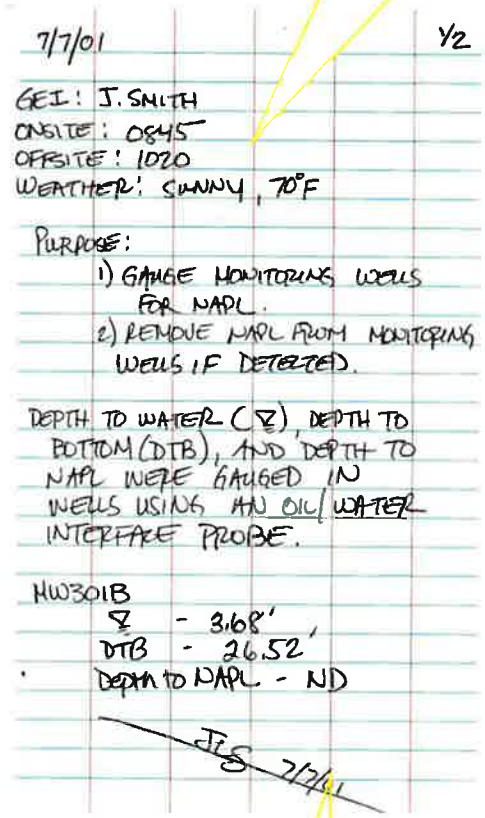
Attachment A - Example Field Notes

5. Contact

Melissa Felter
Leslie Lombardo

SOP FD-001

Attachment A – Example Field Notes



7/7/01 Y2

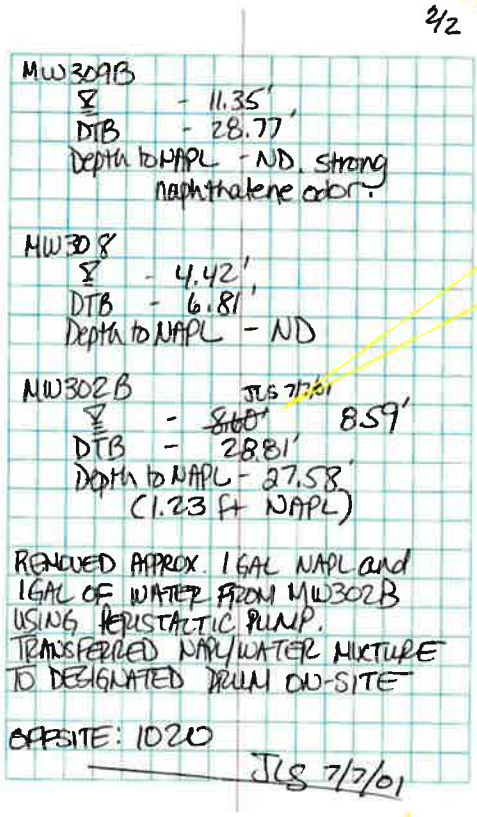
GEI: J. SMITH
ONSITE: 0845
OFFSITE: 1020
WEATHER: SUNNY, 70°F

PURPOSE:
1) GAUGE MONITORING WELLS FOR NAPL.
2) REMOVE NAPL FROM MONITORING WELLS IF DETECTED.

DEPTH TO WATER (▽), DEPTH TO BOTTOM (DTB), AND DEPTH TO NAPL WERE GAUGED IN WELLS USING MN OIL/WATER INTERFACE PROBE.

MW301B
▽ - 3.68'
DTB - 26.52'
DEPTH TO NAPL - ND

JLS 7/7/01



2/2

MW309B
▽ - 11.35'
DTB - 28.77'
DEPTH TO NAPL - ND. Strong naphthalene odor.

MW308
▽ - 4.42'
DTB - 6.81'
DEPTH TO NAPL - ND

MW302B
▽ - ~~8.60'~~ JLS 7/7/01 8.59'
DTB - 28.81'
DEPTH TO NAPL - 27.58'
(1.23 ft NAPL)

REMOVED APPROX. 1 GAL NAPL and 1 GAL OF WATER FROM MW302B USING PERISTALTIC PUMP. TRANSFERRED NAPL/WATER MIXTURE TO DESIGNATED DRUM ON-SITE

OFFSITE: 1020

JLS 7/7/01

Start of each day includes:
- Date
- Project Number
- People on site
- Purpose of Work
- Weather Conditions

Each page is numbered

Errors are single line crossed out and initialed

Blank Space crossed out and initialed

Bottom of each page signed and dated

GEI Consultants

STANDARD OPERATING PROCEDURE

FD-002 Field Observation Report

1. Objective

Describe methods to generate a Field Observation Report.

The Field Observation Report is used to record a summary of activities, observations, and decisions made during the day's field work. The daily field observation report serves as a permanent record of the day's activity for the Project Manager (PM), In-House Consultant (IHC), and/or client.

2. Execution

- If required, at the close of the day's field work, a Field Observation Report should be prepared by the individual responsible for the field notebook. This report should be completed before leaving work for the day. Contents of the report should include, at a minimum, the following information:
    - A record of person(s) present at the site, time of arrival, departure times (e.g., GEI, contractor(s), client, etc.).
    - A record of the daily objective(s) and the activities performed (e.g., drilled five borings in the overburden).
    - A summary of deviation(s) from the field plan or objectives.
    - A summary of field decisions made, who made them, and the basis for such decisions.
    - A diagram, sketch, and/or map showing the location and extent of the work or other significant observation(s) made during the day.
    - Recommendations that may result from field observations and actions that may result from implementation of those recommendations.
    - A summary listing and field sketch showing location(s) of field activity.
- Submit a draft report to the PM/IHC for review. Complete any editorial changes, sign, date, and submit the report to PM/IHC for approval/signature. Field Observation Reports should be written neatly. They are not required to be typed unless specifically requested by the PM.

3. Limitations

- The Field Observation Report is not a substitute for the field notebook.
- Not all projects require daily Field Observation Reports.
- The Field Observation Report should be based primarily on factual information. Opinions, if necessary, should be identified as such. Any speculation should be clearly noted in the report as such.

- The Field Observation Report should never be released to anyone other than the PM/IHC prior to review and sign-off unless explicitly authorized by the PM/IHC.

4. References

New Jersey DEP Field Sampling Procedures Manual, August 2005

ASFE Daily Field Report for Geotechnical Field Investigations, 2nd Edition (2001), ASFE, Inc.

5. Attachments

Attachment A - Example Field Observation Report

6. Contact

Melissa Felter
Leslie Lombardo

FIELD OBSERVATION REPORT

Project :	Guard Booth Upgrades	**Date:**	November 8, 2006
Client :	ACME Industries	**Report No.**	1
Contractor:	ABC Contracting	**Page:**	1 of 2
Subcontractor:	NA	**GEI Proj. No.**	99999-0

SOP FD-002 - Attachment A – Example Field Observation Report

Time of Arrival: 0700 **Departure: 1440** **Weather: Overcast, Raining, 55^{0}F**

Persons Contacted, Company
Jane Doe, ABC Contracting

GEI Representatives
Bill Smith

Purpose of Site Visit: To observe excavation of soils for new guard booth and sidewalk.

Observations:

1. **Excavation**
   a. Areas for guard booth and sidewalk were laid out by ABC with stakes, string, and spray paint. Locations were between the pavement and wetland area; no excavation occurred in the wetland area.
   b. Staging area for soil stockpile was located to the west of the excavation, along the fenceline; polyethylene sheeting was placed beneath the pile.
   c. HDPE membrane delivered to site; stored in garage area through the inside fence.
   d. ABC crew began hand digging area for sidewalk and guard booth. Sidewalk area measured 22 feet long by 4 feet wide by 4 inches deep. Guard booth area measured 12 feet long by 10 feet wide by 9 inches deep. Utility pole and bollard locations started today.
   e. Rain continued to get worse in the afternoon; ABC covered the entire excavation and soil stockpile with poly sheeting and secured the sheeting with grade stakes.

2. **Subgrade Preparation**
   a. Subgrade preparation for the sidewalk and guard booth areas at the site is complete.

3. **Dewatering**
   a. No dewatering occurred today.

4. **Air Monitoring**
   a. During excavation, I monitored the breathing zone of the workers with an organic vapor meter (OVM). No headspace readings were measured in soil samples S-1 through S-8.

GEI

FIELD OBSERVATION REPORT

Project :	Guard Booth Upgrades	**Date:**	November 8, 2006
Client :	ACME Industries	**Report No.**	1
Contractor:	ABC Contracting	**Page:**	2 of 2
Subcontractor:	NA	**GEI Proj. No.**	99999-0

Picture 1: Sidewalk excavation and bollard layout

By: Bill Smith	**Reviewed By:**

GEI

STANDARD OPERATING PROCEDURE

FD-003 Sample Management and Chain of Custody

1. Objective

Describe methods to label sample containers, manage the samples, and prepare Chain of Custody documentation for the samples. Sample transport is also addressed.

2. Project Setup

When setting up a sampling event, inform the recipients of the samples (laboratories) and recipients of laboratory results (data group and project managers). Discuss with the laboratory the sampling media, turnaround times, and reporting limits for appropriate regulatory criteria for the site. Include the data group on correspondence so that turnaround times, data validation, and project deliverable schedules can be tracked successfully.

- Laboratory - Number of samples, analyses needed: bottle orders and holding times, turnaround times needed, reporting limits needed for regulatory criteria.
- Data group - Number of samples, analyses requested, turnaround times and reporting limits requested, data validation needed, regulatory criteria to use for tabulating results, deliverables needed, and project name and number.
- Schedule - Inform the laboratory and Data Group of schedule delays, changes to analyses, and expediting.

3. Sampling Execution

- Review the work plan prior to sampling to determine the following:
  - Sample matrix and sampling method.
  - Required analysis and sample volumes.
  - Sample container type and preservative requirements.
  - Required analysis methods and/or report formats.
  - The turnaround time required by the project.
  - If the data will be sent directly from the laboratory to the data validator, Project Manager, or Data Group.
  - Holding time restrictions for sampling media and analytical methods.
  - Sample naming convention used for this project site.
- Sample labels should be filled out using a waterproof or permanent marker or pen. Required information includes:
  - Sample ID.
  - Date and time (military time) of sample collection.
  - Project number.
  - Sample preservatives.
  - Sampler's initials.
  - Laboratory analytical methods.

- Place the label on the jar or bottle, not on the cap. Sample custody begins at this time.
- Record the above information in the field notebook.
- Individually wrap sample jars with packing material, if needed. See SOP SC-002 for guidance on packaging samples for shipment to the laboratory by way of common carrier. Place samples in a cooler with bagged ice or freezer packs (blue ice) immediately after collection. Add sufficient ice or freezer packs to cool samples to approximately 4°C.
- Complete a chain of custody (COC) for the samples as described below. GEI or laboratory COCs may be used as long as they contain fields for all required sample information as described in Section 2.1.

3.1. Chain-of-Custody (COC) Completion

- Fill out COC neatly and in permanent ink. Alternatively, an Excel version of the GEI COC is available and can be filled out electronically.
- Certain analyses (i.e. air analysis by TO-15) require specialized, laboratory issued COCs. Make sure any specialized COCs are available before sample collection.
- Record the project name and number, the sampler's name(s) and the state where the samples were collected.
- For each sample, enter the sample identification number, date and time (military time) collected, the number of sample containers, and any additional information to fulfill project, client or regulatory requirements.
- Record the type of analysis (including laboratory method; e.g. EPA-SW846 Method XX) requested and the preservative (if appropriate) in the vertical boxes.
- Field duplicates should be anonymous to the laboratory, but must be recorded for use by the Data Group. To keep track of this information, link the field duplicate with the proper sample in the field notebook. If required by the Project Manager or Data Group, also document this information on or attach a note to the GEI copy of the COC.
- Trip blanks for large sites should be named similar to the samples they are collected with so that there are not two of the same sample name for the same site. For example, "OU1TB-122509" and "OU3TB-122509" would avoid any mistakes.
- Strike incorrect entries on the COC with a single line, followed by the initials of the person making the correction, the date, and the correct entry.
- When sample custody is ready to be relinquished, complete the bottom of the form with date and time (military time) and signatures of relinquisher and receiver of samples as indicated. The sample collector is always the first signature while the analytical laboratory is the final signature. Theoretically, all individuals handling the samples between collection and laboratory should sign the form; however, if a common carrier (i.e., Federal Express, UPS) is used for shipping, GEI must identify the carrier in the 'Received by' box on the

COC. If the sampler hand delivers the samples to the laboratory, the received box must be signed by the laboratory.

- If the samples are placed in a designated secure area (e.g. GEI sample fridge), note this location in the "Received by" box on the COC.
- GEI uses both single sheet and triplicate COCs. If using the triplicate COCs (white, yellow, and pink copies), the pink copy should be retained by the sampling personnel and provided to the Data Group for proper filing. The white and yellow copies should accompany the samples to the laboratory.
- If you are using the single sheet COC, make a copy of the COC after it has been signed by the lab courier and forward it to the Data Group.
- Prior to sample shipment by common carrier, the COC must be placed inside the cooler in a Ziplock bag or other watertight package.
- If a common carrier such as FedEx is used to transport the samples to the laboratory, include the carrier tracking number and identify the carrier in the "Received by" box on the COC.
- If a courier is used to transport samples to the laboratory (lab courier or GEI personnel), the courier signs the COC in the "Received by" box.
- Place a custody seal on the cooler if shipping via common carrier.
- Transport samples to the laboratory as soon as possible. It is preferable to transport the samples directly to the laboratory from the field. Samples brought back to the office for storage prior to submission to the laboratory must be kept cold (4° C).
- Unused sampling containers/media that are sent back to the lab should be included on a separate COC.
- After the samples are sent to the laboratory, the GEI copy of the COC must be forwarded to the Data Group: datagroup@geiconsultants.com.

4. Limitations

- Keep the number of people involved in handling samples to a minimum.
- Where practical, only allow people associated with the project to handle the samples.
- Always document the transfer of samples from one person to another on the COC.
- The COC should always accompany the samples.
- Give samples positive identification at all times that is legible and written with waterproof or permanent ink.
- When sending samples via a common carrier, use one COC per package.
- Where practical, avoid sending samples from more than one site with separate COCs in a single package.

5. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

Connecticut Department of Environmental Protection, Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory

6. Attachments

Attachment A - Example Chains of Custody
Attachment B - Shipping Info Pics

7. Contact

Leslie Lombardo

Chain of Custody Record

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484
Tel: 203-929-8140

Example COC

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: GEI	Project Manager: Dave Terry	Date: 12-31-07	Chain of Custody Number: 00452
Address: 455 Winding Brook Dr	Telephone Number (Area Code)/Fax Number: 860 368 5300 / 860 368 5307	Lab Number:	Page 1 of 1
City: Glastonbury / State: CT / Zip Code: 06033	Site Contact: M. Felter	Lab Contact: Paul Mobart	
Project Name and Location (State): Carroll Gardens NY	Carrier/Waybill Number: FedEx 9383 7603 0879		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: VOC 8260B	SVOC 8270C	TO-15 + NAPHTHALENE	Special Instructions/ Conditions of Receipt
CGSB-01 (0-2)	12-31-07	1130				X	X						X	X		
CGSB-02 (3-4)	12-31-07	1250				X	X						X	X		
CGSB-02 (3-4) MS	12-31-07	1250				X	X						X	X		
CGSB-02 (3-4) MSD	12-31-07	1250				X	X						X	X		
CGSB-XX (5-6)	12-31-07	0800				X	X						X	X		
CGTB-123107	12-31-07	1400				TB				X			X			
CGGW-01	12-31-07	1430		X			X			X			X	X		
CGSG-01	12-31-07	0700-1500	X												X	CANISTER # 2613 REGULATOR # 779

BY NEW JERSEY: "CLP data package deliverables"

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other See Contract

QC Requirements (Specify) NYS Cat B ASP deliverable send to Lorie Mackinnon Send EDD to datagroup@geiconsultants.com

1. Relinquished By: Melissa J Felter	Date: 12-31-07	Time: 1600	1. Received By: FedEx WAYBILL 923117-4432	Date: 12-31-07	Time:
2. Relinquished By	Date:	Time:	2. Received By	Date:	Time:
3. Relinquished By	Date:	Time:	3. Received By	Date:	Time:

Comments: USED FLOW CONTROLLER FOR AIR SAMPLE INCLUDED

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

EXAMPLE COC

Chain-of-Custody Record

Laboratory: Accutest

Laboratory Job # (Lab use only)

GEI Consultants
400 Unicorn Park Dr.
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: MWRA - Low Service Storage Tank
Project Location: Stoneham, MA
Project Number: 093400
Project Manager: D. Aghjayan

Send Report to: rseigener@geiconsultants.com
Send EDD to: labdata@geiconsultants.com

MCP PRESUMPTIVE CERTAINTY REQUIRED – YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
If Yes, Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	GEI Sample ID	Collection Date	Collection Time	Matrix	No. of Bottles	Sampler(s) Initials	Preservative	PCBs	VPH Fractions Only	EPH Fractions Only	SVOCs	VOCs, % Solids**	Conductivity	RCRA 8 Metals*	TPH by GC/FID DRO
								None	MeOH	None	None	MeOH	None	None	None
	093400-LS6-S5(19'-21')	12/29/2009	9:30	SO	3	JMR			x			x			
	093400-LS6-COMP (FILL)	12/29/2009	9:30	SO	1	JMR		x		x	x		x	x	x
	093400-LS6-COMP (NATIVE)	12/29/2009	15:00	SO	1	JMR		x		x	x		x	x	x
	093400-LS8-COMP	12/29/2009	14:00	SO	1	JMR		x		x	x		x	x	x
	093400-LS9-S4 (8'-8'-5")	12/30/2009	14:30	SO	3	JMR			x			x			
	093400-LS9-COMP	12/30/2009	15:00	SO	1	JMR		x		x	x		x	x	x

Sample Handling

Samples Field Filtered
YES NO NA

Sampled Shipped With Ice
YES NO

Sample Specific Remarks

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
1. Joseph M. Reynolds	12/30/09	16:30	1. GEI FRIDGE
2. GEI FRIDGE	1/4/10	1310	2. Naomi Gleyzer
3. Naomi Gleyzer	1/4/10	1310	3. [illegible]
4.			4.

Turnaround Time (Business days):

Normal _X_ Other ____
10-Day ____ 7-Day ____
5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Please use MA Landfill List

* Please run TCLP analysis for RCRA 8 Metals results that exceed the 20 times rule.

** Please use % solids sample for VOC and VPH analysis of 093400-LS6-COMP (FILL), 093400-LS6-COMP (NATIVE), 093400-LS8-COMP, and 093400-LS9-COMP

Chain-of-Custody Record

Laboratory:

Laboratory Job #
(Lab use only)

GEI Consultants

455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033
PH: 860.368.5300
FX: 860.368.5307

Project Information

Project Name/Number:

Project Location:

Project Contact:

Phone Number:

Send Report to:

Send EDD to: datagroup@geiconsultants.com

Page __ of __

Preservative

Analysis

Sample Handling

Samples Field Filtered
YES NO NA

Samples Shipped With Ice
YES NO

Deliverables:

If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	Sample Specific Remarks
		Date	Time				

Relinquished by sampler: (signature)	Date	Time	Received by: (signature)
1.			1.
Relinquished by: (signature)	Date	Time	Received by: (signature)
2.			2.
Relinquished by: (signature)	Date	Time	Received by: (signature)
3.			3.
Relinquished by: (signature)	Date	Time	Received by: (signature)
4.			4.

Turnaround Time (Business days):

Normal ____ Other ____
10-Day ____ 7-Day ____
5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PACKING SAMPLES FOR SHIPMENT BACK TO THE LABORATORY

A. Line cooler with bubble wrap and large plastic bag. Use absorbent pad inside the bag if bottles contain preservatives.

B. Wipe outside of bottles and put glass in individual bubble bags & seal. Place bottles & the temperature blank into cooler. Leave room for ice in between bottles & on top.

C. Place double bagged or loose ice randomly around bottles throughout the cooler.

D. Place large bag of ice or loose ice on top of the bottles. In warm weather, the cooler should be packed with as much ice as possible.

E. Close outer bag, compress excess air out of bag, twist top and knot. If necessary, use more bubble wrap to fill the dead air spaces. Place chain of custody (COC) and other paperwork in plastic bag and seal. Place on top of cooler.

F. Close cooler, place signed and dated Custody Seals over opening. Tape over the Custody Seal and seal cooler securely. Fill out overnight shipping waybill and attach to the top or handle of the cooler. Attach Saturday delivery stickers if needed. Ship according to DOT regulations.

Rev 011209

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PACKING SAMPLES FOR SHIPMENT BACK TO THE LABORATORY

A. Line cooler with bubble wrap and large plastic bag. Use absorbent pad inside the bag if bottles contain preservatives.

B. Wipe outside of bottles and put glass in individual bubble bags & seal. Place bottles & the temperature blank into cooler. Leave room for ice in between bottles & on top.

C. Place double bagged or loose ice randomly around bottles throughout the cooler.

D. Place large bag of ice or loose ice on top of the bottles. In warm weather, the cooler should be packed with as much ice as possible.

E. Close outer bag, compress excess air out of bag, twist top and knot. If necessary, use more bubble wrap to fill the dead air spaces. Place chain of custody (COC) and other paperwork in plastic bag and seal. Place on top of cooler.

F. Close cooler, place signed and dated Custody Seals over opening. Tape over the Custody Seal and seal cooler securely. Fill out overnight shipping waybill and attach to the top or handle of the cooler. Attach Saturday delivery stickers if needed. Ship according to DOT regulations.

Rev 011209

STANDARD OPERATING PROCEDURE

FD-004 Photo Documentation

1. Objective

Describe methods to document and retain photographic records.

Keeping a record of photographs taken is crucial to their validity as a representation of existing conditions.

2. Execution

- Photographs of a site, individual samples, or other observations should be taken using a digital camera.
- Set the camera to record the time and date for each photograph.
- All photographic records, along with the following information, should be recorded in the field notebook (SOP FD-001).
    - If applicable, the compass direction describing the direction the photograph was taken (e.g. looking southeast). This may not apply to photographs of individual samples.
    - Brief description of what the photograph is intended to show.
- The field notebook should note who took the photographs.
- The photographs should be electronically backed up on a computer or other data storage device.
- If photographs will be used in a report, memo, or letter, they should be placed on a photograph record template and the relevant information describing the photograph should be inserted into the caption section for each photograph.

3. Limitations

- Some clients and regulatory agencies require photographs of every subsurface soil sample collected. These photographs typically include a "whiteboard" which indicates the site, the boring ID, and the depth of the sample, while logging details are recorded in the field notebook. Under these circumstances, it is not necessary to include compass directions or descriptions.

4. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

5. Attachments

Attachment A – Example of Photo Documentation Template

6. Contact

Melissa Felter
Leslie Lombardo

Attachment A – Example of Photo Documentation Template
GEI Consultants, Inc.

Project: Project Name

Location: Project Location

Photographer: K. Barber
Date: 10/25/07
Photo No.: 1
Direction: N

Comments:
Entrance of site with tree mulching operations.

Photographer: K.Barber
Date: 10/25/07
Photo No.: 2
Direction: W

Comments:
On-site building built in 1936.

STANDARD OPERATING PROCEDURE

FD-006 Handheld Global Positioning Receiver Operation

1. Objective

Use handheld global positioning system (GPS) receivers to locate sample points and site features with "Mapping-Grade" accuracy.

Use handheld GPS receivers to "stake out" proposed sample point locations within the limits of "Mapping Grade" accuracy.

2. Execution

- Handheld GPS receivers provide a low-cost and user-friendly method for locating sample points and site features with a fair degree of horizontal accuracy.
- In simplistic terms, GPS works by measuring the distance from numerous orbiting satellites to a point on the earth surface. Individual satellites broadcast their real-time location in terms of x,y and z coordinates, and the distance from each satellite is measured as a function of the length of time that a time-stamped signal takes to reach the receiver. Built-in GPS software derives new points by intersecting the distances from known orbital locations – in much the same way that points are located by intersecting tape-measured distances from building corners or other pre-existing site features.
- Late-model handheld GPS receivers utilize a real-time differential correction technique called WAAS (Wide Area Augmentation System). This system was designed to provide greater confidence and reliability in using GPS data for commercial aircraft landing approaches, and the additional correction improves all GPS operations.
- Handheld GPS receivers display navigational information on a variety of standard pages. Although each manufacturer uses slightly different formats, all receivers toggle back and forth between the following visual presentations:
- A "satellite" page displays the relative orbital location of all GPS satellites that are currently being tracked by the receiver. The display may include information on the real-time geometrical strength of the solution: satellite intercepts that cross at right angles provide more accurate solutions than intercepts that cross at acute or obtuse angles.
- A "track" page that displays the travel path of the receiver while it is turned on, along with the relative location of recorded points. Many GPS models have a "track-back" function that will guide the user on the same path back to the starting point
- A "navigation" page that displays instantaneous location and the real-time direction and velocity of travel. Some units provide two pages to display this information in different formats. Most units will report the overall "course

made good" (straight-line bearing and distance from the starting point) at any point.

- A "waypoint" page that allows users to "Go To" a created point or previously recorded point by providing a straight-line bearing and distance to the point. The information is instantaneously updated as the user moves along; some units display a pointing arrow that directs the user to the direction of travel. Be careful of go-to lines that lead through swamps or over cliffs – if you will be travelling in difficult terrain have a paper copy of the USGS quadrangle and a compass on hand for navigation.
- Signal strength degrades significantly next to buildings and underneath tree canopy. Most GPS receivers have an "averaging" function to improve the accuracy of shielded locations. GPS users can also improve precision by locating points three times, at different times of the day. Two of the solutions will generally be closer to each other than to the third and can be averaged for a more reliable fix.
- Most GPS receivers default to latitude and longitude, but data is more accurate and easier to input and when expressed in UTM coordinates to the nearest meter. The handheld GPS setup will have a function somewhere to change to UTM. Most of Connecticut is in UTM Zone 18 but the easternmost parts are in Zone 19.
- Consult "Corpscon" the datum translator available from the National Geodetic Survey website. Corpscon translates instantly from latitude/longitude to UTM coordinates to state plane coordinates and provides tools to identify UTM Zones. Also consult the Trimble, Garmin and Magellan websites for technological improvements and discussion of advanced techniques.

3. Limitations

- Handheld GPS receivers operating in unobstructed locations are currently reckoned to provide 2-5 meter accuracy, meaning that the true location of measured points lie within an "error ellipse" with axes of 2-5 meters centered on the measured location. In other words, even under the best of conditions a real-time GPS solution may be as much as 20 feet off the true horizontal location of a point.
- Due to geodetic restrictions, vertical locations (elevations) have less than half the accuracy of horizontal locations, meaning that even under the best of conditions, a surface elevation displayed on a handheld GPS receiver may be off by more than 50 feet.
- Horizontal and vertical data derived from handheld GPS receivers should never be considered more than relatively accurate, and this level of uncertainty should be identified in any discussion of positional tolerance.

4. References

Trimble Website: .trimble.com
Garmin Website: .garmin.com

Magellan Website: .magellangps.com
National Geodetic Survey: ://www.ngs.noaa.gov/

5. Contact

Matt O'Neil

Section 4

Drilling Methods (DM)

STANDARD OPERATING PROCEDURES

DM-001 General Guidance on Determination of Appropriate Drilling Methods

1. Objective

There are multiple drilling methods which can be employed based on the type of stratum (e.g. overburden or bedrock) and the end use of borehole. End uses include geotechnical investigation, subsurface soil sampling, and monitoring well installation or a combination thereof.

The following text describes different methods of drilling with considerations for their use to collect groundwater and/or subsurface soil samples. Profiles of subsurface conditions encountered and well installation details must be recorded on logs. Procedures for field documentation are provided in Section 4 - Field Documentation.

2. Hollow-Stem Augers (HSAs)

Borings can be installed in unconsolidated formations using solid-stem or hollow-stem augers (HSAs). The augers are advanced by rotation and the drill cuttings are brought to the surface by travelling up the outside of the auger flights in a screw-like manner. HSAs have the advantage of allowing the well to be installed inside the hollow stem of the auger, which prevents the borehole from collapsing. Upon reaching the planned well depth, the casing and screen are placed inside the HSAs and the flights are individually removed while the annular space around the well is filled with the filter pack and grout, as appropriate. Conversely, solid-stem augers must be completely removed from the borehole before well installation, which can lead to collapse of the borehole. For this reason, solid stem augers are seldom used for installation of monitor wells.

HSAs come in a variety of sizes and allow collection of soil samples utilizing split spoons or Shelby tubes. Samples are collected ahead of the augers for determining soil/sediment type, stratigraphy, depth to the water table, and for collecting soil samples for chemical analysis. During this process, the standard penetration test (SPT, ASTM Method D 1586) can also be performed. The HSA method also has an advantage over mud-rotary drilling techniques in that drilling mud is not used. Drilling mud can contaminate the soil samples and potentially reduce the yield of the wells.

A disadvantage of the method is that HSAs cannot be used to drill into competent bedrock or through large boulders. Also, "heaving or running sands" can be forced up inside the augers as a result of strong vertical groundwater gradients, which can hamper efforts to collect soil samples or complete well installation. Furthermore, the maximum depth achievable using HSAs, which is generally shallower than other methods, is dependent not only on the ability of the rig (e.g., horsepower, rig-torque, weight of augers etc.), but also the lithology of the material drilled.

3. Rotary Drilling

Rotary drilling methods include both direct rotary and reverse-circulation rotary. Direct rotary is more commonly used in environmental investigations, whereas reverse-circulation rotary is used in drilling large-diameter water supply wells. In direct rotary drilling the borehole is advanced by rotating the drill pipe (rods) and bit to produce a cutting action. The cuttings are removed from the borehole by continuous circulation of a drilling fluid. The fluid or "mud" is pumped down the inside of the drill pipe and is circulated back to the surface on the outside of the pipe. The fluid removes the drill cuttings from the borehole and cools and lubricates the bit. Mud used during direct rotary consists of additives (e.g., bentonite), water, or air.

Reverse-circulation rotary drilling is similar to direct rotary except the drill rigs are larger and the flow of the drilling fluid is reversed. The drilling fluid moves upward inside the drill pipes and circulates back to the borehole via settling pits. The drilling fluid returns to the borehole via gravity and moves downward in the annular space between the drill pipe and borehole wall. Drilling fluids for reverse-circulation rotary are generally water and any suspended particles picked up from the surrounding formations.

Mud-rotary methods can be used to drill in both unconsolidated and consolidated (bedrock) formations. In addition, drilling mud stabilizes the borehole and limits the potential for borehole collapse. Disadvantages of using the mud-rotary method include the difficulty in determining the depth to the water table, the potential for drilling mud to impact soil samples and dragging of contamination into deeper zones since the drill cuttings are re-circulated in the borehole. Wells installed using this method typically take longer to develop than wells installed using the HSA or air-rotary methods due to the invasion of mud filtrate into the formation.

In air-rotary drilling, compressed air is directed down the inside of the drill pipe. As in mud-rotary drilling, air removes the cuttings and lubricates the bit. However, since air has no viscosity, it cannot be used to stabilize a borehole therefore, casing must be advanced in unconsolidated formations to keep the borehole open. This is why air rotary methods are best suited for drilling in bedrock formations. The percussion-type air-rotary "hammer" bit provides the best penetration rate when drilling bedrock consisting of crystalline rock. However, when drilling above the water table, an air-rotary bit can grind the soil and bedrock to a fine powder which is blown out of the hole with air and which has the potential to be inhaled. Therefore, drilling above the water table using air-rotary methods requires the addition of potable water to the borehole for dust control. In addition, the air compressor should be of the oil-less variety, or have a filter to prevent any oil from entering the borehole.

A disadvantage of using rotary methods while drilling in unconsolidated formations is the requirement of pulling the drill pipe out of the hole each time a split-spoon soil sample is collected (and the SPT is performed). This adds up to considerable amounts of time when deep wells are being installed or when continuous split-spoon

sampling is being performed. As stated above, split-spoons used to collect soil samples can become contaminated when they are advanced down a mud-filled borehole.

A special type of rotary drilling is bedrock coring, wherein a special core bit and barrel are used to retrieve relatively undisturbed core samples of the bedrock. Coring allows better characterization of bedrock lithology and other features including orientation of fractures and bedding planes, which can control contaminant migration. Core barrels can either be unoriented or oriented. An oriented core is scribed with respect to magnetic north. Although more expensive than collecting an unoriented core, this method gives the true orientation of the features encountered in the core.

Drilling fluids are generally air (air-rotary) or bentonite and/or water (mud-rotary). Water added to a borehole must be of potable quality. The source of the potable water used during the installation (and development) of monitor wells should be documented (e.g., in the Remedial Investigation Report).

Bentonite is high swelling clay with sodium montmorillonite as its primary clay mineral. Bentonite is added to water to increase the viscosity of the drilling fluid so that drill cuttings can be removed from the borehole more effectively. At the same time, the viscosity must be low enough to allow cuttings and coarse-grained particles to settle out once they are circulated out of the hole. Bentonite also adds weight to the drilling fluid, which helps to maintain borehole stability.

4. Sonic Drilling

The method involves driving a core barrel using vibration, rotation, and a downward force to collect soil samples. A sonic drill rig looks and operates very much like a conventional top-drive rotary or auger rig. The main difference is that a sonic drill rig has a specially designed, hydraulically powered drill head or oscillator, which generates adjustable high-frequency vibrational forces. The oscillator uses two eccentric, counter-rotating balance weights or rollers that are timed to direct 100 percent of the vibrational energy at 0 and 180 degrees. There is an air spring system in the drill head that insulates or separates the vibration from the drill rig itself. The sonic head is attached directly to the drill pipe or outer casing, sending the high-frequency vibrations down through the drill pipe to the bit.

A core barrel is advanced using vibration, rotation, and downward force to collect continuous soil cores up to 20 feet in length. The bit at the end of the core barrel contains carbide teeth allowing the core barrel to be advanced through most overburden, soft bedrock, and minor obstructions such as bricks and boulders. Once the core barrel has been advanced, a secondary or "over-ride" casing is advanced down to the same depth as the inner core barrel. The over-ride casing keeps the borehole from collapsing while the inner core barrel is removed. Once the core barrel is removed, the soil core is pushed out of the core barrel through the use of

vibration and either air or water pressure. Soil core diameters are dependent on the size of core barrel used and range from 3 to 12 inches. The use of multiple over-ride casings of increasing diameter allows the borehole to be telescoped down through multiple confining units. The setup used in sonic drilling makes this drilling method amendable to collecting soil cores and installing wells in angled boreholes. With only the bottom of the inner and outer core barrel exposed to the aquifer at any given time, determining the location of the water table can be difficult.

While this drilling method has the capability of drilling through and providing samples of coarse gravels, boulders, and tight clays, these situations will result in slow drilling or advancement of the core barrel. The result is a hotter core barrel and a longer contact time between the core barrel and the encased soil core. The aforementioned conditions will increase the probability that the sonic method will raise the temperature of the soil core and facilitate VOC and SVOC loss.

The ability to quickly install deep borings and wells, while generating a large-diameter continuous soil core, makes this drilling technique invaluable when continuous soil sampling is needed to assess deep or complex geological situations. However, sonic drilling's high cost, relative to other drilling methods, may be prohibitive for small projects or shallow boreholes. The higher cost of the drilling method should be weighed against the cost savings incurred due to its faster drilling rate and high quality of the soil core produced.

5. GeoProbe®-Direct Push

The method involves hydraulically pushing hollow rods into the subsurface for the purpose of collecting soil and/or groundwater samples (e.g., Geoprobe®). The method can be used to collect discrete soil samples or install small-diameter wells used to collect groundwater samples.

Advantages of the direct-push method include the relatively quick collection of groundwater samples and, when used along with a mobile laboratory, collection of data in "real" time. The method allows for collection of multiple samples in a day with the potential for achieving contaminant delineation in one mobilization of the field equipment. The data can also be used to select locations of permanent monitor wells.

Disadvantages of the method include the fact that the data quality achieved is often suitable only for screening purposes. Direct-push methods typically result in very turbid samples since an oversize borehole is not produced and a filter pack is not used. Turbid samples can produce higher metal concentrations in groundwater samples since metals are typically adsorbed onto soil particles. Use of direct-push methods can also cause cross-contamination since contamination from shallow zones may be driven down to deeper zones. Due to the narrow diameter of the direct-push rods, samples are often collected with peristaltic pumps. When samples are collected for volatile organic compounds (VOCs) using peristaltic pumps, some

of the volatiles may be lost due to the pressure drop produced by the suction lift. In such cases, the VOC data must be qualified accordingly. For this reason, use of the peristaltic pump for collecting groundwater samples for VOC analysis is not recommended and approval for its use should first be obtained from the project manager or geologist.

Another disadvantage of using direct-push technology for collecting groundwater samples is the potential to breech confining units. To prevent this, soil sampling using direct-push technology or conventional split-spoon sampling techniques should first be performed to identify the presence, depth and lateral extent of confining units. Pushing through confining units should be avoided if the presence of dense, non-aqueous-phase liquid (DNAPL) or very soluble compounds such as Methyl Tertiary Butyl Ether (MTBE) are suspected or the contaminant plume appears to be diving in the aquifer.

6. Contact

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Cathy Johnson

STANDARD OPERATING PROCEDURE

DM-002 Hollow-Stem Auger

1. Objective

Describe standard operating procedures for drilling of overburden soil borings using hollow-stem augers.

2. Execution

- Confirm that the appropriate measures have been taken for clearance of potential subsurface utilities. The responsibility for clearance may vary, depending on the client.
- Inspect the drilling rig to make sure it is clean and that the down-hole equipment has been steam-cleaned or pressure-washed. Record observations in the field notebook (See SOP FD-001).
- Observe that the augers are vertical when the first section is advanced into the ground.
- Use a 140-lb hammer to drive the sampler, unless conditions necessitate using a 300-lb hammer (see SOPs SM-001, *Split-Spoon Sampling* and SM-0003, *Soil Classification,* for details). Count and record the number of blows per 6-inch increments, confirming blow counts with driller if necessary).
- Decontaminate the split-spoon sampler after each use (see *Equipment Decontamination,* SOP QA-001) or use another decontaminated split-spoon sampler.
- Ensure that the drillers advance the augers only after they have inserted the auger plug (to prevent soil from entering the augers while advancing to the next sample interval).
- Request that the drillers remove the auger cutting bit/plug and insert the split-spoon sampler into the interior of the augers. Measure the stick-up of the rods attached to the sampler to ensure that the nose of the spoon is in virgin soil below the augers.
- Watch for signs of a soil strata change at depth during drilling (i.e., change in blow counts, change in soil color, soil wetness, soil contamination, bouncing of the drill rig, etc.). If important to the investigation, stop drilling and collect a soil sample.
- If subsurface soil samples are being collected with split-spoon samplers, ensure that the drillers use a 30-inch drop of the 140-pound hammer. The number of blow-counts for each 0.5 foot penetration provides important geotechnical data.
- Repeat until the borehole has been drilled to the desired depth.
- If a monitoring well is not installed in the soil boring, fill the boring with either cement/bentonite grout or properly-tamped and hydrated bentonite. Check with Project Manager and/or the appropriate regulatory personnel before using drill cuttings to backfill the boring.

- If a monitoring well will be installed, refer to SOP DM-007.
- Complete boring log and, if necessary, well installation logs (SOP SM-003, *Soil Classification*).
- Record boring locations on a site map and in a field notebook sketch. If the boring location will not be surveyed, measure each location from on-site reference points and record the information in the field notebook so that the location can be plotted on site figures.

3. Limitations

- In areas of significant soil contamination, hollow-stem augers may cross-contaminate upper soil layers as contaminated cuttings move up the auger flights. The potential also exists for contaminated augers to carry contamination to deeper soil strata
- If significant unanticipated contamination is encountered during drilling, stop drilling to confer with the project manager and evaluate health and safety conditions. If the borehole is to be advanced below the contaminated strata, use telescoping techniques (see SOP DM-008 *Monitoring Well Telescoping Techniques*) to avoid cross-contaminating underlying geologic strata.
- When drilling below the groundwater table in fine to medium sands, the potential exists for the phenomenon of "running sands" or "blow in" to occur. Frequent measurements inside the hollow-stem augers after the drill bit/plug is removed will indicate if running sands are present. If sands start to flow into the auger, pour clean water into the augers and keep the augers filled during sampling.
- If necessary, arrange for the storage of contaminated soil cuttings and water in drums or other appropriate containers in a secure place at the site. Containers should be labeled.
- Plan the drilling program to drill borings from the least- to most-contaminated areas. Be prepared in advance and know where alternative drilling locations are in the event that problems are encountered at each planned soil boring location. Alternative locations will need to have utility clearance.
- Down-hole drilling equipment should be steam cleaned or pressure-washed between holes unless otherwise directed by the project manager.
- Record when standard operating procedures are deviated from. The drilling inspector should also record any detected odor from the boring and depth encountered.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91

5. Attachments

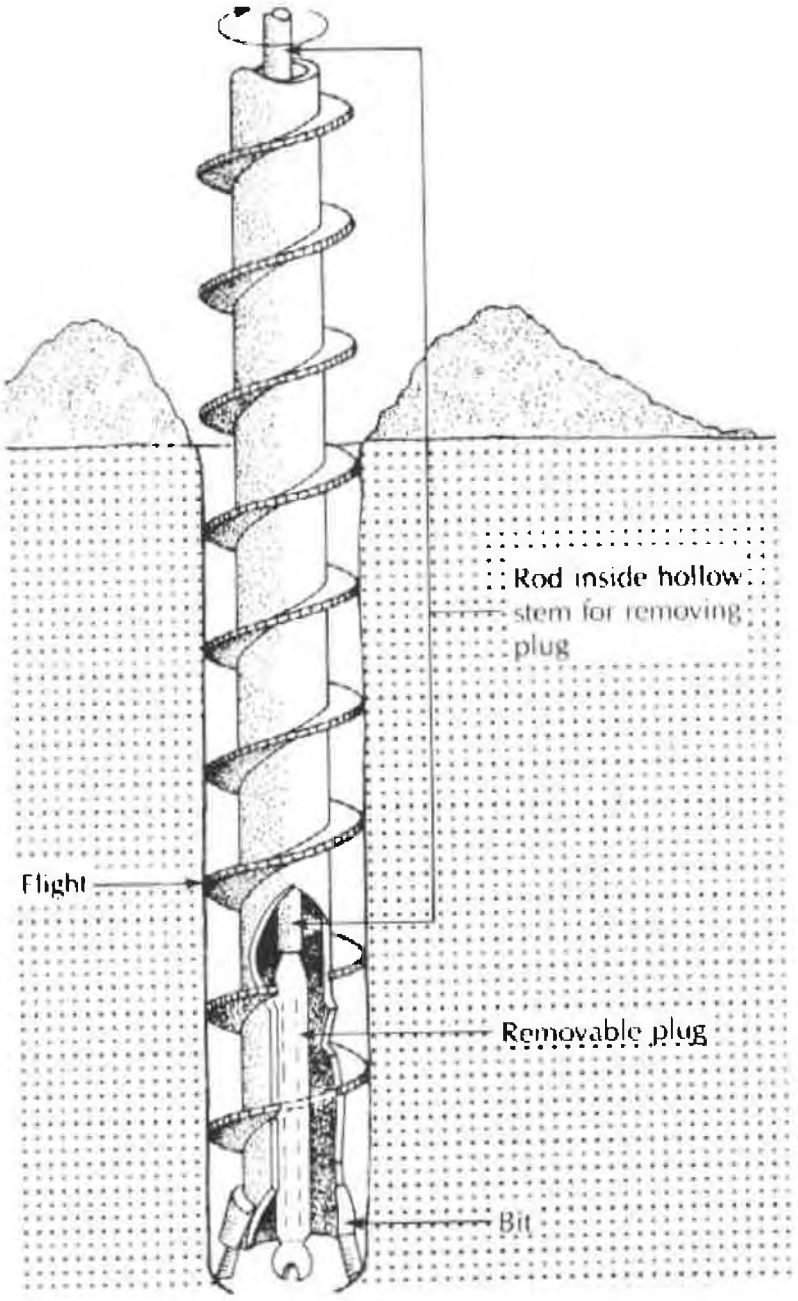
Attachment A – Hollow-Stem Auger

6. Contact

Cathy Johnson

SOP DM-002

Attachment A – Hollow Stem Auger



GEI Consultants

STANDARD OPERATING PROCEDURE

DM-004 Sonic Drilling

1. Objective

Describe common sonic drilling procedures.

Prior to drilling confirm that utility clearance has been completed and that the drilling rig has been appropriately decontaminated.

2. Execution

- Collect soil cores in runs of 5 to 10 feet. Some sonic rigs can collect a 20 foot sample, but the process generates a significant amount of heat that may degrade sample quality.
- Classify and sample the soil located within the liner.
- Excess soil should be placed in a 55-gallon drum for disposal.
- The core barrel should be cleaned with tap water following each use.
- The core barrel is then advanced within the isolation casing to collect the next soil core interval.
- Add water between the inner core barrel and the outer override casing. This will reduce friction between the casings and adsorb heat.
- Maximize drilling advance rate. The faster the core barrel is advanced, the less likely the core barrel will heat up. Drilling with a 3-inch diameter core barrel and a 5-inch diameter override casing, instead of the standard 4-inch core barrel and 6-inch over-ride casing, may increase advance rates and reduce the potential for soil core heating.
- If a significant decrease in drilling advance rate is observed, stop drilling and remove soil that has accumulated in the core barrel. Resume drilling through the resistant material (gravel, boulder, hard clay, etc.). When the resistant material has been penetrated and the drilling advance rate increases, stop drilling and remove what material has accumulated in the core barrel.
- Wash down the core barrel with cool water to cool the core barrel and associated casing, and resume drilling.
- If a well is to be installed in the borehole, the sandpack and grout are placed as the core-barrel and over-ride casing(s) are selectively vibrated out of the ground. The vibratory action should facilitate settlement of the sandpack and grout. Upon completion, no casing is left in the ground other than the well casing and screen.

3. Limitations

- Disturbance of the soil core is most likely to occur during removal of the soil core from the core barrel. The soil cores are usually vibrated out of the core barrel into plastic bags approximately 5 feet in length. As the plastic bags are

a little larger than the soil core itself, fragmentation of the soil core may occur as the core is extruded into the bag or while the bagged core is being moved in an unsupported manner. Soil conditions that are prone to disturbance include wet or dry zones that contain little or no fines, and well graded sands that contain significant volumes of water.

- If integrity of the soil core is of concern, the following procedures should be implemented:
  - Measures should be taken to ensure that the core, from the time it is extruded from the core barrel, is rigidly supported through the use of some type of cradle or carrying device.
  - The core should not be removed from its cradle until all sampling of the core has been completed. Acrylic liners are available for some core sizes and can be used to hold the core together upon removal from the core barrel.
  - If the soil is to be sampled for volatile organic compounds (VOCs), acrylic liners must be used.
  - Sampling of the soil core for VOCs or semi-volatile organic compounds (SVOCs) must be approved on a case by case basis. Proposals for VOC or SVOC soil core sampling must include provisions to minimize core fragmentation and heat generation, such as:
    - Acetate liners in the core barrel so that the soil core does not have to be extruded out of the core barrel.
    - Limit the length of soil core generated during a given downhole run.
    - Implement practices to reduce the residence time of the soil core in the core barrel.
- For the analysis of SVOCs, the use of the acetate liners is not required.
- The large diameter of the core barrel enables ground water sampling equipment to be placed inside the core barrel so that discrete depth groundwater samples can be collected during borehole advancement.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

5. Contact

Melissa Felter

STANDARD OPERATING PROCEDURE

DM-006 Geoprobe® Direct Push Boring

1. Objective

Describe standard operating procedures (SOP) for drilling of overburden soil borings using Geoprobe® and MacroCore® technologies.

2. Execution

- Confirm that appropriate measures have been taken for clearance of potential subsurface utilities. The responsibility for clearance may vary, depending on the client.
- Inspect the drilling rig to make sure it is clean and that the down-hole equipment has been decontaminated (QA-001). Record condition of all down-hole drilling equipment.
- Make sure the sampler is fitted with a piston rod assembly to block the sample tube until the desired subsurface sample interval is attained. Upon reaching the target sample depth, the piston tip will be released and the discrete sampler device is then advanced to collect the representative sample. This reduces the volume of slough that is collected.
- When the sampler is brought to the ground surface, it should be opened immediately, and the length of recovery should be measured and recorded.
- Log the soil sample using USCS procedures (SOP SM-003). Collect analytical samples if necessary (SOP SM-001).
- Decontaminate the cutting shoe if necessary (SOP QA-001 Equipment Decontamination) and have driller reassemble the parts with a new liner.
- Repeat the procedure described above until refusal or the boring is terminated.
- Periodically verify that depths cited by drillers are accurate.

3. Limitations

- If significant unanticipated contamination is encountered during drilling, stop drilling to confer with the project manager and re-evaluate health and safety conditions.
- Arrange for the storage of contaminated soil cuttings and water in drums or other appropriate containers in a secure place at the site (see SOP SC-003, *Investigation Derived Waste Management*).
- If possible, plan the drilling program to drill borings from the least to most contaminated areas. Be prepared in advance and know where alternative drilling locations are in the event that problems are encountered at soil boring locations. These locations must also have been cleared by the state or local utility service prior to drilling.

4. References

ASTM D6001-05 Guide for Direct Push Water Sampling for Geoenvironmental Investigations, April 2005

Geoprobe Systems, "Geoprobe MacroCore MC-5 1.25-inch Light Weight Center Rod Soil Sample System SOP", Technical Bulletin No. MK 3139, November 2006

5. Attachments

Attachment A – Geoprobe® with Macrocore® Sampler Assembly

6. Contact

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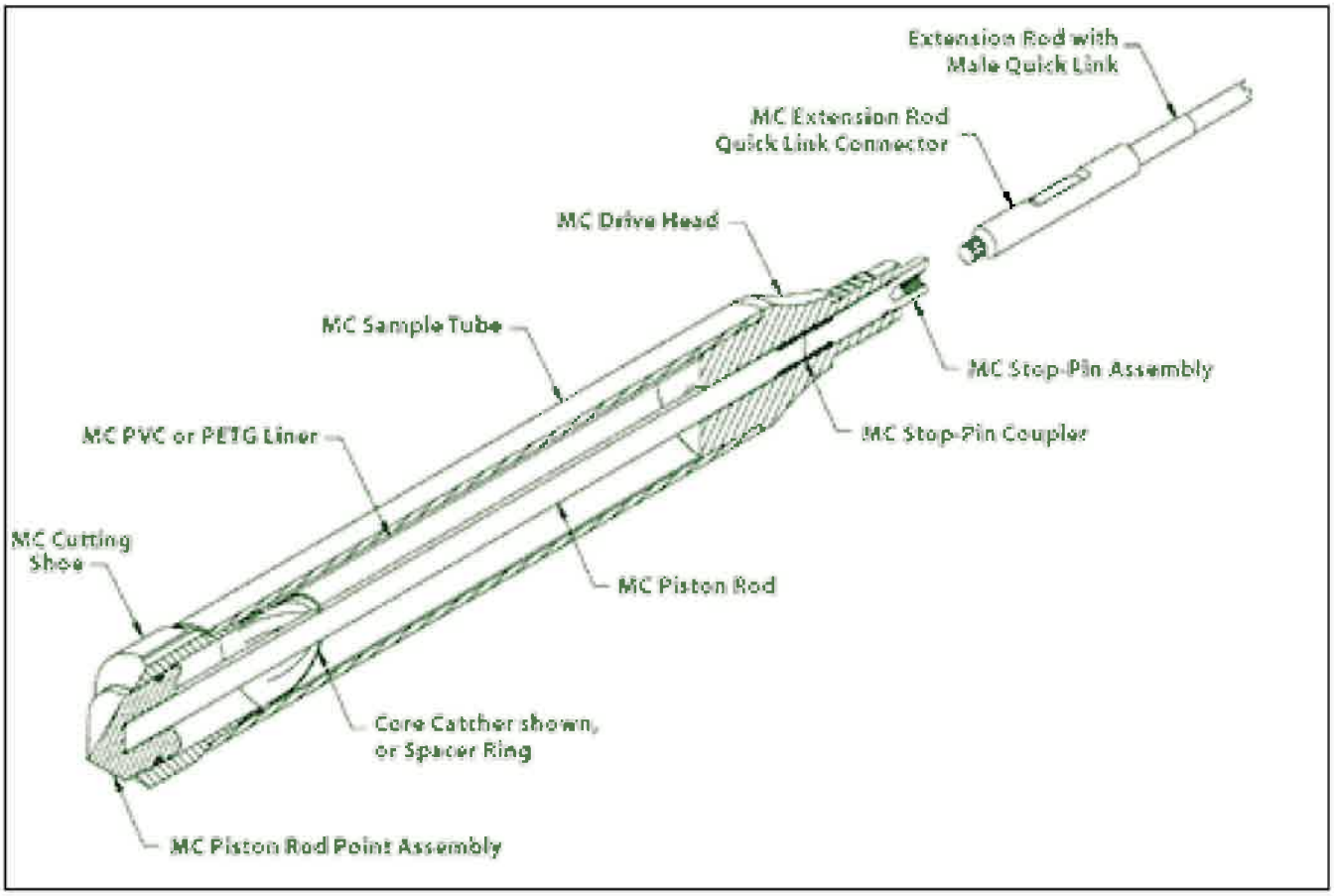
SOP DM-006

Attachment A – GeoProbe® with Macrocore® Sampler Assembly



Above: Diagram of a Macrocore® sampler

Right: A track-mounted GeoProbe ® Rig

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STANDARD OPERATING PROCEDURE

DM-007 Monitoring Well Construction and Installation

1. Objective

Describe installation procedures for overburden monitoring wells screened across or below the groundwater table.

Well dimensions (well diameter, screen length, and screen slot-diameters) will be specified in the Work Plan. This SOP assumes the monitoring wells will be constructed of flush-joint PVC pipe and the screened section will have factory-slotted openings.

2. Execution

Attachment A provides a diagram of typical shallow, intermediate, and deep groundwater monitoring well construction detail. A Groundwater Monitoring Well Installation Log is in Attachment B.

- Measure and record the depth of the completed soil boring before beginning the well installation.
- If possible, measure the depth to groundwater in the borehole over a 10 to 15 minute period to ensure that the groundwater elevation has approximately stabilized. Compare the saturated soil depth estimated from split-spoon samples to the measured water level in the borehole. If drilling water has been used during boring advancement, pump the water out of the borehole to the static water depth, based on examination of the soil samples, and monitor the recovery of groundwater until the level has stabilized.
- If it is not possible to accurately measure the depth to groundwater in the borehole due to low permeability in the formation, use the saturated soil depth observed in the collected samples or measured water depth in a nearby existing monitoring well to estimate the depth to water in the borehole.
- For shallow monitoring wells, select the monitoring well screen and riser lengths so that the slotted section of the screen intersects the groundwater table. Screen lengths of 15 feet or less are preferred and 10 foot screens are most common. If the water table is seasonally high or low or if the well is in a location where the water table is likely to be tidally influenced, appropriately place the screened section to allow for the screen to intersect likely future water tables.
- For intermediate or deep wells screened entirely below the water table, select the monitoring well screen and riser lengths as described in the Work Plan. Screen lengths of 10 feet or less are preferred.
- If the borehole is deeper than the desired well depth or the bottom of the well is close to a change in soil strata, then fill the base of the borehole with bentonite. Keep in mind that bentonite swells when hydrated, and that filter

sand should be placed at the bottom of the borehole above the bentonite before installing the well.

- Prevent well materials from contacting foreign substances during installation. Precautions may include requiring the driller to wear clean gloves while handling well materials and requiring that well materials not be placed onto the ground or pavement without a protective barrier such as polyethylene sheeting being present
- Confirm that the driller installs a minimum one-inch sump with a bottom cap to the bottom of the well screen. See the Work Plan for locations that may require larger sumps.
- Monitoring wells can be constructed of either 1, 1.5, 2 or 4 inch inner diameter (ID) Schedule 40 threaded flush-jointed PVC. Refer to the work plan for the site-specific requirements. Flush-threaded well materials should be used. Do not allow the driller to use glues, as they typically contain solvents that could affect on groundwater quality.
- Stainless steel well materials may be used if required in the Work Plan. Select slot size based on grain size of the formation and on requirements in the Work Plan.
- Confirm that the driller places at least 12 inches of clean uniformly graded medium quartz filter sand pack into the base of the borehole, if required in the Work Plan.
- The driller should remove the drilling casing/augers from the borehole slowly, at a maximum of 2-foot intervals, at the same time that filter sand is added. The drillers should take frequent measurements of the depth to sand.
- Confirm that the driller has added adequate sand to surround the area around the slotted section. The filter sand should extend at least 2 feet above the top of the slotted section.
- The driller should place a bentonite seal above the filter pack. If the seal is above the water table, use at least 5-gallons of potable water to hydrate the bentonite before grouting the remaining annular space, or otherwise backfilling the remaining annular space as discussed with the Project Manager. Tamp seal. It should extend 1 to 2 feet above the filter sand.
- If required by the Work Plan, the driller should use bentonite-cement and grout the annular space from the top of the bentonite seal to the ground surface. Bentonite cement grout should be placed using tremie methods. Grout should be mixed in approximately the following proportions: 7.5 gallons water to one 94-lb bag of cement to 2-4 lbs of pulverized bentonite. The grout must be mixed using a pump (such as one on the rig) to ensure proper mixing.
- The drillers should cut the monitoring well riser at an angle or make "V"-notch in the riser pipe as a benchmark for surveying and groundwater measurements. The driller should cut the well riser so that the top of the well will be approximately 3 inches below the top of protective casing. The top of

the riser should be close enough to the top of the surface casing to allow reading of depth markings on a water level indicator tape.

- The protective surface casing is either a flush-mounted roadbox or a steel "stick up" pipe. The base of either type of casing should extend at least 1 foot into the grout below the ground surface (below the frost line) whenever possible.
- The protective casing should be set by placing cement in the annular space between the protective casing and the borehole up to the ground surface. If possible, the driller should slope the cement radially away from the protective casing at the ground surface to promote surface water runoff.
- In areas of high traffic or areas of parking lots and/or roadways where plowing occurs, set the roadbox flush with the ground surface to avoid damage to the well.
- If the well is installed in a high-traffic area and is completed with a steel "stick up" pipe, additional protection such as steel pole bumpers around the steel "stick up" pipe may be necessary.
- If possible a locking cap should be placed on the steel "stick up" pipe. If the surface casing is flush mounted, a locking expansion plug should be placed, if possible, inside the top of the well riser pipe.
- All well locations should be photodocumented in accordance with SOP FD-004 Photodocumentation.
- Label the outside of the protective well casing with a paint pen. If the well is not going to be surveyed, measure the location to nearby landmarks so that the well may be located in the future and plotted on figures. Make sure to enter this information in the field notebook). If possible, place a brightly colored stake or other identifier adjacent to the well.
- Develop the well (see SOP DM-009, *Monitoring Well Development*).

3. Limitations

- Do not screen across different hydrostratigraphic units (for example, outwash sands, confining layers or till) unless specified in the Work Plan or approved by the Project Manager.

- If the formation is composed of a material that is uniformly coarser than the filter sand, the grain size of the filter sand should be increased. Consideration should also be given to changing the slot size on the well screen. Differences in average grain size should generally not be greater than a factor of two to four times.

- Do not use drill cuttings to backfill during monitoring well installation unless specified by the work plan or project manager.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91.

5. Attachments

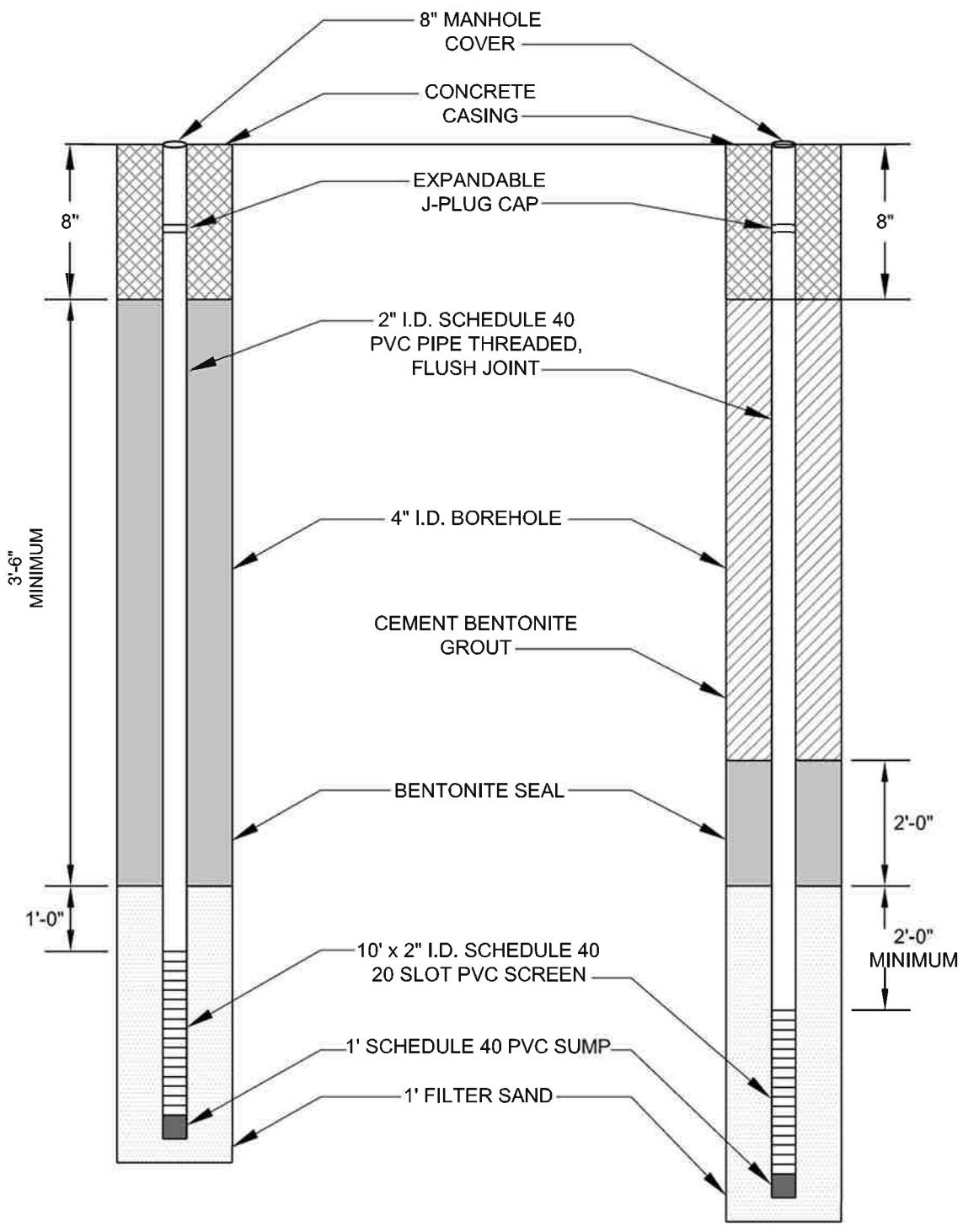
Attachment A – Typical Shallow, Intermediate, and Deep Groundwater Monitoring Well Construction Detail

Attachment B – Groundwater Monitoring Well Installation Log

6. Contact

David Terry
Anne Leifer

Attachment A - Well Detail



NOT TO SCALE

GEI Consultants

TYPICAL SHALLOW, INTERMEDIATE AND DEEP GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

June 2008

I:\GEI\SOPs\ Well Detail.dwg \Jun 10, 2008

Groundwater Well Installation Log

Well ID

Project _____ **GEI Proj. No.** _____

City / Town _____ **Location** _____

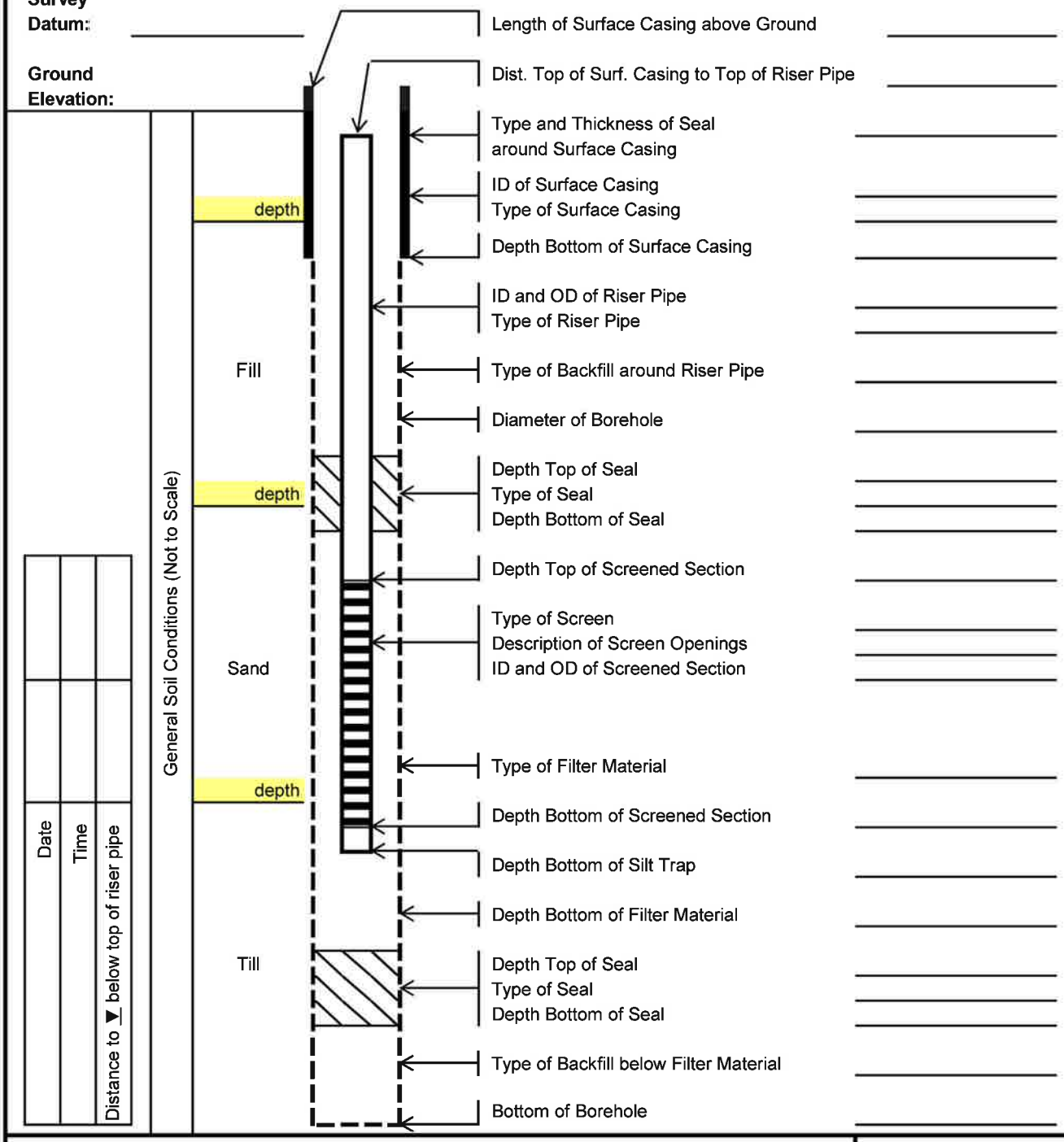
Client _____ N _____

Contractor _____ E _____

Driller _____ **GEI Rep.** _____ **Install Date** _____

Survey Datum: _____

Ground Elevation: _____



Notes:

GEI Consultants

STANDARD OPERATING PROCEDURE

DM-009 Monitoring Well Development

1. Objective

Describe standard procedures to remove fluids from monitoring wells (introduced during drilling) and maximize the movement of groundwater into the well by removing fine particles in the well and sand pack around the screen.

2. Execution

To prevent cross contamination between monitoring wells, use dedicated equipment and/or appropriately decontaminated equipment to perform monitoring well development. See SOP QA-001 Equipment Decontamination and the Work Plan for more information.

For deep or large diameter monitoring wells, it may be necessary to use a re-usable pump system, such as a Grundfos pump, to develop monitoring wells.

- Calculate the volume of water in the monitoring well (one well volume) using the following table:

Well diameter (inches)	Volume (gal/ft)
1	0.04
1.5	0.09
2	0.16
3	0.36
4	0.65
6	1.50

The equation used to establish these volumes is presented in Section 4.

- Calculate or estimate the amount of water introduced to the borehole during drilling. At a minimum, this is the amount of water that should be removed during development. Removing less water than was introduced and allowing additional time for the surrounding formation to clear of injected drilling fluids may be considered as an alternative if the volume of introduced water was large.

- Record the volume of water purged in the field notebook or on the Monitoring Well Sampling Form (Attachment A).

- Collect a sample of water from the monitoring well with the selected submersible pump (e.g. 12-volt whale pump or Grundfos pump), a bailer, or a

Waterra system. Record the physical properties (color, turbidity, odors, etc.) of the sample.

- The volume of water that should be removed will depend on the work plan, local regulatory guidance, and/or the volume of water that was introduced during drilling and well installation. Typical guidance for the removal volume includes:
    - Ten well volumes.
    - The volume of fluid added during drilling.
    - The volume required to remove enough suspended particles so that the turbidity of the water is less than 50 nephelometric turbidity units.

If needed, pump the ground water into a 5-gallon pail so that the volumetric flow rate and total water volume from the pump or bailer can be calculated.

Measure the groundwater level in the well during development to assess if the pumping rate is sufficient to create a drawdown in the well.

Observe the groundwater every few well volumes during the pumping and record the physical properties (color and turbidity).

If required by the Work Plan, conduct surging in the monitoring well. See the Work Plan for the method of well surging to be used. If surging is necessary, do so only after initial pumping at the well has occurred and fine sediments have been removed.

Slowly move the surge block up and down in the well. Periodically remove the surge block and purge the groundwater until it is relatively clear again. Start at a slow pace and progress to a faster surging action through time.

3. Limitations

Always remove groundwater with fine particles from the well before surging. The fine particles may be forced into the well screen by the surging action. They may also damage the pump.

If the ground water in the monitoring well is contaminated, the water removed during well development may need to be placed in a properly-labeled drum and disposed of in accordance with local, state, and federal regulations (see SC-003 Investigation Derived Waste).

If the soils around the well screen are composed of fine-grained silts and clays, over-pumping and mechanical surging is not recommended since these more vigorous

techniques can cause mixing of the fines into the filter pack. To develop these wells, use of a bailer is recommended.

There are occasions when the turbidity of groundwater cannot be meaningfully reduced. On these occasions, a minimum of ten volumes should be removed, and the Project manager should be consulted.

Sampling of groundwater should generally not occur within one week after development. In some regions or regulatory jurisdictions, a minimum of two weeks may be required before sampling. If no water was introduced to the formation during drilling, this waiting period may be shortened if required by the project. See the Work Plan for additional information.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90.

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49.

"The Methods & Mechanics of Well Development, Part 2 of 5," National Drillers Buyers Guide, March 1993, p. 17.

Massachusetts Department of Environmental Protection, "WSC-310-91Standard References for Monitoring Wells, Section 4.5 Decommissioning of Monitoring Wells", January 1991

U. S. EPA Environmental Response Team Standard Operating Procedure SOP: 2044 ," Monitor Well Development" REV: 0.1, 10/23/01

5. Attachments

Attachment A - Monitoring Well Sampling Form

6. Contact

Anne Leifer

GEI Consultants

MONITORING WELL SAMPLING RECORD

PID Reading _____ Job Name _____

Job Number _____ By _____ Date _____

Location _____ Measurement Datum _____

Well Number _____

Pre-Development Information Time (start) _____

Water Level _____ Total Depth of Well _____

One Purge Vol _____ Three Well Volume _____

Water Characteristics

Color _____ _____ Clear _____ Cloudy

Odor _____ None _____ Weak _____ Moderate _____ Strong

Any films or immiscible material _____

Volume (gal)	Time	pH	Temp (°C)	Spec. Conductance (µS/cm)	Turbidity (NTU)	DO Conc. (mg/L)	ORP (mV)	TDS

Total Volume Removed (gal) _____ pH _____

Temperature (°C) _____ Specific Conductance (µS/cm) _____

DO Concentration (mg/L) _____ ORP (mV) _____

TDS _____

Post Development Information Time (Finished) _____

Water Level _____ Total Depth of Well _____

Approximate Volume Removed (gal) _____

Water Characteristics

Color _____ _____ Clear _____ Cloudy

Odor _____ None _____ Weak _____ Moderate _____ Strong

Any films or immiscible material _____

Comments

STANDARD OPERATING PROCEDURE

DM-010 General Guidance on Monitoring Well Abandonment

1. Objective

Describe methods to abandon a monitoring well.

The goal of monitoring well abandonment is to seal the borehole so it cannot act as a conduit for movement of contaminants or liquids from the ground surface to the water table or between aquifers.

General procedures for well abandonment are provided below but do not supersede state or local regulations. Make sure all well abandonment procedures adhere to appropriate regulations.

2. Execution

The following methods for abandoning unconsolidated (overburden) and consolidated (bedrock) monitoring wells should be performed by a licensed drilling contractor, if required by law or regulatory authorities. The following listed methods are general guidance for abandoning monitoring wells. The Work Plan and state and local requirements should be reviewed for additional requirements.

2.1 Unconsolidated (overburden) Monitoring Wells

Unconsolidated (overburden) monitoring wells should be abandoned in the following manner, see the Work Plan for additional requirements:

- Remove the protective casing and concrete pad.
- If possible, overdrill the monitoring well casing and sand pack using hollow-stem augers or casing to at least one foot below the depth of the boring/well as indicated in the soil boring log.
- If possible, remove the monitoring well riser, sand pack, bentonite seals and grout.
- Once the well materials have been removed, add cement/bentonite grout using tremie methods starting at from the bottom of the borehole as the augers or casing are removed.
- If the well materials cannot be removed by overdrilling, the riser should be cut off at a depth of between two and five feet below the ground surface and the remaining well materials may be filled with grout using tremie methods. The grout mixture will be as specified for the well installation (see SOP DM-001 General Guidance on Determination of Appropriate Drilling Methods)
- Add grout to the point where the riser was cut off or to a depth of approximately two feet below the ground surface. From that point up to ground surface, backfill with native soil material surrounding the boring/well.

2.2 Consolidated (bedrock) Monitoring Wells

Consolidated (bedrock) monitoring wells or open holes will be abandoned in the following manner. See the Work Plan for additional requirements:

- Remove the protective casing and concrete pad;
- Remove the monitoring well materials from the hole. If the materials cannot be removed, cut off the well riser between two feet to five feet below grade. If feasible, cutting off the riser at five feet is optimal.
- Add cement/bentonite grout via tremie methods from the bottom of the well up to the ground surface. The grout mixture should be as specified for the well installation SOP DM-001 General Guidance on Determination of Appropriate Drilling Methods
- Add grout to the point where the riser was cut off or to a depth of approximately 2 feet below ground surface. From that point up to ground surface, backfill with native soil material surrounding the boring/well.

3. References

Environmental Protection Agency, Region 4, "Environmental Investigation Standard Operating Procedures and Quality Assurance Manual, Chapter 6 – Design and Installation of Monitoring Wells," November 2001.

Massachusetts Department of Environmental Protection, "313 CMR 3.00, Registration of Well Drillers and Filing of Well Completion Reports".

Massachusetts Department of Environmental Protection, "Standard References for Monitoring Wells, Section 4.6 Decommissioning of Monitoring Wells", January 1991

New York State Department of Environmental Conservation, DEC Policy "CP-43: Groundwater Monitoring Well Decommissioning Policy", November 2009.

4. Contact

Anne Leifer

Section 5

Sample Collection and Field Screening (SC)

STANDARD OPERATING PROCEDURE

SC-001 Environmental Sample Types and Sampling Strategies

1. Objective

Describe types of samples and strategic approaches to sample locations.

Refer to Attachment A for guidance on compatible sampling materials.

2. Sample Types

Grab Samples

A grab (or discrete) sample is a single aliquot (part of the sampled media) collected from a single location at a specific time.

Surface soil samples are typically "grab" samples. Volatile organic samples are always grab samples because the least amount of sample disturbance is necessary.

Composite Samples

Composite samples are non-discrete samples composed of more than one aliquot collected from different sampling locations and/or at different points in time. Analysis of composite samples produces an average value.

Composite samples are frequently collected to characterize waste soil that has been stockpiled for eventual disposal. Several grab samples are collected from the stockpile and are blended together into a single sample.

Screening Samples

Screening samples may be grab or composite in nature. However, they offer potential advantages such as rapid results and low cost. The trade-off is that they may only provide results within a range and/or they may have elevated detection limits. Screening samples are most often used to evaluate presence/absence and/or indications of the potential magnitude of impacts.

3. Sampling Strategies

Generally, there are three sampling strategies: random, systematic, and judgmental sampling.

- Random sampling involves collection of samples in a non-systematic fashion from the entire site or a specific portion of a site.
- Systematic sampling involves collection of samples based on a grid or a pattern which has been previously established.
- Judgmental sampling is the collection of all other samples. This sampling might be from areas most likely to be contaminated, areas most likely to be clean, or areas where information is lacking.

Often, a combination of these strategies is the best approach depending on the type of the suspected/known contamination, the uniformity and size of the site, the level/type of information desired, etc.

4. Attachments

Attachment A - General Guidelines for selecting equipment

5. Contacts

Ryan Hoffman

General Guidelines for selecting equipment on the basis of construction material and target analyte(s)

[✔, generally appropriate for use shown; Si, silica; Cr, chromium; Ni, nickel; Fe, iron; Mn, manganese; Mo, molybdenum; CFC, chlorofluorocarbon; B, boron]

Construction material for sampling equipment		Target analyte(s)	
Material	**Description**	**Inorganic**	**Organic**
		Plastics[1]	
Fluorocarbon ploymers[2] (other varies available for differing applications)	Chemically inert for most analytes	✔ (potential source of fluoride)	✔ (Sorption of some organics)
Polypropylene	Relatively inert for inorganic analytes	✔ (not appropriate for Hg)	**Do not use**
Polypropylene (linear)	Relatively inert for inorganic analytes	✔ (not appropriate for Hg)	**Do not use**
Polyvinyl chloride (PVC)	Relatively inert for inorganic analytes	✔ (not appropriate for Hg)	**Do not use**
Silicone	Very porous. Relatively inert for most inorganic analytes	✔ (potential source of Si)	**Do not use**
		Metals	
Stainless steel 316 (SS 316)	SS-316-metal having the greatest corrosion resistance. Comes in various grades. Used for submersible pump casing.	✔ (Potential source of Cr, Ni, Fe, and possible Mn and Mo) **Do not use** for surface water unless encasted in plastic.	✔ Do not use if corroded[3]
Stainless steel 304	Similar to SS-316, but less corrosion resistant	**Do not use**	✔ Do not use if corroded[3]
Other metals: brass, iron, copper, aluminum, galvanized and carbon steels	Refrigeration-grade copper or aluminum tubing are used routinely for collection of CFC samples	**Do not use**	✔ Routinely used for CFCs Do not use if corroded[3]
		Glass	
Glass, borosilicate (laboratory grade)	Relatively inert. Potential sorption of analytes	✔ **Do not use** for trace element analyses. Potential source of B and Si	✔

[1]Plastic used in connection with inorganic trace-element sampling should be uncolored or white. Tubing used for trace metal sampling should be cleaned by soaking in 5-10 percent HCl solution for 8-24 hours, rinsing with reagent water (metals free) and allowed to air dry in mercury-free environment. After drying, the tubing is doubled-bagged in clear polyethylene bags, serialized with a unique number, and stored until used.

[2] Fluorocarbon polymers include materials such as Teflon™, Kynar™, and Tefzel™ that are relatively inert for sampling inorganic or organic analytes. Only fluoropolymer should be used for samples that will analyzed for mercury because mercury vapors can diffuse in or out of other materials, resulting in either contaminated or biased results.

[3] Corroded/weathered surfaces are active sorption sites for organic compounds.

STANDARD OPERATING PROCEDURE

SC-002 Environmental Sample Handling

1. Objective

Describe appropriate environmental sample handling procedures.

The procedures include collection and transport of environmental samples to a laboratory for chemical analysis. Appropriate sample handling should ensure that samples are properly:

- labeled and documented;
- preserved;
- packaged; and
- transported

2. Execution

- Prior to mobilizing to the field, select a shipper or arrange for a courier for sample delivery to the laboratory. If using a shipper (i.e., FedEx or UPS) determine the time constraints for pickup requests, the location and hours of the nearest shipping office, and any size/weight restrictions.
- A waterproof or permanent ink pen should be used for all labels. The label should have an adhesive backing and be placed on the jar or bottle, not on the cap. In addition, clear packing tape can be placed over the sample label to secure it to the bottle as moisture from the samples can loosen the label adhesive.
- Record the following information on the label and in the field notebook (See SOPs FD-001 and FD-003):
    - Project number
    - Sample identification (i.e. MW-201 or SS-2)
    - Date and time (military time) of collection
    - Sampler's initials
    - Analysis methods
    - Preservative, if present
- Pre-preserved laboratory jars are preferable and should be used whenever practicable. If sample jars are not pre-preserved, add preservative as appropriate.
- At each sampling location, samples should be collected in order of volatility, most volatile first. Samples collected for volatile analysis should be placed in sample containers immediately upon retrieval of the sample.
- Aqueous samples for volatile analysis should be collected without air bubbles.
- The collection and preservation method of soil samples for volatile analysis may depend on project, client, or state regulatory requirements. Check with your Project Manager and/or SOPs SM-001 and SM-002 where appropriate.

- Care must be taken to avoid getting soils on the threads of sample jars, which can cause a faulty seal.
- If compositing samples in the field, specify the basis for composite (i.e. volume, weight, spoon recovery, etc.) and record in the field book the procedure for compositing the sample.
- Once samples have been collected and labeled, place samples in a cooler with sufficient bagged ice or freezer packs (blue ice) (if allowed) to chill samples to 4°C. If using ice, use double-bagged ice.
- Complete the chain-of-custody (COC) (SOP FD-003).
- If transporting the samples by way of a shipper:
    i. The sample cooler should have water drains securely sealed with duct tape, both on the inside and outside of the cooler.
    ii. Place a layer of packing material on the bottom of the cooler as a cushion.
    iii. Individually wrap each sample bottle with bubble packing or suitable packing material and place the wrapped bottles upright in the cooler with sufficient packing material between samples to avoid breakage.
    iv. Methanol preserved samples for volatiles analysis should be packed so they remain upright with the soil completely covered by the methanol during transport.
    v. Place a layer of packing material on top of the sample bottles.
    vi. Place bagged ice or freezer packs on top of the packing material. Fill the remaining space in the cooler with packing material to eliminate the possibility of vertical movement of samples.
    vii. Place the completed and signed chain-of-custody form in a sealable plastic bag and place on top of the packing material in the cooler, or tape it to the inside lid of the cooler.
    viii. Fill out the appropriate shipping or courier forms and attach to the top or handle of the cooler. If necessary, place the proper shipping labels on the cooler. Have the courier sign the COC form (or write pickup by FEDEX, UPS, etc. with date and time). Place a signed and dated custody seal on the cooler.
- All samples should be submitted to the laboratory as soon as possible. In many cases, same day shipping will be required by the client or the project manager. Be clear on this before beginning the field work.
- A copy of the waybills should be kept by the field supervisor to track shipments if necessary.

3. Limitations

- If samples are shipped on a Friday, call the laboratory ahead of time to confirm that personnel will be at the laboratory to receive and log-in the samples.
- During warm weather, make sure to use plenty of ice in the shipping container.

- Field personnel should be aware of analyses which have short hold times and schedule sampling events and shipping accordingly. Shipment of samples for analyses with short hold times must be arranged for in advance. Refer to the project work plan, quality assurance project plan, or state/federal regulations for holding time and preservative information. Contact the laboratory ahead of time when shipping samples with short hold time to ensure the lab is prepared for these analyses.
- For glassware containing preservatives (e.g., HCl, HNO_3), take care not to overfill the container, thus flushing the preservative out of the bottle.
- Never composite samples for VOCs in the field. Collect individual aliquots and direct the laboratory to perform compositing, if needed.
- Collection of aqueous samples should not be performed over the opening of a monitoring well. Preservatives from overfilling, a marker pen or other objects could fall into the well.
- If the recharge volume for a monitoring well is low, completely fill all volatile vials and then collect the minimum sample volume required for each remaining analysis.
- During subsurface soil sampling, if the recovery from the split-spoon sample is inadequate, if appropriate, resample the bottom of the borehole to obtain proper sample volume.
- Laboratories will homogenize and test the contents of the sample container, unless directed otherwise. Samples should not contain rocks, twigs, leaves, etc… unless these materials are of interest.

4. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

Connecticut Department of Environmental Protection, Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory

Preservation Techniques for Volatile Organic Compound (VOC) Soil Sample Analyses, WSC#99-415. Massachusetts Department of Environmental Protection.

5. Contacts

Leslie Lombardo

STANDARD OPERATING PROCEDURE

SC-003 Investigation Derived Waste

1. Objective

Describe characterization and management of Investigation Derived Waste (IDW) resulting from site investigation activities.

IDW is solid and/or aqueous waste generated during environmental site investigations.

2. Execution

- Determine the suspected contamination type and impacted media based on previous investigations, available analytical data, and/or site history.
- Consider the following when selecting IDW management option(s):
    - Anticipated volume of IDW to be generated during on-site activities
    - Potential contaminants and their concentrations
    - Proximity to population centers and the potential for unauthorized site access
    - Potential exposures to workers
    - Potential for environmental impacts
    - Community concerns
    - Potential storage areas
    - Regulatory constraints
    - Potential on-site treatment options
    - Duration of storage
    - Client concerns or requirements
- Review IDW Management Options summarized in Attachment A for each media suspected of contamination.
- Select IDW Management Option(s) prior to the commencement of field activities that will generate waste materials.
- Include the selected IDW Management Option(s) in the Field Plan or other project documents.

Considerations and guidelines for IDW management for specific field tasks are provided below.

2.1. Test Pit Excavation

- Segregate contaminated soil from uncontaminated soil using visual and/or field screening methods.
- Use appropriate barrier (such as two layers of 6-ml plastic sheeting) for temporary stockpiling of contaminated soil adjacent to test pit.

- Backfill test pits with uncontaminated soil, unless otherwise directed by project manager.
- If directed by the Project Manager to return contaminated soil to the test pit, backfill soil in the same order as the soil was excavated from the test pit.

2.2. Boring/Monitoring Well Installation

- For auger borings, segregate contaminated soil (determined by visual and/or field screening methods) from uncontaminated soil during drilling. Segregate residual contaminated soil from split-spoon sampling.
- Auger cuttings or sediment generated by drive and wash may be spread around the ground surface at the boring location if it is acceptable to the client and the governing regulatory agency. If not, IDW may be placed in an appropriate area or container pending characterization and appropriate disposal. (A useful rule of thumb is to assume generation of one 55-gallon drum of cuttings for each 20 feet drilled with 7-¼-inch-I.D. augers).
- Segregate contaminated drilling fluid from uncontaminated fluid for rotary wash borings.
- Drilling fluid management options include pouring the drilling fluid on the ground near the boring location, if acceptable to the client and governing regulatory agency, or containerizing the fluid in drums or tanks.

2.3. Well Development/Sampling

Contaminated groundwater removed from wells by pumping or bailing for the purpose of well development and sampling may be poured on the ground near the well, if it is acceptable to the client and the governing regulatory agency. Otherwise, it should be containerized in drums or tanks.

2.4. Decontamination Fluids

Decontamination fluids may be poured on the ground in the vicinity of the well if approved by the project manager. Alternatively, the fluids may be containerized in drums or tanks.

2.5. Disposable Personal Protective Equipment

Disposable personal protective equipment (PPE) should be managed like any other IDW. However, with the clients' and project manager's approval, it may be removed from the site and disposed of as ordinary rubbish if it has not come into contact with contaminated materials.

3. Limitations

- The simplest IDW management option is to return the IDW to its source location.
- However, the selected IDW management options must meet state/federal regulations and have the client's approval. Consult with state/federal policies for IDW-related matters.

- The client is responsible for the disposal of IDW, should disposal be necessary.

4. References

Guide to Management of Investigation - Derived Wastes (April 1992), United States Environmental Protection Agency, Publication 9345.3-03FS.

Standard References for Monitoring Wells, Massachusetts Department of Environmental Protection, Publication No. WSC-310-91.

5. Attachments

Attachment A - Summary of Investigation Derived Waste Management Options

6. Contacts

David Terry
Leslie Lombardo

Attachment A: - SUMMARY OF IDW MANAGEMENT OPTIONS
GEI Consultants, Inc. Standard Operating Procedures
Management of Investigation - Derived Waste

Type of IDW	Generation Processes	Management Options	Remarks
Soil	Boring/monitoring well installation Test pit excavation Soil sampling	Return to source location immediately after generation	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Spread around boring, test pit, or original source location	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Containerize and temporarily store on site	Can temporarily store in stockpiles or covered containers (i.e. drums, roll-off containers). Stockpiles must be underlain by plastic sheeting and covered with plastic sheeting. Plastic sheeting must be secure. Storage consistent with state/federal regulations.
		Send to off-site, treatment or disposal facility within appropriate timeframes	Requires proper shipping documents (i.e. manifest, Bill of Lading, etc.), analytical characterization
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Store temporarily awaiting laboratory analysis.	Storage consistent with state/federal regulations. Can temporarily store in stockpiles or covered containers (i.e. drums, roll-off containers). Stockpiles must be underlain by plastic sheeting and covered with plastic sheeting. Plastic sheeting must be secure.
Sediment/Sludge	Sludge pit sampling Sediment sampling	Return to source immediately after generation	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Store temporarily on site.	Storage consistent with state/federal regulations.
		Send to off-site facility within 90 days	Requires manifests, analytical characterization
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)

Attachment A: - SUMMARY OF IDW MANAGEMENT OPTIONS
GEI Consultants, Inc. Standard Operating Procedures
Management of Investigation - Derived Waste

Type of IDW	Generation Processes	Management Options	Remarks
Aqueous liquids (groundwater, surface water, drilling fluids, other wastewater)	Well installation/development Well purging during sampling Ground water discharge - pump tests Surface water sampling	Pour onto ground close to well	Non-hazardous liquids only. Should not exhibit a sheen or separate phase product. Do not discharge to the ground up-gradient of the source location. Ensure that it is permissible by local, state, and Federal regulations Is acceptable to the client, the governing regulatory agency, and the project manager.
		Store temporarily on site	If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Send to off-site commercial treatment unit within appropriate timeframes	Refer to State regulations for appropriate timeframe. Requires appropriate shipping documents (i.e., manifest, Bill of Lading), analytical characterization
		Send to POTW	Obtain appropriate discharge permit(s)
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. Consistent with final remedial action
		Discharge to surface water	OK if it complies with state and federal regulations. Obtain appropriate discharge permit(s).
Decontamination fluids	Decontamination of PPE and equipment	Store temporarily on site	If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Send to off-site facility within appropriate timeframes	Requires manifests, analytical characterization
		Store for future treatment and/or disposal. Storage consistent with state/federal regulations.	Consistent with final remedial action
Disposable PPE	Sampling, drilling, and test pit excavation observation, other on-site activities	Store temporarily on site	Dispose of appropriately after characterization
		Place in on-site industrial dumpster	Project-specific determination required – must be acceptable to client and project manager
		Send to off-site facility within 90 days	Project-specific determination required
		Store for future treatment and disposal.	Storage consistent with state/federal regulations. Project-specific determination required

Notes:

1) PPE - personal protective equipment
2) POTW - publicly owned treatment works
3) Generation processes listed here are provided as examples.
   IDW may also be generated as a result of other site activities.
4) RCRA Container/Waste Pile/Tank requirements:
   Containers; 40 CFR 264 Subpart I and 265 Subpart I
   Waste Piles; 40 CFR 264 Subpart L and 265 Subpart L
   Tanks; 40 CFR 264 Subpart J and 265 Subpart J

STANDARD OPERATING PROCEDURE

SC-004 Headspace VOC Screening

1. Objective

Describe methods to obtain site-specific measurement of the total volatile organic compound (VOC) concentrations present in the headspace of a jar containing soil.

This information can be used for several purposes:

- Segregate soil based on degree of contamination.
- Identify samples for quantitative analysis of VOCs.
- Evaluate the presence or absence of VOCs in soil.

2. Execution

- A photoionization detector (PID) or flame ionization detector (FID) instrument is used to measure VOCs in jar headspace (JHS) screening.
- Select the appropriate instrument, lamp, and calibration gas for the site-specific contaminants. Calibrate the instrument in accordance with the manufacturer's instructions before JHS screening begins. Record the type of calibration gas, detector, lamp, and results of calibration in the field notebook.
- Note the highest VOC concentration that the instrument measures in air in the work area before performing JHS screening. Record this as the initial background concentration.
- Half-fill a clean, glass jar with the soil. Quickly cover the open top with one or two sheets of clean, aluminum foil and screw on the cap to tightly seal the jar. Label the jar with the sample location and sample depth.
- Allow headspace development for at least 10 minutes at an ambient temperature of 50°F or greater. Vigorously shake the jar for 15 seconds at the beginning and end of the headspace development period. When ambient temperatures are below 50°F, place the jar in a heated vehicle or building during the headspace development period.
- After headspace development, remove the screw cap to expose the foil seal. Quickly puncture the foil seal with the instrument's sampling probe and insert it to a point at about one-half of the headspace depth.
- Record the highest VOC concentration that the instrument displays as the JHS concentration. The highest concentration should occur between 2 and 5 seconds after probe insertion.

3. Limitations

- The instruments may work poorly in the rain and in freezing temperatures. Under such conditions, operate the instrument in a heated vehicle or building if possible.

- Prevent water and soil particles from entering the tip of the instrument probe. Use a filter on the instrument's probe.
- Measure background VOC conditions and perform JHS screening away from non-site-related VOC sources, such as vehicle and heavy equipment exhaust.
- The VOC concentration on the instrument's display may vary when the air contains high VOC concentrations or high moisture.
- JHS screening is a guide that helps the screener to segregate soils into broadly defined categories. JHS screening results may differ by orders of magnitude from laboratory testing results.
- Note that states may have specific procedures for field monitoring. In Massachusetts, the Massachusetts Department of Environmental Protection (DEP) requires that screening of gasoline-contaminated soil be performed in accordance with Attachment II of the DEP's policy #WSC-94-400 Interim Remediation Waste Management Policy for Petroleum Contaminated Soils. Consult this procedure or any relevant guidance documents for assistance.

4. References

Interim Remediation Waste Management Policy for Petroleum Contaminated Soils. (April 1994), Massachusetts Department of Environmental Protection, Policy #WSC-94-400.

5. Contacts

Leslie Lombardo

Section 6

Solid Matrix Sampling (SM)

STANDARD OPERATING PROCEDURE

SM-001 Soil Sampling Techniques Including Split-Spoon

1. Objective

Describe standard procedures for the collection of surface and subsurface soil samples.

The definition of "surface" soil varies considerably between regulatory organizations. Surface soils may be classified as soils between the ground surface and 2 inches below ground surface, ground surface and 6 inches below ground surface, and even as much as ground surface and 24 inches below ground surface.

The definition of subsurface soil will vary in relation to the definition of surface soil. In general, subsurface soil is everything deeper than surface soil.

Refer to state-specific regulations for the definitions of surface and subsurface soils.

2. Execution

2.1. Surface Soil Sampling

Collection of surface soil samples can be accomplished with tools such as spades, shovels, trowels, scoops, etc. A flat, pointed mason trowel to cut a block of the desired soil is helpful when undisturbed profiles are required.

- Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.
- Using a decontaminated stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.
- If volatile organic compound (VOC) analysis is to be performed, transfer the sample directly into an appropriate labeled sample container with a stainless steel lab spoon, small diameter core device, or equivalent and secure the cap tightly.
- Place the remainder of the sample into a decontaminated stainless steel, plastic, or other appropriate container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval.
- Either place the sample into appropriate labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval or location into the container and mix thoroughly.
- When compositing is complete, place the sample into appropriate labeled containers and secure the caps tightly.

2.2. Sampling with Hand Augers and Thin Wall Tube Samplers

Several types of augers are available; these include: bucket type, continuous flight (screw), and post-hole augers. Bucket type augers are generally better for direct sample recovery because they provide a large volume of sample in a short time. When continuous flight augers are used, the sample can be collected directly from the flights. The continuous flight augers are satisfactory when a composite of the complete soil column is desired. Post-hole augers have limited utility for sample collection as they are designed to cut through fibrous, rooted, swampy soil and generally cannot be used below a depth of approximately three feet.

2.2.1 Auger Sampling

- Clear the area to be sampled of any surface debris (e.g., twigs, rocks, litter). It may be advisable to remove the first three to six inches of surface soil for an area approximately six inches in radius around the drilling location.
- Attach the decontaminated auger bit to a drill rod extension, and attach the "T" handle to the drill rod.
- Begin augering, periodically removing and depositing accumulated soils onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.
- After reaching the desired depth, carefully remove the auger from the hole. When sampling directly from the auger, collect the sample after the auger is removed from the hole.

2.2.2 Thin-Walled Core Sampling

- Remove auger tip from the extension rods and replace with a pre-cleaned thin wall tube sampler. Install the proper cutting tip.
- Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the soil. Do not scrape the borehole sides. Avoid hammering the rods as the vibrations may cause the boring walls to collapse.
- Remove the tube sampler, and unscrew the drill rods.
- Remove the cutting tip and the core from the device.
- Discard the top of the core (approximately 1 inch), as this may represent material knocked down from the sides of the boring and not the layer of interest. Place the remaining core into the appropriate labeled sample container.

One type of thin-wall sampler is depicted in Attachment A (this is typically used with a mechanical drill rig).

For either method, If VOC analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, small diameter core sampler, or equivalent and secure the cap tightly. VOC samples should be collected first to minimize the potential for losing volatiles prior to sample collection.

Place the remainder of the sample into a stainless steel, plastic, or other appropriate container and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the container and mix thoroughly.

When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow previous steps, making sure to decontaminate the auger and tube sampler between samples.

Abandon the hole according to applicable state regulations. Generally, shallow holes can simply be backfilled with the removed soil material.

2.3. Sampling at Depth with a Split-Spoon (Barrel) Sampler

Split-spoon sampling is generally used with a mechanical drill rig to collect undisturbed soil cores of 18 or 24 inches in length. A series of consecutive cores may be extracted with a split-spoon sampler to give a complete soil column profile, or an auger may be used to drill down to the desired depth for sampling. The split-spoon is then driven to its sampling depth through the bottom of the augured hole and the core extracted. A diagram of the split-spoon sampler assembly is provided as Attachment A.

When split-spoon soil sampling is performed to gain geologic information, work should be performed in accordance with ASTM D1586-08a, "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". The following procedures are used for collecting soil samples with a split-spoon:

- Select the size (length and diameter) of split-spoon sampler based on the amount of soil that is needed for characterization. The ASTM standard for N-values is 1 3/8 - inch I.D (2-inch O.D.). Specify spoon size and basket type to driller prior to mobilization to the site. Split spoon samplers are typically available in 1 3/8 – and 3 – inch I.D. sizes. A larger barrel may be necessary to obtain the required sample volume. Note on the boring log where larger split spoon barrels are used because the ASTM standard penetration test does not apply when driving split spoons larger than 1 3/8 I.D. (2-inch O.D.).

- Select a soft or stiff basket for the spoon (a softer basket generally works better for loose or soft material).
- Prior to hammering the split spoon to collect the sample, verify that the split-spoon is seated at the beginning of the desired sample interval. If it is seated above the interval, have driller clean out the hole prior to sampling. Record all depth measurements relative to ground surface.
- Assemble the sampler by aligning both sides of barrel and then screwing the drive shoe on the bottom and the head piece on top. See diagram in Attachment A.
- Place the sampler in a perpendicular position on the sample material.
- For all soil samples, use a 140-lb hammer falling 30 inches to drive the sampler, unless conditions necessitate using a 300-lb hammer.
- Record in the site fieldbook or on field data sheets the length of the tube used to penetrate the material being sampled, the split-spoon inside and outside diameters, and the hammer weight,
- Count and record the number of blow counts per 6-inch increments (confirming blow counts with driller if necessary).
- Withdraw the sampler, and open by unscrewing the bit and head and splitting the barrel. The length of recovery and soil type should be recorded on the boring log. If a soil sample is desired, a decontaminated stainless steel knife or spatula should be used to divide the tube contents in half, longitudinally. If possible, avoid collecting soil that has come in contact with the walls of the spoon, and soil at the top of the spoon.
- Without disturbing the core, transfer it to appropriate labeled sample container(s) and seal tightly.
- Note any material in the nose (shoe) of the spoon.
- Immediately collect a sample for VOCs (if required by the site-specific field sampling plan) by collecting soil from the entire length of the split spoon, unless otherwise specified by the project manager. When the most impacted interval is sampled for laboratory analysis, screen the spoon with the field instrument first, then collect the soil sample for VOC analysis from the appropriate interval.

3. Limitations

- Weather conditions (e.g., frozen ground) may prevent the collection of samples and should be considered prior to sample collection.
- Tools plated with chrome or other materials should not be used.
- Be aware of local laws regarding subsurface utility clearance prior to conducting subsurface investigations. Contact DigSafe or local utility companies as required.
- Be aware of the length of the drill string, the sample depth, and the required stickup of the drill string to ensure accurate sample interval measurement.
- If drilling with hollow-stem augers, the removal of the drill string from the hole, prior to attaching the split-spoon sampler, may cause soils to be sucked up

into the augers (blow-in running sands). Upon recovery, determine if there is blow-in in the split spoon sampler. In general, blow-in is more unconsolidated than the rest of the sample and lacks stratification (do not include blow-in for recovery of sample collection).

- If soils consist of loose sands or soft clay, the drill string and sampler may advance slightly under its own weight, giving a false depth for soil collection.
- Never sample more than two spoons consecutively without advancing the augers unless material is tight. Do not let the split spoon penetrate more than it can hold.
- In many instances, groundwater will fill the auger and the split-spoon.

4. References

ASTM D1586-08a, "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". 2008.

United States Environmental Protection Agency, SOP 2012 "Soil Sampling", Revision 0.0, February 18, 2000.

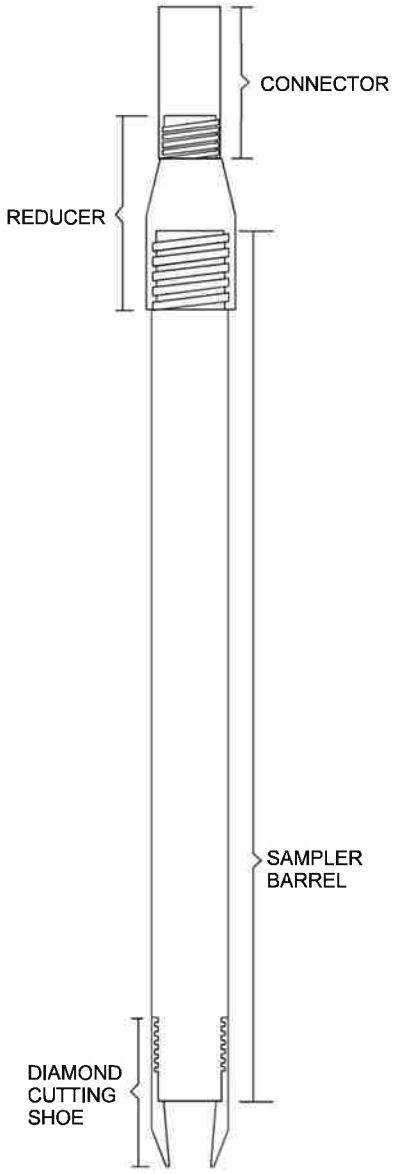
5. Attachments

Attachment A - Sampler Design Assembly

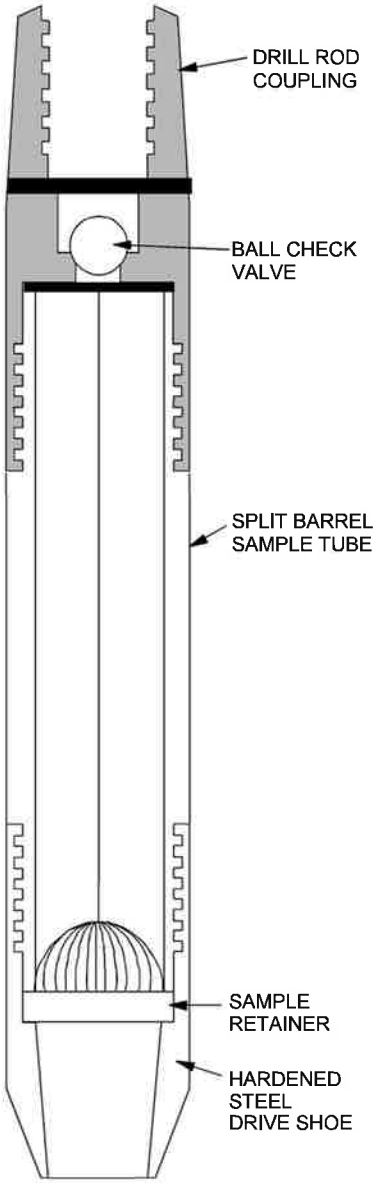
6. Contacts

Matt Glunt
Chris Pray

THIN WALL HQ CORE SAMPLER
(2" width x 60" length)



SPLIT-SPOON SAMPLER
(2" width x 24" length)



STANDARD OPERATING PROCEDURES SM-001	GEI Consultants	**THIN WALL AND SPLIT-SPOON SAMPLERS**
NEW ENGLAND AND ATLANTIC REGIONS	June 2011	Attachment A

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STANDARD OPERATING PROCEDURE

SM-003 Classification of Soil Samples in the Field

1. Objective

Describe methods to classify soil samples collected in the field in a consistent manner.

2. Execution

- Describe soil samples according to *ASTM D2488-09a, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) and* Attachments A and B. This standard is the basis for the Unified oil Classification System.
- Identify and record the soil in terms of the major and minor constituents (i.e., sand gravel, silt, clay), Unified Soil Classification Symbol, sample structure, plasticity and dilatancy for fine-grained soils, color, local or geologic name if known (e.g., Boston Blue Clay or glacial till), odor, presence of iron or other staining, and presence of organic matter, shells, debris, or other unusual characteristics of the same.
- If a soil split-spoon sample contains more than one soil type (for example, the upper portion is silty sand and the lower portion is clay) describe each type separately.
- Record sampler type, blow counts, soil description, etc. on the boring log (see Attachment C).
- GEI consistently applies one modification to the ASTM standard: Use "widely graded" and "narrowly graded" instead of "well-graded" and "poorly graded," respectively.

3. Limitations

Certain projects or clients will require the use of other classification systems. Other classification systems should not be used unless specifically required by the client. If the client requires that we use the Burmister method, obtain the details from the client. An example breakdown is shown below, but some clients (MassDOT, for example) have their own breakdown.

- "and" = 35-50%
- "some" = 20-35%
- "little" = 10-20%
- "trace" = 1-10%

- Describing soil samples is often difficult during cold or wet weather. Make sure your field notes describe these conditions. When possible, collect archive samples and verify sample descriptions in the office.

- The ASTM Standard Practice for Classification of Soils for Engineering Purposes (D2487) may be used in conjunction with the Visual-Manual Method to confirm the soil classification. D2487 includes laboratory testing.

4. References

ASTM D2487-06e1, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), ASTM, 2006.

ASTM D2488-09a, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), ASTM, 2009.

Field Guide for Soil and Stratigraphic Analysis, Midwest Geosciences Group Press, 2001-2005.

Coarse-Grained Soils Visual-Manual Descriptions, GEI Consultants, Soil Description Chart.

Fine-Grained Soils Visual-Manual Descriptions, GEI Consultants, Soil Description Chart.

5. Attachments

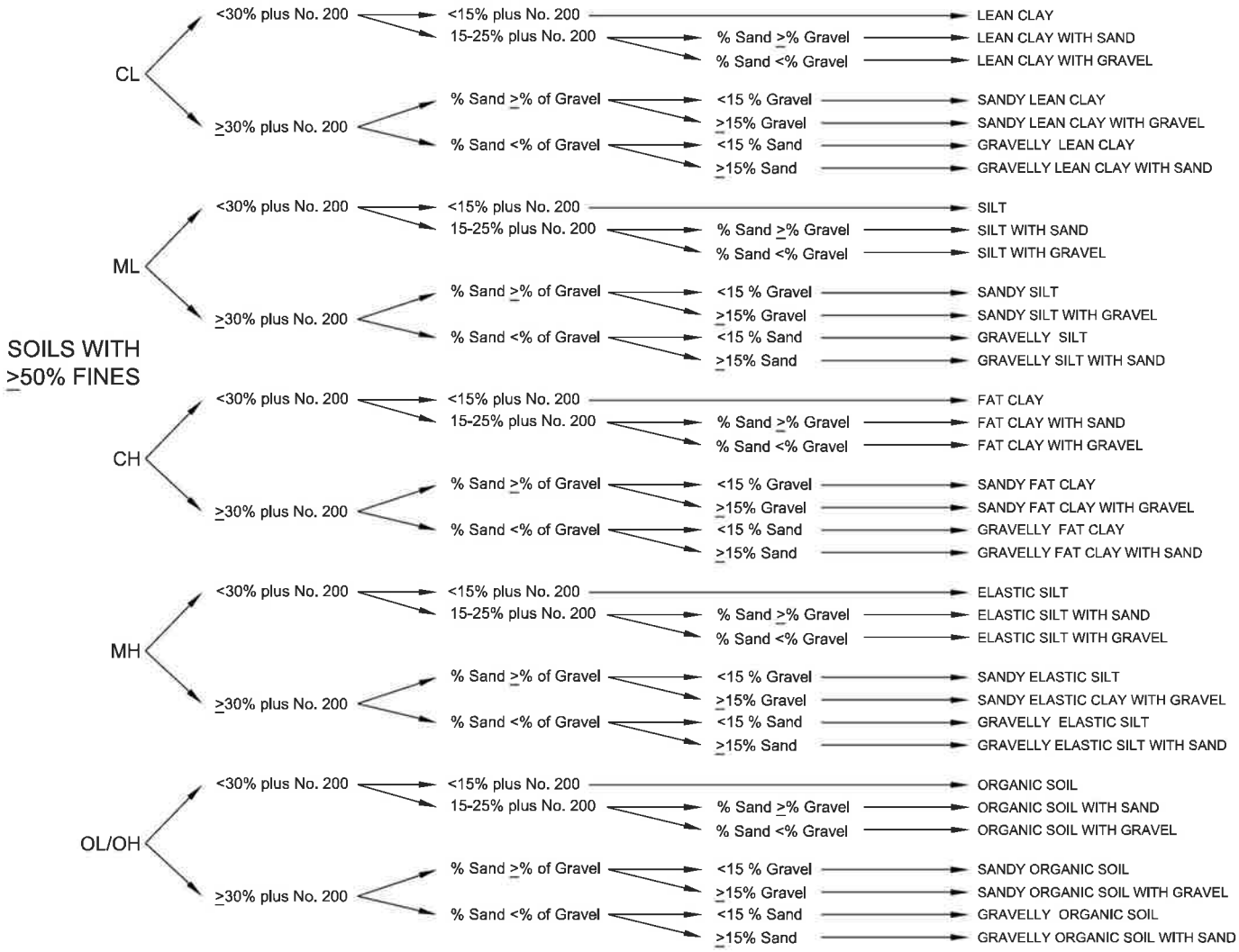
Attachment A – GEI Soil Description Charts (2007)
Attachment B – Visual Manual Descriptions with example boring log
Attachment C – Describing the Plasticity of Soil Samples

6. Contacts

Cathy Johnson

GEI Consultants

FINE-GRAINED SOILS
VISUAL-MANUAL DESCRIPTIONS



ID OF INORGANIC FINE SOILS FROM MANUAL TESTS

Symbol	Name	Dry Strength	Dilatancy	Toughness*
ML	Silt	None to low	Slow to rapid	Low or thread cannot be formed
CL	Lean Clay	Medium to high	None to slow	Medium
MH	Elastic Silt	Low to medium	None to slow	Low to medium
CH	Fat Clay	High to very high	None	High

1. GROUP NAME and (SYMBOL)
2. Describe fines, sand, and gravel components, in order of predominance. Include plasticity of fines. Include percentages of sand and gravel.
3. Color
4. Sheen, odor, roots, ash, brick, cementation, torvane and penetrometer results, etc.
5. "Fill," local name or geologic name, if known

PEAT

Peat refers to a sample composed primarily of vegetable matter in varying stages of decomposition. The description should begin: PEAT (PT) and need not include percentages of sand, gravel or fines.

CRITERIA FOR DESCRIBING PLASTICITY

Description	Criteria
Nonplastic ML	A 1/8-in. (3 -mm) thread cannot be rolled at any water content
Low Plasticity ML, MH	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit *
Medium Plasticity MH, CL	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit
High Plasticity CH	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit

* Toughness refers to the strength of the thread near plastic limit. The lump refers to a lump of soil drier than the plastic, similar to dry strength.

COARSE-GRAINED SOILS

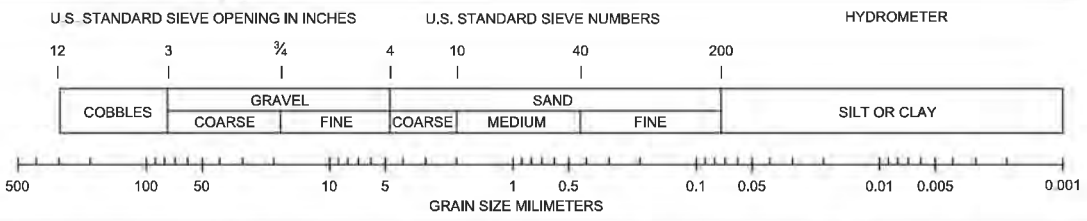
VISUAL-MANUAL DESCRIPTIONS

GEI Consultants

TYPICAL SOIL COLORS

- YELLOW
- OLIVE
- LIGHT BROWN
- BROWN
- REDDISH BROWN
- RED
- GRAY
- BLACK

				GROUP SYMBOL	GROUP NAME
GRAVEL % Gravel > % Sand	≤5% Fines	WIDELY GRADED		GW	<15% Sand → WIDELY GRADED GRAVEL
					≥15% Sand → WIDELY GRADED GRAVEL WITH SAND
		NARROWLY GRADED		GP	<15% Sand → NARROWLY GRADED GRAVEL
					≥15% Sand → NARROWLY GRADED GRAVEL WITH SAND
	~10% Fines	WIDELY GRADED	Fines = ML or MH	GW-GM	<15% Sand → WIDELY GRADED GRAVEL WITH SILT
					≥15% Sand → WIDELY GRADED GRAVEL WITH SILT AND SAND
			Fines = CL or CH	GW-GC	<15% Sand → WIDELY GRADED GRAVEL WITH CLAY
					≥15% Sand → WIDELY GRADED GRAVEL WITH CLAY AND SAND
		NARROWLY GRADED	Fines = ML or MH	GP-GM	<15% Sand → NARROWLY GRADED GRAVEL WITH SILT
					≥15% Sand → NARROWLY GRADED GRAVEL WITH SILT AND SAND
			Fines = CL or CH	GP-GC	<15% Sand → NARROWLY GRADED GRAVEL WITH CLAY
					≥15% Sand → NARROWLY GRADED GRAVEL WITH CLAY AND SAND
	≥15% Fines		Fines = ML or MH	GM	<15% Sand → SILTY GRAVEL
					≥15% Sand → SILTY GRAVEL WITH SAND
			Fines = CL or CH	GC	<15% Sand → CLAYEY GRAVEL
					≥15% Sand → CLAYEY GRAVEL WITH SAND
SOILS WITH <50% FINES					
SAND % Sand ≥ % Gravel	≤5% Fines	WIDELY GRADED		SW	<15% Gravel → WIDELY GRADED SAND
					≥15% Gravel → WIDELY GRADED SAND WITH GRAVEL
		NARROWLY GRADED		SP	<15% Gravel → NARROWLY GRADED SAND
					≥15% Gravel → NARROWLY GRADED SAND WITH GRAVEL
	~10% Fines	WIDELY GRADED	Fines = ML or MH	SW-SM	<15% Gravel → WIDELY GRADED SAND WITH SILT
					≥15% Gravel → WIDELY GRADED SAND WITH SILT AND GRAVEL
			Fines = CL or CH	SW-SC	<15% Gravel → WIDELY GRADED SAND WITH CLAY
					≥15% Gravel → WIDELY GRADED SAND WITH CLAY AND GRAVEL
		NARROWLY GRADED	Fines = ML or MH	SP-SM	<15% Gravel → NARROWLY GRADED SAND WITH SILT
					≥15% Gravel → NARROWLY GRADED SAND WITH SILT AND GRAVEL
			Fines = CL or CH	SP-SC	<15% Gravel → NARROWLY GRADED SAND WITH CLAY
					≥15% Gravel → NARROWLY GRADED SAND WITH CLAY AND GRAVEL
	≥15% Fines		Fines = ML or MH	SM	<15% Gravel → SILTY SAND
					≥15% Gravel → SILTY SAND WITH GRAVEL
			Fines = CL or CH	SC	<15% Gravel → CLAYEY SAND
					≥15% Gravel → CLAYEY SAND WITH GRAVEL



1. GROUP NAME and (SYMBOL)
2. Structure , if any. (stratified layer thicknesses, lenses, varves, gradational changes)
3. Describe sand, gravel and fines components, with percentages, in order of predominance. Include max gravel size. For test pits give percent cobbles and boulders, by volume, and include max size.
4. Color
5. Sheen, odor, roots, ash, brick, cementation, reaction with HCL, etc.
6. "Fill," local name or geologic name, if known

Describing the Plasticity of Soil Samples

M. Paster – November 2008

References ASTM D 2487 – Soil descriptions – lab
ASTM D 2488 – Soil descriptions – field
ASTM D 4318 – Atterberg limits testing

GEI Practice for Boring and Test Pit Logs

Describe the fines as:

Non-plastic
Low plasticity (The GEI laminated sheets incorrectly use "slightly plastic" for "low plasticity.")
Medium plasticity
High plasticity

Example: ~25% low plasticity fines

Toughness and dry strength:

You should use these tests to help decide how plastic the fines are. Record the results in the remarks column of the field log, but not in the soil description and not necessarily in the typed log.

On final logs, if Atterberg limits tests have been performed:

Do not use the descriptive terms non-plastic, low plasticity, etc. for samples on which Atterberg limits tests have been run. Instead, just give the percentage of fines and then report the actual Atterberg limits at the end of the description.

For example, the end of a silty sand description might be:
. . . ~25% fines, ~10% gravel max size ½ inch, gray. PL=23, LL=35.

(Atterberg limits tests are performed on the fraction of the sample finer than the No. 40 sieve, not just the fines. So the Atterberg limits data applies to the sample, not just to the fines.)

Hints:

High plasticity soils are rare in New England. If you think it's high plasticity, it's probably medium. Some Boston blue clay and some Connecticut River varved clays are high plasticity, but if you think you've found some, check with the project manager.

In New England, if ~10% fines or more, generally stick with GM, SM, ML, and CL. Occasionally GC, SC, CH. Don't use MH unless you have Atterberg limits data.

Estimating plasticity in the field, GEI guidance based on ASTM D 2488:

Plasticity	1/8-inch thread	Dry strength	Toughness
non	Cannot be rolled at any water content.	Dry specimen crumbles when handled.	Only slight pressure needed to roll thread near plastic limit.
low	Thread can barely be rolled.	Dry specimen crumbles with some finger pressure.	Slight to medium pressure needed to roll thread near plastic limit.
medium	Thread is easy to roll. Not much time needed to reach plastic limit.	Dry specimen crumbles with considerable finger pressure.	Medium pressure needed to roll thread near plastic limit.
high	Takes considerable time rolling and kneading to reach plastic limit.	Dry specimen cannot be broken with finger pressure.	Considerable pressure needed to roll thread near plastic limit.

Non-plastic vs. low plasticity:

ASTM D 2488 (soil descriptions - field) defines non-plastic and low plasticity based on the 1/8-inch thread as shown in the table above.

ASTM D 4318 (Atterberg limits testing) indicates that a sample should be called non-plastic for either of the following cases:

- The liquid limit test (dropping the cup) or the plastic limit test (rolling out the thread) cannot be performed because the plasticity is too low.
- The plastic limit is greater than or equal to the liquid limit.

Unfortunately, there are some soils that are low plasticity based on D 2488 (a thread can be rolled), but are non-plastic based on D 4318 (the liquid limit cannot be measured or PL≥LL).

GEI considers these soils to have low plasticity, because that is how they "look" and "feel." We want to document this information so that other people will have a better feel for what the soil looks like and how it behaves. So, if the soil was low plasticity based on D 2488, but non-plastic based on D 4318, that should be explained in the letter or report, and possibly in a note on the log.

BORING LOCATION Maple Ave Sidewalk
GROUND ELEVATION (NGVD) _____
GROUNDWATER EL. _____ DATE _____

DATE START/FINISH 2/14/07 - 2/15/07
DRILLED BY Geologic: M. Costigan
LOGGED BY T. Kahl/M. Yako TOTAL DEPTH (FT) 25

B101

PG. 1 OF 1

EL. FT.	DEPTH FT.	SAMPLE TYPE and NO.	SAMPLE BLOWS PER 6 IN.	SAMPLE PEN IN.	SAMPLE REC IN.	PID JAR HS / REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0						FILL	4" pavement
		S1	13-9 17-14	24	0	0.5 ppm		S1: Redrove 0.5 to 3.5 ft. Recovery 11": WIDELY GRADED SAND (SW) ~85% sand, ~10% gravel to 1", <5% nonplastic fines, brown. Contains brick fragments and ash. Fill.
	2.5					hard drilling 3 to 4 ft, possible boulder		
	5	S2	7-7 11-13	24	8	2.0 ppm		S2: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) ~65% mostly fine sand, ~25% gravel to 3/4 inch ~10% non-plastic fines, brown. Fill.
	7.5	S3	9-10 2-1	24	16	0.0 ppm	ORGANICS	S3 (0-10"): Similar to S2.
	10							S3 (10"-16"): ORGANIC SILT (OL) ~100% slightly plastic fines, dark gray, organic odor, contains white shell fragments.
	12.5	S4	WOH 1-2 1	24	15	0.0 ppm		
	15					hard drilling at 15.5 ft		S4: Similar to S3, bot 6".
	17.5	S5	20-35 50/3"	15	8	Top of rock ~19 ft. Roller bit to 20 ft.	TILL	S5: SILTY SAND WITH GRAVEL (SM) ~60% mostly fine sand, ~25% slightly plastic fines, ~15% gravel to 1/2 inch, olive. Glacial Till.
	20							
	22.5	C1	RQD 70%	60	54	lost ~10 gallons drill fluid from 23 to 25 ft	ROCK	C1: SCHIST, hard, slight weathering at joint surfaces, joints at ~30 degrees from horizontal and generally parallel to foliation, gray. Marlborough Formation.
	25							Bottom of Boring 25 ft
	27.5							Truck-mounted drill rig. 4-inch casing to 19 ft. Safety-hammer with rope and cathead for SPT. Backfilled with drill cuttings.
	30							

BLOWS PER 6 IN.–140 LB. HAMMER FALLING 30 IN. TO DRIVE A 2.0 IN. OD SPLIT SPOON SAMPLER
PEN–PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC–RECOVERY LENGTH OF SAMPLE
RQD–LENGTH OF SOUND CORES > 4 IN./ LENGTH CORED, %
S–SPLIT SPOON SAMPLE
U–UNDISTURBED SAMPLES, UF–FIXED PISTON UO–OSTERBERG
▽ GROUNDWATER

NOTES:
1: Groundwater at 10 ft depth at start of day 2/15/07.

PROJECT 07999-0
DATE

GEI Consultants

EXAMPLE SOIL DESCRIPTIONS

SANDY SILT (ML) ~60% slightly plastic fines, ~40% mostly fine sand, 1" thick layer of fine to medium sand with <20% fines, gray.

LEAN CLAY (CL) ~90% moderately plastic fines, ~10% fine sand, olive. Boston Blue Clay. Sv = 0.5, 0.5, 0.8 tsf, Qp = 1.0, 1.5, 1.6 tsf

Stratified CLAYEY SAND (SC) and WIDELY GRADED SAND (SW) SC layers 1 to 2 inches thick consist of fine sand with ~30% moderately plastic fines, gray. SW layers 1 to 4 inches thick consist of fine to coarse sand, ~10% gravel to 1/2 inch, <5% fines, brown. Hydraulic Fill.

EXAMPLE ROCK DESCRIPTIONS

(0-9"): GRANITE, hard, one piece, joint surface slightly weathered, pink.
(6-60"): PHYLLITE, joints ~ 45° generally parallel to foliation, 9" to 44" moderate to severe jointing and joint weathering. 44" to 60" single piece, green-gray.

ARGILLITE, medium hard, moderately weathered joints, gray. Cambridge Argillite.

GEOPROBE AND ROTOSONIC

When SPTs are not performed, note sample density (sands) or stiffness (clays) in description.

CRITERIA FOR DESCRIBING DILATANCY OF FINE-GRAINED SOILS

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing.
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing.

SPT: Standard Penetration Test

30-inch drop with 140-lb hammer
1 3/4 to 2 1/4 turns around cathead
2-inch O.D. split spoon sampler

ENV'L TERMINOLOGY FOR SOIL DESCRIPTIONS

- **Ash** - Typically silt-size to medium sand-size.
- Do not use the term "cinders." This is not a technical term. Instead, use "ash," "burnt wood," "burnt material," or a similar term.
- **Coal-like material** - If it looks like coal but you aren't sure.
- **Clinker** - Vitrified (glass-like) or heat-fused material. Often burned impurities in coal. Often looks like pumice, but heavier.
- **Slag** - Similar to clinker, but normally refers to residue from metal ore processing.

- **Sheen** - Iridescent petroleum-like sheen. Not to be used for a "bacterial sheen," which can be distinguished by its tendency to break up on the water surface at angles. Petroleum sheen will be continuous and will not break up.
- **Stained** - Use with a color ("brown-stained") to indicate that the soil is stained a color other than its natural (unimpacted) color.
- **Coated** - Soil grains are coated with NAPL (oil, tar, etc.). There is not enough NAPL to saturate the pore spaces. ("Split spoon sampler coated with brown oil." "Soil grains coated with gray substance with slight gasoline-like odor.")
- **Saturated** - The entire sample pore space is saturated with NAPL. If you use this term, be sure it is not water saturating the pore spaces. Depending on viscosity, the NAPL may drain from a soil sample. ("Sample saturated with green, sticky substance.")
- **Blebs** - Discrete sphericals of NAPL in a soil matrix that was not visibly coated or saturated. ("Occasional blebs of reddish-brown tar.")
- **Oil** - Exhibits a petroleum odor, different from MGP odors.
- **Tar** - Exhibits an MGP odor (e.g. naphthalene-like odor).

- **Odors** - Use terms such as "naphthalene-like odor" or "petroleum-like odor." Use modifiers (strong, moderate, slight) to indicate odor intensity.

STANDARD OPERATING PROCEDURE

SM-004 Test Pit Excavation

1. Objective

Describe methods for excavating test pits and documenting findings.

The test pit is used to characterize geologic strata, subsurface conditions and provide access for collection of representative soil samples from these strata.

2. Execution

- Before digging begins, proper permits and notifications must be obtained, in accordance with applicable rules or regulations.
- Make sure that utility clearance has been conducted. Contact the property owner to determine the location of underground utilities. Verify, with the contractor that local/regional utility clearance service has been contacted. Ask subcontractor to provide local/regional utility clearance service authorization number and record this in the field notebook. Show the contractor the approximate excavation area, and have the contractor confirm that the area is suitable for excavation. Clearance may require marking of subsurface explorations prior to contacting utility clearance service.
- Have contractors pressure wash or steam clean equipment before beginning field activities, if necessary.
- Observe the contractor excavating the designated area.
- If contamination is suspected, have the contractor place excavated material on plastic sheeting.
- During excavation, monitor ambient air for contaminants of concern identified in the site-specific Health and Safety Plan. Record readings in field notebook (see SOP FD-001 Field Notebook).
- Record in a field book or test pit log:
    - Test pit dimensions,
    - Soil classifications (see SOP SM-003 Soil Classification)
    - Visual and olfactory indications of contamination
    - Subsurface structures
    - Obstructions to excavation
    - Any other observations relevant to the project objectives
    - Take photographs of excavation and completed test pit walls, etc. (SOP FD-004 Photodocumentation).
- Record technical information on a PDA, test pit log form, or a field book.
- Label sample bottles (see SOP SC-002 Sample Handling).
- Screen soil samples for contaminants of concern and record results in the field notebook or test pit log.
- Collect soil samples from the test pit as designated in the work plan including sidewalls and bottom at designated depths, at strata changes, or based upon

field screening using remote sampling equipment (backhoe bucket, stainless steel remote sampler, etc.). Do not enter a test pit unless side slopes satisfy Occupational Safety and Health Administration (OSHA) regulations and other health and safety concerns have been addressed.

- Transfer soil samples to the appropriate glassware according to soil sampling SOPs (SOP SM-002 VOC Soil Collection and Preservation Method, etc.).
- Store samples on ice in a cooler (see SOP SC-002 Sample Handling and SOP FD-003 Chain-of-Custody).
- Backfill excavation as soon as possible with material as described in the field plan. Place the excavated material back in the excavation in approximately the same strata it came from.
- Segregate contaminated soil as necessary (see SOP SC-003 IDW). Properly identify segregated material and secure as described in the work plan.
- Measure dimensions of excavation and record in the field notebook or test pit log. If sampling locations are to be surveyed, mark the corners and provide surveyor with location ID.
- Sketch dimension and location of the test pit relative to a site reference point and record in the field notebook. Note the sample locations by number on a cross-section sketch and plan view sketch.

3. Limitations

- Never enter the excavation unless it is shored or the sidewalls are sloped in accordance with OSHA regulations and all proper personal protective safety precautions have been considered and implemented.
- Terminate excavation if the flow of groundwater into the excavation adversely affects the stability of the excavation (i.e., slumping). Make sure to note in the field notebook or test pit log the depth to ground water.
- Terminate excavation if drums, tanks, or other potential sources of contamination are observed. Record visible drum markings, labels, and any other pertinent information on the test pit log and in the field notebook. Photograph drums and materials. Consult with the project manager before filling the excavation.
- Do not leave an open test pit unattended.

4. References

Earth Manual (1968), United States Department of the Interior, Bureau of Reclamation, United States Government Printing Office, Washington, D.C., pp. 134-139.

OSHA Standards for Excavations, Department of Labor, Federal Register, 29 CFR Part 1926, Aug. 9, 1994.

5. Contacts

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Field Descriptions of Samples at Urban Impacted Sites

The intent of this document is to provide field personnel guidelines for logging soil conditions and observed impacts in a consistent and factual manner. This guidance recognizes that prejudging field conclusions regarding the potential source(s) or nature of a particular impact should be avoided and instead conclusions should be based on multiple lines of evidence (field observations, laboratory physical and chemical analyses, historic site uses, location of observed impacts, etc.).

SOIL LOGGING

- All soils are to be logged using the **Unified Soil Classification System** (ASTM D 2488 field descriptions).
- A photograph of the entire sample core should be taken. Additional photographs may be necessary to document impacted material.
- A calibrated **PID** (Photoionization Detector) should be used to screen all soil samples. PID readings should be taken every 6 inches of recovery and the interval reading should be included on the boring logs.
- The soil sample core should be scored or cut along the long axis so that the all of the soil lithology can be observed, when practical.
- **Moisture terms**: dry, moist and wet.
- **Color terms** –Color terms should be used to describe the "natural color" of the sample as opposed to staining caused by contamination (see below).
- **Representativeness** – Soil logs should include specific notes if the field representative believes that there is a possibility the soil sample being described is not representative of the interval sampled or is indicative of multiple sources of contamination.
- **Intervals for Description** – the field description should be for discrete intervals within the sampler, specifically pointing out small-scale units and changes within each sample interval. The description should also include the amount of sample recovered and note other conditions (such as a change in drilling conditions, etc.), as well as consistently adjusting the sample interval described (i.e. – identify the percentage of sample actually recovered and note any potential causes of the loss if possible) and note other conditions (such as a change in drilling conditions, etc.).

DESCRIPTION OF CONTAMINANTS

Visual Contamination Descriptors

- **NAPL** (Non Aqueous Phase Liquid) – a separate phase liquid that may be lighter than water (LNAPL) or denser than water (DNAPL). NAPL arises from a variety of industrial sources and can have varying consistency (viscosity) and can range from non-viscous to highly viscous (taffy-like). NAPL observations should be accompanied by applicable olfactory with smell for industrial sources (see descriptors below) and other visual observations (e.g., color and viscosity).

- **Sheen –** iridescent sheen. This is not to be used to describe a "bacterial sheen", which can be distinguished by its tendency to break up at angles on the water surface; whereas a non-bacterial sheen will be continuous and will not break up.

- **Blebs –** discrete, spherical shaped NAPL in or on the soil matrix. Include additional descriptors to the extent practicable such as the approximate size and quantity (number of blebs or qualitative estimate) to the extent practical.

- **Coated –** soil grains are coated with NAPL – there is not sufficient NAPL present to saturate the pore spaces. Use modifiers such as light, moderate or heavy to indicate the degree of coating.

- **Saturated –** the entirety of the pore space for a sample interval is saturated with NAPL. Care should be taken to ensure that the saturation described is not related to water in the sample. Depending on the viscosity, NAPL saturated materials may freely drain from a soil sample and should be documented accordingly.

- **Stained** – visible, unnatural discoloration of the soil, with no visible free product.

- **Solid NAPL –** NAPL that is in a solid or semi-solid phase. The magnitude of the observed solid NAPL should be described (discrete granules or a solid layer).

  Other Visual Impacts and Descriptors– Other visual impacts that are not naturally occurring should also be noted along with appropriate visual descriptors. These other visual observations could include the observation of debris, wood chips, staining, anthropogenic materials, or other notable visual characteristics and general observations characterizing common urban fill. The above impacts should be described using other visual descriptors as applicable. Descriptors may include, but not be limited to, color, consistency, thickness, etc.

Olfactory Descriptors

- Note odors similar to mothballs, driveway sealer, highway paving oil or other odors that are acrid, burnt, or sulfur-like, etc.
- Other odors that are not believed to be natural should also be identified with descriptors such as organic, ammonia, sweet, chemical etc., as applicable.
- Use modifiers such as strong, moderate or slight to indicate intensity of the observed odor.
- In instances where multiple odors are present, a combination of descriptors should be used to clearly identify where these co-mingled impacts are present.

DNAPL/LNAPL

- **Density of NAPL –** a jar shake test can be performed to preliminarily determine in the field whether observed NAPL is either denser or lighter than water. Care should be taken in recording and interpreting the results, as experience indicates that the apparent result immediately following the test may change with time. Laboratory testing for density of the NAPL is recommended to confirm results. The depth at which the NAPL is encountered on soil with respect to the groundwater surface is not diagnostic and should not be used a basis for identifying the density of NAPL in the field.

- **Viscosity of NAPL –** if NAPL is present a qualitative description of viscosity should be made. The following should be used:

  Highly Viscous (taffy-like)
  Viscous (No. 6 fuel oil or bunker crude-like)
  Low viscosity (No. 2 fuel oil-like or water-like)

GROUNDWATER SAMPLING OBSERVATIONS

- Any observations of sheen, blebs, NAPL, smearing or coating of the sampling equipment, odor, etc. made during groundwater sampling are to be included in the groundwater sample collection log.

COLOR CHART (ATTACHED) For Use in Cross-Sections, Extent Maps, and Similar Interpretative Depictions

The color chart attached is intended to help visually depict the nature and location of impacts observed during an investigation. The chart would be used for new sites or sites transitioning from the Site Characterization to the Remedial Investigation phase (or are in the early stages of the Remedial Investigation phase). The colors should be included in investigation summaries on cross sections to support an understanding of the nature and extent of impacts. In addition, the colors may also be placed on boring logs (although not a requirement) in the final report. In either case, the colors will be used in interpretive depictions of nature and extent once the lines of evidence support a determination of the appropriate color selection. Since the investigation of a site is dynamic, the use of a particular color or a combination of colors may change if other lines of evidence suggest such a change is appropriate.

In instances where multiple impacts are present, a combination of colors should be used (such as a color with cross hatching) to clearly identify where these co-mingled impacts are present.

Color Descriptions of Samples at Urban Impacted Sites

	RGB Color	Auto Cad Index
NAPL SATURATED	255,0,0	10
NAPL COATED MATERIAL	255,0,255	210
SOLID NAPL	129,64,0	34
NAPL BLEBS, GLOBS, SHEEN	255,191,0	40
STAINING, ODOR	255,255,0	50
INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS	0,191,255	140
INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS	170,234,255	141
WOOD CHIPS/BLUE DISCOLORATION/SULFER-LIKE ODOR	0,0,255	170
NO OBSERVED IMPACTS	0,165,0	92

Note: In instances where multiple impacts are present, a combination of colors should be used (such as a color with cross hatching) to clearly identify where these co-mingled impacts are present.

Section 7

Groundwater (GW)

STANDARD OPERATING PROCEDURE

GW-001 Water Level and NAPL Measurement

1. Objective

Describe procedures to measure the depth to water and non-aqueous phase liquid (NAPL) thickness in an open borehole, cased borehole, monitoring well or piezometer.

2. Equipment and Materials

Field forms and/or field notebook.

- Decontamination fluids
- Bailer
- Weighted cotton string
- Oil/Water interface probe
- Water level meter (if oil/water interface probe is not available)

Water level and NAPL measurements can be collected by a variety of methods. A water level meter is used to collect depth to water measurements however an oil/water interface probe or other methods must be used to gauge NAPL depths. An electronic oil/water interface meter, consists of a cable divided into incremental measurements of 0.01 feet, and probe that consists of an infra-red circuit that detects the presence of a liquid, and a conductivity circuit that differentiates between conductive liquid (water) and non-conductive liquid (LNAPL or dense non-aqueous phase liquid [DNAPL] product). Typically, a steady tone and light indicate a non-conductive liquid (e.g. product) and an intermittent tone and light indicate a conductive liquid (e.g. water). Refer to the manufacturer's instructions for details. Alternately, water level and NAPL measurements can be collected using a water level meter, clear bailer and weighted cotton string. Each method of data collection is described below.

3. General Information

- The water level in a monitoring well or piezometer should be allowed to stabilize for a minimum of 24 hours after development or construction before groundwater elevation and/or NAPL measurements are collected. The water level in a borehole can be measured during drilling; however, this should be noted in the field notebook.
- Water levels in multiple wells should be collected within the shortest timeframe practicable.
- Water and NAPL levels should be measured from the designated survey point as specified by the surveyor or highest point (or "V" notch) on the PVC. If the well is new, mark the datum point with an indelible marker and note reference location in

field book. Discuss with the project manager what reference point should be used to collect water measurements for specific sites.

- Water level and/or NAPL measurements should be made before any water is removed from wells because doing so may influence groundwater levels in the area of the investigation.
- Measurements should be made approximately three times to confirm the measurement. Each time a measurement is made it should be determined to the nearest one-hundredth of a foot (0.01).
- Water level and/or NAPL measurements should first be collected at the wells that are least contaminated and proceed towards the wells that are most contaminated. Decontaminate the water level meter or oil/water interface probe prior to initial use and after use at each location. If NAPL is encountered at a well where it was previously not observed, contact your project manager before continuing.
- Refer to the oil/water interface probe or water level meter instruction manual for guidance on indicator signals, as these may differ by manufacturer.

4. Execution

4.1 Water Level and NAPL Measurements Using Interface Probe

- Open wells to the atmosphere and allow them to equilibrate prior to collecting LNAPL depth measurements.
- LNAPL Depth (if present): Measure the LNAPL/air interface by slowly lowering the interface probe to the LNAPL surface. Be ready to stop as soon as the probe signals the LNAPL surface.
- Record the depth to LNAPL.
- Groundwater Depth: Continue slowly lowering the probe until it signals the presence of water.
- Record the depth to water.
- The LNAPL thickness is determined by subtracting the water depth from the LNAPL depth.

The depth and thickness of DNAPL can sometimes be determined by slowly lowering the interface probe past the LNAPL (if present) and water layers. Record the depth to the DNAPL layer. Finally, measure the depth to the well bottom.

The DNAPL thickness is determined by subtracting the DNAPL depth from the depth to well bottom.

- Decontaminate the interface probe and tape according to SOP QA-001.
- Dispose of any NAPL-impacted debris properly.
- Check with the Project Manager if you are uncertain of the appropriate disposal method.

4.2 LNAPL Measurements Using Clear Bailer

If LNAPL is suspected at a site, an oil/water interface probe should be used when gauging water level and NAPL measurements. However, a water level meter and a clear bailer may be used instead to estimate approximate LNAPL thickness if an oil/water interface probe is not available.

- Open wells to the atmosphere and allow them to equilibrate prior to collecting LNAPL depth measurements.
- Slowly lower the water level meter until contact with fluid is indicated by the meter.
- Record the depth to fluid measurement.
- Lower a clear bailer into the well and slowly into the LNAPL. Do not submerge the bailer.
- Slowly raise the bailer out of the well and measure LNAPL thickness in the bailer using a ruler or tape measure.

Calculating Depth to Groundwater

The depth to water can be calculated as follows:

DTW = DTF + PT
DTW = Depth to Groundwater
DTF = Depth to Fluid
PT = Measured Product Thickness

Calculating Corrected Depth to Groundwater

Once the LNAPL thickness is known and the depth to groundwater is known, the corrected depth to groundwater can be calculated.

Corrected DTW = Static DTW – (PT x G)
DTW = Depth to Ground Water
PT = Measured Product Thickness
G = Specific Gravity (density of free product / density of water)

4.3 DNAPL Measurements Using Weighted Cotton String

A weighted cotton string may be used to estimate approximate DNAPL thickness.

- Secure cotton string.
- Secure clean steel nuts and/or washers.

- Tie the string to the nuts/washers, so that there is adequate weight.
- Lower the weighted string into the well slowly, until a firm bottom is sensed.
- Remove the weighed string and measure the DNAPL coated portion of the string.
- Record the thickness.
- Dispose of any NAPL-impacted debris properly. Check with the Project Manager if you are uncertain of the appropriate disposal method.

5. Health and Safety Considerations

The health and safety considerations for the work associated with this SOP, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed job safety analysis (JSA) should be completed prior to the start of work.

6. Considerations

- Weak batteries in water level and oil/water interface meters frequently produce weak or gradual auditory and/or visual responses, making it difficult to accurately determine when the probe of the unit has come in contact with ground water or NAPL. As such, it is recommended that electronic ground water-level indicators be tested before they are brought out into the field.
- Electronic oil/water interface meters do not respond to distilled water. Do not use de-ionized water to test these units.
- Wells that are not vertical may result in probe contact with the side of the well casing providing a false measurement. Once the probe has come in contact with ground water in the well, water may be trapped by capillary action between the probe and the well casing. If this happens, the unit may continue to signal even after the probe has been raised above the ground water surface. The deeper the well, the more likely this problem may occur. To correct this, the cable should be raised several feet above the water and shaken to remove water from the probe. A new ground water-level measurement should then be collected. If the signals from the unit are not abrupt or reproducible, the probe and tape may need to be retrieved and dried off before trying again.
- Accumulation of sediment, organic material, or floating debris in the probe may also result in gradual or non-reproducible readings. Wells that are constructed with metal inner casings may lead to difficulties in collecting reproducible ground water-level measurements because the inner sides of the well casing are conductive.

- In some cases, a rubber grommet or metal centralizer may need to be placed on the probe so that it cannot contact the inner casing.
- Well gauging equipment should be properly decontaminated between wells and piezometers to avoid cross contamination.
- Water levels in wells may be influenced by changes in river stages, pumping of nearby wells, precipitation, tides, etc.
- Using a bailer to estimate LNAPL thickness can result in inaccuracies because successful use of the bailer is dependent upon the expertise of the operator and assumes the check valve does not leak upon retrieval.
- The optical sensor on interface probes may become damaged if solvents are used to clean NAPL from the probes.
- The optical sensor may become smeared when used to measure NAPL, rendering pinpoint accuracy to an estimate at best.
- Close attention to decontamination procedures will improve accuracy, operational life, and reduce the risk of cross contamination with other wells.
- LNAPL thickness can be affected by fluctuations in the water table. In some cases, an LNAPL's thickness may decrease when the water table rises, while its thickness increases as the water table drops. In other cases, fluctuating water tables may cause sudden appearances and disappearances of LNAPL layers.
- Monitoring points with LNAPL can pose a problem when measuring the level of groundwater. Floating LNAPL can depress the groundwater level in a monitoring well or piezometer and distort the measurement. Therefore, the Corrected Depth (CD) formula shown above should be applied to groundwater level measurements in monitoring points where LNAPL are present:
- Some interface probes are factory-calibrated based on an assumed conductivity of NAPL and water, both of which may vary. An interface probe that is functioning properly may not be able to discern different NAPLs at all sites.
- An interface probe may not successfully provide both LNAPL and DNAPL measurements in the same well because the probe is coated by LNAPL and loses its ability to detect DNAPL.
- DNAPL, in particular, may be only slightly heavier than water, or may be neutrally buoyant. As a result, it can be easily disturbed. Once it is disturbed, meaningful measurements can be difficult or impossible to obtain. As such, all tapes or probes used for measurements should be used slowly.

7. References

U.S. EPA Environmental Response Team Standard Operating Procedures SOP: 2043,"Water Level Measurement" REV: 0.0, 2/11/00

U.S. EPA Environmental Response Team Standard Operating Procedures SOP: 2044," Monitor Well Development" REV: 0.1, 10/23/01.

8. Contacts

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STANDARD OPERATING PROCEDURE

GW-002 Non-Aqueous Phase Liquid (NAPL) Recovery

1. Objective

Provide procedural guidance for routine recovery of non-aqueous phase liquids (NAPL).

2. Equipment and Materials

The following materials and equipment may be necessary for this procedure:

- SOP GW-001 Water Level and NAPL Measurement
- Oil/water interface probe
- Appropriate pump and required tubing/piping
- Double check valve bailers and string
- Drums or buckets for NAPL collection
- Proper personal protective equipment (PPE) including gloves and protective eyewear
- Drum labels
- Field data sheets or logbooks
- Decontamination supplies and plastic sheeting
- Additional equipment identified by site-specific work plan and health and safety plan (HASP)

3. General Information

Refer to SOP GW-001 and record the depth to NAPL and depth to water measurements If you are using an oil/water interface probe, first check to see if the unit is functioning correctly. Note: De-ionized water will not provide a correct reading. Check the interface probe battery and replace if necessary.

Interface probes usually distinguish between NAPL and water by sounding solid or intermittent tones. See the manufacturer's instructions for details.

4. Execution

4.1 General Measurement Procedures

Using an oil/water interface probe will provide a depth to water and a depth to NAPL in each monitoring well. Refer to probe manual to determine changes between liquid types (water, light non-aqueous phase liquid [LNAPL] and dense non-aqueous phase liquid [DNAPL]). To achieve accurate depth measurements, ensure the oil/water interface

probe is decontaminated (GEI SOP QA-001) prior to and between each measurement taken at each well.

To calculate the volume of NAPL in monitoring wells with well diameters specified below, use the following respective equations:

Light non-aqueous Phase Liquid (LNAPL) Volume

$$LNAPL\,V = (DTW - P_1) \times C$$

Dense Non-Aqueous Phase Liquid (DNAPL) Volume

$$DNAPL\,V = (TD - P_2) \times C$$

Where, V = Volume
DTW = Depth to Water
TD = Total Depth
P_1 = Depth to LNAPL
P_2 = Depth to DNAPL

Conversion factors (C) for wells based on well diameter size are noted in the table below.

Well Diameter (inches)	Conversion Factor (liters)	Conversion Factor (gallons)
2	0.6178	0.1632
4	2.4711	0.6528
6	5.561	1.469

Note: Well diameter sizes are noted for outer diameter. Conversion factors assume Schedule 40 PVC riser and screen, if well is constructed of different material appropriate conversion factors must be used to calculate accurate NAPL volume.

Once measurements have been taken and calculations have been made, collection of NAPL may commence.

4.2 NAPL Collection Procedures

Collection of NAPL shall be accomplished using common recovery techniques or technologies including:

- Peristaltic pump
- Bailer

Some projects require on-going NAPL recovery efforts. For these projects installation of dedicated recovery methods should be considered.

Special care shall be taken to prevent any recovered NAPL from spilling or coming into contact with the ground and sampling personnel. This includes the use of proper personal protective equipment (PPE), including gloves and protective eyewear (Tyvek® if necessary), along with plastic sheeting set beneath the pump, tubing, and collection

container (sealed top 55-gallon drum or 5-gallon bucket with lid), and the surrounding work area. A site-specific work plan, HASP and job specific job safety analysis need to be developed prior to the start of work. The specific operating procedures for common recovery methods are discussed in the following sections.

4.2.1 Sampling and Recovery via Peristaltic Pump:

LNAPL

- Take and record the required measurements prior to commencing pumping.
- Cut a length of poly tubing (T1) that is long enough to extend approximately 12-inches beyond the LNAPL layer. Cut an additional length of poly tubing (T2) that will be connected to the discharge side of the peristaltic pump silicone tubing that is long enough to extend from the pump to the NAPL collection container. Cut a length of silicone tubing (approximately 8-inches) for use in the peristaltic pump head.
- Insert the silicone tubing into the peristaltic pump head. Check the flow direction of the pump to ensure that the pump will be removing fluid and not pumping air into the well when removal begins.
- Insert T1 into the intake side of the silicone tubing. Lower the intake side into the well and secure in place just below the top of LNAPL.
- Insert T2 into the discharge side of silicone tubing and secure to the NAPL collection container with a clamp.
- Turn pump flow rate to lowest setting. Turn the pump on and slowly increase the pump rate to begin LNAPL removal from the well. Use the oil/water interface meter to measure the depth to LNAPL. Lower the intake tubing as necessary until all of the LNAPL has been recovered from the well.
- Once the LNAPL has been recovered from the well, collect and preserve a sample if required, in accordance with laboratory standards.
- Following completion of LNAPL recovery, disconnect the tubing from the pump, secure the well and road box, and clean/decontaminate the pump and oil/water interface probe, prior to moving to the next location.
- Impacted tubing will either be containerized for proper disposal or left in well for reuse.

DNAPL

- Take and record the required measurements prior to commencing pumping.
- Cut a length of poly tubing (T1) that is long enough to extend to the bottom of the well including additional length to attach to the pump intake. Cut an additional length of poly tubing (T2) that will be connected to the discharge side of the

peristaltic pump silicone tubing that is long enough to extend from the pump to the NAPL collection container. Cut a length of silicone tubing (approximately 8-inches) for use in the peristaltic pump head.

- Insert the silicone tubing into the peristaltic pump head. Check the flow direction of the pump to ensure that the pump will be removing fluid and not pumping air into the well when removal begins.
- Insert T1 into the intake side of the silicone tubing. Lower the intake side into the well and secure in place just above the bottom of the well.
- Insert T2 into the discharge side of silicone tubing and secure to the NAPL collection container with a clamp.
- Turn pump flow rate to lowest setting. Turn the pump on and slowly begin to remove DNAPL from the well. DNAPL removal will be complete when the pump begins to discharge water. Use the oil/water interface meter to check the DNAPL thickness during the removal process. Take care not to pump an excessive amount of water.
- Once the DNAPL has been purged from the well, collect and preserve a sample if required, in accordance with laboratory standards.
- Following completion of DNAPL recovery, disconnect the tubing from the pump, secure the well and road box, and clean/decontaminate the pump and oil/water interface probe, prior to moving to the next location.
- Impacted tubing will either be containerized for proper disposal or left in well for reuse.

4.2.2 Sampling and Recovery via Double Check Valve Bailer:

LNAPL

- Take and record the required measurements prior to commencing bailing.
- Ensure the work area is covered in plastic sheeting to avoid potential spills of water and/or NAPL.
- Tie the bailer to a piece of string that will allow the bailer to reach just below the LNAPL layer. Use the oil/water interface meter to determine the appropriate depth.
- Using slow and controlled motions while lowering (and raising) the bailer to the appropriate depth, commence bailing LNAPL out of the well and draining the bailer directly into collection container.
- Once the LNAPL has been purged from the well, collect and preserve a sample, if required, in accordance with laboratory standards.

DNAPL

- Take and record the required measurements prior to commencing bailing.
- Ensure the work area is covered in plastic sheeting to avoid potential spills of water and/or NAPL.
- Tie the bailer to a piece of string that will allow the bailer to reach the bottom of the well.
- Using slow and controlled motions while lowering (and raising) the bailer to the bottom, commence bailing DNAPL out of the well and draining the bailer directly into collection container.
- Once the DNAPL has been purged from the well, collect and preserve a sample, if required, in accordance with laboratory standards.

4.3 Waste Management and Disposal

Investigation derived waste should be managed in accordance with GEI SOP SC-003. DNAPL waste management and disposal should be evaluated on a site by site basis.

4.4 Troubleshooting Information

If there are any performance problems with the oil/water interface probe which result in inability to achieve the proper measurements presented in Section 5.1, or if there are any problems with the peristaltic pump, consult the appropriate section of the probe instruction manual for the checkout and self-test procedures. If the problem persists, consult the manufacturer's customer service department immediately for further instructions.

Lower temperatures can affect the ability to pump and/or bail NAPL. Weather should be taken into consideration when scheduling gauging and recovery sampling events.

4.5 Data and Records Management

All information pertaining to maintenance of the oil/water interface probe and the peristaltic pump shall be maintained in the project file. Field measurements (depth to water, NAPL, etc.) and all calculations (NAPL column length, volume of NAPL, etc.) shall be recorded on the appropriate field data sheets or in the logbook consistent with GEI SOP Section 5.

4.6 Limitations

- NAPL gauging and recovery can be challenging and requires adaptive thinking. A variety of measurement and collection techniques may be necessary to properly execute the work.
- Exposure to NAPL can accelerate the required maintenance/replacement intervals for tools and equipment.

5. Health and Safety Considerations

The health and safety considerations for the work associated with this standard operation procedure, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed JSA should be completed prior to the start of work.

6. References

U.S. EPA. Ground Water Issue: Dense Non-aqueous Phase Liquids, EPA/540/4-91-002, March 1991.

7. Contact

Kathleen Slimon
Mike Quinlan

STANDARD OPERATING PROCEDURE

GW-003 Low Flow (Low Stress) Groundwater Sampling

1. Objective

Describe methods to collect groundwater samples most likely to produce results that represent aquifer conditions.

Low-flow purging is limited to wells that, with sustained pumping, exhibit no continuous drawdown.

2. Execution

- Prior to groundwater sampling consult with the project manager to confirm that the type of pump is appropriate and consistent with the approved work plan.
- Record activities in the field notebook (see SOP FD-001 Field Notebook) and on a Monitoring Well Sampling Record such as the examples in Attachment A. Use a separate form for each sampling location and event. You may forego the forms and record all information in the field notebook if the Project Manager approves.
- Calibrate pH, temperature, Specific Conductance (SC), turbidity, Dissolved Oxygen (DO), and Oxidation-Reduction Potential (ORP) on the meter(s). Use calibration methods provided by the manufacturer of the equipment. Note that appropriate calibration for dissolved oxygen requires a water saturated air environment, along with measured temperature and barometric pressure.
- Begin with the monitoring well believed to have the least contaminated groundwater and proceed systematically to the well with the most contaminated groundwater. Check the well, the lock, and the locking cap for damage or evidence of tampering.
- Slowly and gently measure the depth to water with a water level probe and/or oil-water interface probe. Do not measure depth to well bottom at this time (wait until sampling has been completed). Measure water level in accordance with SOP GW-001 Water Level Measurement.
- Attach new polyethylene or Teflon lined tubing to the sampling pump and the flow-through cell that contains the meter probes.
- Slowly and gently insert new polyethylene or Teflon lined tubing to the pump intake (or use dedicated tubing that remains in the well) and to the middle of the saturated screened interval or to the pre-determined sampling depth.
- The tubing intake should be kept at least two (2) feet above the bottom of the well to prevent disturbance or suspension of any sediment or Non-Aqueous Phase Liquid (NAPL) present in the bottom of the well. Record the depth of the pump intake.

- If possible, position your sampling equipment and tubing so that it is in the shade. The goal is to minimize the effect of sunlight raising the temperature of water being collected.
- Start the pump on the lowest setting and increase slowly until flow begins. Adjust the pumping rate so that drawdown in the well is minimal (0.3 feet or less, is desirable but not mandatory). Use a pumping rate between 100 to 1,000 milliliters per minute (mL/min) (or approximately 0.1 to 1 quarts per minute). Measure flow rate on the pump or using a graduated container every 3 to 5 minutes and record. The minimum purge volume will be twice the combined volumes of the sampling string (i.e. pump, tubing, and flow-through cell).
- While purging, record water levels every 3 to 5 minutes and monitor and record the water quality indicator parameters: pH, temperature, specific conductance (SC), dissolved oxygen (DO), and turbidity. If specified in the field sampling plan also include ORP.
- Purging is complete when, after three consecutive measurements, the water quality parameters have stabilized as follows:

    - pH (+/- 0.1 standard units)
    - temperature (+/- 3%)
    - SC (+/- 3%)
    - turbidity (+/- 10% if >5 NTU; if 3 values are <5 NTU, consider the values as stabilized)
    - DO (+/-10% if >0.5 mg/L; if 3 values are <0.5 mg/L, consider the values as stabilized)
    - ORP (+/- 10 mV)

- Dispose of purge water according to the field plan.

Sample Collection:

- Following purge, remove the discharge tubing from the flow-through cell. Do not disturb pump and tubing between stabilization and sample collection.
- Fill sample containers directly from the sampling device in order of decreasing volatility (i.e., Volatile Organic Compounds (VOC) samples are collected first; see SOP SC-002 Sampling Handling). Fill all containers from the discharge end of the tubing. Collect samples at a flow rate equal to the steady state purge rate.
- If not using a dedicated pump, remove sampling device and decontaminate (see SOP QA-001 Equipment Decontamination). Discard used tubing.
- Store samples in a cooler on ice for transport to the laboratory.
- Measure depth to bottom of well.

- Secure the well cap.

3. Limitations

- Prior to departure for the field, obtain available information on well construction for use in field investigation (i.e., screen and riser material, well diameter and depth, screened interval, optimum sampling depth, etc.).
- If possible, when using dedicated equipment, install equipment into well at least 24 hours before sample collection to minimize disturbance of the water column and/or suspension of sediments or NAPL on bottom.
- If water quality indicator parameters do not stabilize after removing 3 to 5 well volumes or 2 hours, contact the Project Manager. Three options will be available: 1) continue purging until stabilization; 2) discontinue purging and do not sample; or 3) discontinue purging and sample.
- The key indicator parameter for VOCs is DO. The key indicator parameter for all other samples is turbidity.
- Fill all sample containers with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.
- Consult with the project manager before field filtering samples for metals if using low-flow sampling.
- Be aware of any preservatives in the sample bottles and handle with care, in accordance with the Health and Safety Plan.

4. References

Standard Reference for Monitoring Wells (April 19, 1991), Massachusetts DEP, DEP Publication No. WSC-310-91.

Reproducible Well-Purging Procedures and VOC Stabilization Criteria for Ground Water Sampling (1994), M.J. Barcelona, H. A. Wehram, and M.D. Varljen, Ground Water, Vol. 32, No. 1, 12-22.

Low-Flow Purging and Sampling of Ground Water Monitoring Wells with Dedicated Systems (1995), R.W. Puls, and C.J. Paul, Groundwater Monitoring and Review, Summer 1995 116-123.

Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (2010), EQASOP-GW 001 Low Stress (Low Flow) SOP, Revision 3, U.S. Environmental Protection Agency, Region I, January 19, 2010.

Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling, (1998), Ground-Water Sampling SOP, Final, U.S. Environmental Protection Agency, Region II, March 16, 1998.

RCRA Ground-Water Monitoring: Draft Technical Guidance, (1993), U.S. Environmental Protection Agency, EPA/530-R-93-001.

To Filter, or Not to Filter, That is the Question, (1997), Special Topics Subcommittee Letter Report EPA-SAF-EEC-LTR-97-011, April 29, 1997, Meeting, U.S. Environmental Protection Agency, Science Advisory Board Environmental Engineering Committee, September 5, 1997.

Should Filtered or Unfiltered Groundwater and Surface Water Samples be Collected for the Risk Assessment?, (1995), MCP Q&A: Subparts I and J, Special #4, Bureau of Waste Site Cleanup, Massachusetts Department of Environmental Protection (DEP), February, 1995.

5. Attachments

Attachment A - Monitoring Well Sampling Record

6. Contacts

Saskia Oosting

MONITORING WELL SAMPLING RECORD

PID Reading _____ Job Name _____

Job Number _____ By _____ Date _____

Location _____ Measurement Datum _____

Well Number _____

Pre-Development Information Time (start) _____

Water Level _____ Total Depth of Well _____

One Purge Vol _____ Three Well Volume _____

Water Characteristics

Color _____ _____ Clear _____ Cloudy

Odor _____ None _____ Weak _____ Moderate _____ Strong

Any films or immiscible material _____

Volume (gal)	Time	pH	Temp (°C)	Spec. Conductance (µS/cm)	Turbidity (NTU)	DO Conc. (mg/L)	ORP (mV)	TDS

Total Volume Removed (gal) _____ pH _____

Temperature (°C) _____ Specific Conductance (µS/cm) _____

DO Concentration (mg/L) _____ ORP (mV) _____

TDS _____

Post Development Information

Time (Finished) _____

Water Level _____ Total Depth of Well _____

Approximate Volume Removed (gal) _____

Water Characteristics

Color _____ ____ Clear ____ Cloudy

Odor ____ None ____ Weak ____ Moderate ____ Strong

Any films or immiscible material _____

Comments

Low-Flow Groundwater Sampling Form

Project number and name _____ Sampling personnel _____ Sample date _____ Well ID _____

Well location description: _____

Well Construction

Well diameter _____

Well measurement point _____

Roadbox condition _____

Well screen interval _____

Well depth _____

Sampling Information

Initial depth to water _____ Time: _____

Sample intake depth _____

Pump type and ID _____

Stabilized flow rate _____

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260	
SVOCs 8270	
VPH	
EPH	
Metals	
PCBs	
Other	

Field values at time of sample collection:

Time: _____ Depth to water: _____

Sp.Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp.Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10

Notes: _____

Sample Information:

Sample ID _____

Sample Time: _____

Color: _____

Turbidity: _____

Field Filtered YES / NO Analyses: _____

Filter type: _____

Odor/Sheen/NAPL _____

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Purge water disposal? to ground drummed other:

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
3.14 x (r)^2 x 7.48 gal/ft
where r = 1/2 diameter in ft

Stabilization Criteria:
Sp.Cond. +/- 3%
DO +/- 10%
ORP +/- 10 mV
pH +/- 0.1 Std Units
Temp. +/- 3%
Turb. +/- 10% if values >1 NTU

Guidance:

1 Position tubing at midpoint of saturated screened interval

2 Minimize drop in water level and purge until parameters are stable

3 Disconnect flow thru cell during sampling

4 Call Project Manager if issues arise (e.g. stabilization takes more than 2 hrs, well goes dry, odd data).

5 For VPH and VOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

STANDARD OPERATING PROCEDURE

GW-004 pH and Temperature Measurement

1. Objective

Describe methods for measuring the pH and temperature of liquids using a combination pH/temperature meter.

2. Execution

Calibration

- Calibrate the meter according to the equipment manufacturer's instructions at the beginning of each day of use. Calibration for pH shall be performed using at least two buffer solutions. Solutions chosen should be similar to the expected pH of the liquids tested (pH 7 and 4 buffer solutions are preferred in most cases for groundwater or surface water measurements).
- Check calibration at the end of the day by reading the two solutions used in calibration. Also perform additional field checks as needed based on observed readings (i.e., inconsistent readings). Record measurements and time of measurement in the field book or sample sheet. If the readings are outside +/– 0.2 pH units, recalibrate the meter.

Sample Measurement

- Immediately prior to testing a sample, decontaminate testing container and probe assembly with one rinse of distilled water. Do not use methanol to rinse the probe. Methanol rinses could damage the probe.
- Gently dry the probe with a paper towel and shake beaker to remove excess solution. Visually inspect the bottom of the probe to ensure that liquid or sediment is not trapped between outer casing and probe.
- Pour the sample into the testing container and insert both temperature and pH probe. Stir sample for 30 seconds using both probes. Let the probes equilibrate in the sample solution for another 30 seconds. Measure and record the temperature. Measure and record pH reading after stabilization or 60 seconds, whichever is sooner. A reading has stabilized if pH units have not changed +/– 0.1 pH units during a 30 second period.
- Record pH to the nearest 0.1 unit and temperature to the nearest whole number.

3. Limitations

- Coatings and particulates may affect the response of the probe; more thorough cleaning using a weak alconox solution and distilled water rinse

and gently wiping the probe surface with a paper towel may be required to clean the surface of the probe.

- Temperature affects both the response of the instrument to pH and the actual pH of the sample. The Automatic Temperature Compensation (ATC) function compensates for the variation in the response of the meter only. Therefore, the pH must always be reported with temperature.
- The probe is a fragile thin glass bulb surrounded on three sides by a plastic casing. Care must be taken in handling the probe to avoid breakage.
- Do not use buffer solutions past their expiration date.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-005 Turbidity Measurement

1. Objective

Describe calibration and use of a Hach nephelometer/turbidimeter.

The meter is used to measure turbidity of liquids by quantifying how much light passes through them. Turbidiity readings are required to be read using a portable (e.g Hach) instrument directly from the tubing before going through the flow-through cell.

This SOP is specific to a Hach turbidimeter. Follow manufacturer's recommendations for other meters.

2. Execution

i. Turn the meter "ON".
ii. Rinse the sample cell 3 times with distilled water.
iii. Fill the cell to the fill line with distilled water and then cap the cell.
iv. Wipe off excess water and streaks with a non-abrasive lint-free paper or cloth (preferably lens paper).
v. Open the cover and insert the cell (arrow to the front) into the unit and close the cover.
vi. Press "READ" and wait for the 'light bulb' icon to go off. Record the reading.
vii. Using the Gelex standards, repeat steps above. Record all measurements (note anomalies).
viii. Fill the cell with sample liquid to the fill line (about 15 mL) and replace the cap on the cell.
ix. Wipe off excess water and any streaks with a non-abrasive lint-free paper or cloth (lens paper).
x. Press "I/O" and the instrument will turn on. Place the meter on a flat, sturdy surface. Do not hold the instrument while making measurements.
xi. Insert the sample cell, arrow to the front, in the instrument. Close the lid.
xii. Select manual or automatic range selection by pressing the range key.
xiii. Use signal average mode if the sample causes a noisy signal (display changes constantly). Select signal averaging mode by pressing the "Signal Average" key.
xiv. Press Read. The display will show "---- NTU" and then the turbidity in NTU. Record the result after the lamp symbol turns off.
xv. Rinse the cell with distilled water.
xvi. Confirm the validity of the sample measurement by double-checking with one of the Gelex standards.

xvii. Periodically check the turbidity meter during the day by using the Gelex secondary standards provided.
xviii. Perform a post calibration at the end of the day and record all measurements.

3. Limitations

If the turbidity measurements are for National Pollutant Discharge Elimination System (NPDES) reporting purposes, all samples with values above 40 NTU must be diluted with turbidity free water (e.g. distilled water) and sample turbidity is calculated by multiplying the reading of the diluted sample by the dilution factor.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-006 Specific Conductance Measurement

1. Objective

Describe standard methods to measure conductivity of water using a field conductivity meter.

2. Execution

- Calibrate the meter according to equipment manufacturer's instructions at the beginning of each day of use. Calibration shall be performed using a standard KCl or other solution recommended by the manufacturer.
- Record the make, model, and serial or identification number of the instrument and calibration information in the field notebook.
- Check calibration at the end of the day by measuring the standard used in calibration and record in field book. Also perform additional field checks as needed based on observed readings (i.e., inconsistent readings). If the readings are outside +/- 0.02 mS/cm, the meter must be recalibrated. Initial calibration should be conducted under the same conditions (i.e., temperature, and location) of field testing.
- Immediately prior to testing a sample, decontaminate testing container and probe assembly with distilled water.
- Gently dry the probe with a paper towel and shake container to remove excess solution.
- Pour sample into the container and insert probe. Stir sample with the probe for approximately 10 seconds. Let the probe equilibrate in the sample solution for another 30 seconds. Measure conductivity and record in the field notebook.
- Record conductivity to the nearest whole number.

3. Limitations

- Oily coatings and particulates may affect the probe's response; more thorough cleaning using a weak alconox solution and distilled water rinse and gently wiping the probe surface may be required to clean the surface of the probe.
- If sample liquid is contaminated, (e.g. stained, conductance >0.75 mS/cm), rinse probe with distilled water immediately after measuring sample to minimize fouling of probe.
- Do not use calibration solutions past their expiration date.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contact

Brian Conte
Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-007 Dissolved Oxygen Measurement

1. Objective

Describe calibration and field use of dissolved oxygen meter.

2. Execution

- Place instrument in the intended operating position (vertical, tilted, or horizontal) before it is prepared for use and calibrated.
- Recalibration may be necessary when the instrument operating position is changed.
- Attach the prepared probe to the Probe connector of the instrument and adjust the retaining ring finger tight. Check that membrane is intact and check for presence of air bubbles under membrane. If bubbles are present or membrane is damaged, prepare probe again according to manufacturer's instruction.
- Place approximately 1/8 inch of water into the bottom of the calibration cup. Place the probe into the cup and engage only one thread of the calibration cup onto the probe to ensure that the DO probe is readily vented to the atmosphere. Make sure the DO and temperature probes are not in contact with the water. Wait approximately 10 minutes for the air in the calibration cup to become water saturated and for the temperature to equilibrate.
- Calibrate meter according to the procedures outline in the instrument manual. Calibrate probe to a zero oxygen solution provided by manufacturer, and water saturated air.
- The calibration procedure may require correction factors or input of site-specific barometric pressure and temperature. Correction factors can be found at:

  http://water.usgs.gov/owq/FieldManual/Chapter6/6.2_v2.1.pdf

- Otherwise, use appropriate instruments at the site to determine temperature and pressure.
- Perform Dissolved Oxygen Measurement using the following procedure:
  i. Submerge probe in flow-through chamber or water body.
  ii. Gently raise and lower probe in sample.
  iii. Allow sufficient time for probe to stabilize to sample temperature and dissolved oxygen.
  iv. Read and record the temperature and the value of the dissolved oxygen in mg/L.
  v. Document field analysis data and general observations in the field log book or groundwater sampling sheet.

3. Limitations

- Collect DO measurements in the field during sampling. Storing samples in containers will alter the DO concentration of the sample.
- Detection Limit (DL) = 0.1 mg/L for 0-10 mg/L range; do not record values less than Detection Limit: a zero reading is recorded < 0.1 mg/L.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-008 Temporary Groundwater Sampling Points

1. Objective

To define the procedures for installation of temporary groundwater sampling points (hereafter referred to as well point) for measuring depth to groundwater and collecting groundwater samples. Well points may aid in the placement of permanent monitoring wells.

A well point is a small diameter (1-2 inch) probe constructed of continuously wrapped stainless steel or wrapped stainless steel gauze screen over perforated carbon steel pipe. No filter or gravel pack is used in the installation.

Well point installations are not the only type of temporary monitoring wells. Alternative temporarily well constructions should be discussed with the project manager and may be more appropriate based on-site conditions.

2. Execution

2.1. Installation

- The well point can be placed with the use of a conventional hollow-stem auger rig, Geoprobe®, slide hammer, jack hammer, rotary hammer, or by hand.

- The well point may be driven through the unsaturated zone only in known "clean" soils. Driving the well point through contaminated soil may carry contamination downward with the point resulting in analytical sample results which are biased high. In areas with contamination above the desired screening zone, the well points should be installed with the aid of either hollow-stem augers or Geoprobe®, to “case off” contamination from the upper layer.

- If the well point is to be installed in an oversized (20% larger than the well point) pre-drilled hole, the hollow-stem augers or bull drive point must be advanced to a point which is just above the targeted sample zone. The well point is then placed in the hole and advanced beyond the bottom of the hole by hammering or pushing into place. The use of pre-drilled holes will reduce clogging of well point screens when driving.

- If the well point is used for piezometeric data, make a survey mark on top of the casing as a reference point for water level measurements.

- Caution must be used when using well points in areas of contaminated soil. Possible cross contamination may be introduced to the screen as it passes through the zone of contamination.

2.2. Sampling Procedures

Development of a well point is not required prior to sampling. Sampling of groundwater or collecting piezometric data must be performed by one of several recommended methods described in this manual.

After sample collection, (See Groundwater Sampling SOP) the well point is removed by back hammering or pulling the tool out with the rig hydraulics.

3. References

ASTM D6001 - 05 Standard Guide for Direct-Push Water Sampling for Geoenvironmental Investigations

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

Ground Water and Wells. Johnson Division, UOP Inc.; St. Paul, Minn. 1982. p277-294.

Ground Water Manual - A Water Resources Technical Publication; U.S. Dept. of Interior, Bureau of Reclamation. Government Printing Office, Washington DC 1977.

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91.

4. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-010 Slug Tests

1. Objective

Describe methods to use slugs, pressure transducers, and data loggers to collect data that will support calculation of horizontal hydraulic conductivity of distinct geologic strata.

General Information

Slug tests are performed on single monitoring wells to estimate the hydraulic conductivity of the aquifer in which the well is screened. The test consists of adding or removing a known volume (slug) to or from the well to instantaneously change the water level. Subsequently, the recovery of the water level back to the static water level is measured. The resulting data are used to determine the hydraulic conductivity of the aquifer test zone using an appropriate analytical method.

Falling head tests can only be performed in fully-penetrating wells (well screened completely below the water table). Rising head tests can be performed in both fully- and partial-penetrating wells.

2. Execution

2.1 Setup

- Determine how water levels will be recorded. If the geologic materials in the test zone are expected to be slightly permeable (e.g., a glacial till or clay), then measurements may be recorded manually with an electronic water level indicator. If the geologic materials in the test zone are expected to be moderately- or highly-permeable (e.g., outwash sands), record measurements using a pressure transducer attached to an automatic data logger.

  The remainder of this SOP assumes that an automatic data logger is being used to measure water levels.

- Check to see if test equipment functions prior to leaving for the site.
- Decontaminate the transducer and cable using alconox and distilled water. Do not use methanol. Do not use transducer in wells containing non-aqueous phase liquid (NAPL).
- Make initial water level measurements
- Test wells in the following order: from the least contaminated to the most contaminated, and from low to high expected permeability, where possible.
- Measure the static water level (i.e., depth to water) in the well to be tested manually using an electronic water level indicator. Record all

measurements taken during the test in the field log book or on the attached log form.

- Install the pressure transducer as far below the deepest point of insertion of the slug bar or bailer as possible. Allow the transducer to thermally equilibrate for 15 to 30 minutes (to allow instrumentation wiring to expand/contract) before measurements are taken.
- Secure the transducer cable at ground surface with tape or weight to keep the transducer at a constant depth.
- Cover sharp edges of the well casing with duct tape to protect the transducer cables.
- Transducer measurement setup: For wells screened in sand and silty sand, a linear setting of one reading per second is generally used. In coarser soil where full recovery may occur over a few seconds, a linear setting for more frequent readings is necessary. If a transducer is used for silt and clay, a linear setting of one reading per minute, or a logarithmic setting, may be used to avoid risk of exceeding the memory capacity of the transducer.

2.2 Field Procedure – Rising Head Test

In this test, a slug is inserted in the well prior to the test and the water level is allowed to return back to static level. The test is then started by removing the slug from the well and immediately measuring rising water levels. In wells where recovery is slow, this test can be performed by pumping or bailing water from the well and immediately starting measurements.

- Record the initial water level and other setup information on the attached form.
- Fully submerge the slug bar or bailer into the water column of the well.
- Allow the water level in the well to return to static condition after both the slug and transducer have been inserted. The transducer readout should indicate the height of water above the transducer.
- When the water level in the well has returned to static condition, start the transducer ("Start Test" if using Win Situ software). Periodically view graphical data during the test, to confirm adequate data collection.
- Rapidly remove the slug bar or bailer from the water column and well. Avoid moving or pulling up the transducer cable when removing the slug.
- Continue recording water levels with the transducer until the water level has recovered to within 15 percent of the original static water level relative to the initial test displacement (85 percent recovery), or until one hour has elapsed. If less than 50 percent recovery has been achieved after one hour, continue to collect measurements every 10 to 20 minutes.
- Where possible, repeat the test to establish the repeatability of measurements and calculated hydraulic conductivity results.
- As soon as practicable, download data stored in the transducer and transfer data.

2.3 Field Procedure – Falling Head Test

In this test, a slug is inserted in the well at the start of the test and the falling water levels are measured immediately. In wells where recovery is slow, this test can be performed by adding water to the well and immediately starting measurements.

- Record the initial water level and other set up information on the attached form.
- Allow the water level in the well to return to static conditions after the transducer has been inserted. The transducer readout should indicate the height of water above the transducer.
- When the water level in the well has returned to a static condition, begin recording transducer readings ("Start Test" if using Win Situ software).
- Fully submerge the slug bar or bailer into the water column of the well.
- Periodically view graphical data during test, to confirm adequate data collection. The transducer should continue to record water levels until the water level has recovered to within 15 percent of the original static water level relative to the initial test displacement (85 percent recovery), or until one hour has elapsed. If less than 50 percent recovery has been achieved after one hour, continue to collect a measurement every 10 to 20 minutes.
- Where possible, repeat the test to establish the repeatability of measurements and calculated hydraulic conductivity results.
- As soon as practicable, download data stored in the transducer and transfer data.

3. Additional Information

- Do not perform hydraulic conductivity tests on wells that have not previously been developed and allowed to equilibrate.
- It is critical to either add or remove the slug to the well as quickly as possible and to start collecting depth-to-water measurements immediately.
- The early-time data is critical because the rate of recovery of head in the well is exponential. Collect measurements frequently at the start of all variable head tests.
- The time required for a slug test to be completed is a function of the volume of the slug, the hydraulic conductivity of the formation, and the type of well completion. The slug volume should be large enough that a sufficient number of water level measurements can be made before the water level returns to equilibrium conditions. Two bailers connected in series can be used to increase the slug volume, provided the water column is deep enough.
- Decontaminate all down well equipment before using it in the well.

- NAPL will damage the transducer. Gauge recovery manually in these instances.
- Where possible, take periodic water level readings manually during recovery. The manual data are used to check for transducer noise or movement.
- If using automatic data loggers, download the data as soon as possible. Batteries in the data loggers may run down and result in a loss of data.
- Be prepared to containerize water generated from rising head tests if the water is contaminated.
- Where possible, take more than one pressure transducer to site. This will provide backup and allow testing of multiple wells simultaneously.

4. Calculations

The simplest interpretations of piezometer recovery are Hvorslev (1951) and Bouwer and Rice (1976). The analyses assume a homogenous, isotropic medium in which soil and water are incompressible. Spreadsheets and software are available to calculate hydraulic conductivity from slug test data according to the methods below.

Hvorslev's expression for hydraulic conductivity (K) is:

$$K = \frac{r^2 \ln (L/R)}{2 L T_0} \qquad for\ L/R > 8$$

where:
K = hydraulic conductivity [ft/sec]
r = casing radius [ft]
L = length of open screen (or borehole) [ft]
R = filter pack (borehole) radius [ft]
T_0 = Basic Time Lag [sec]; value of t on semi-logarithmic plot of H-h/H-H_0 vs. t, where H-h/H-Ho = 0.37
H = initial water level prior to removal
of slug
H_0 = water level at t = 0
h = recorded water level at t > 0

(Hvorslev, 1951; Freeze and Cherry, 1979)

The Bouwer-Rice expression for hydraulic conductivity (K) is:

$$K = \frac{r^2 \ln (R_e/R) \ln(h_o/h_t)}{2 L t}$$

where:
r = casing radius [ft]
t = time of drawdown measurement since start of test [sec]

h = drawdown of water in well at time = t [ft]
h_o = drawdown of water in well at t = 0 (initial drawdown) [ft]
L = length of open screen (or borehole) [ft]
R_e = effective radius (radius of influence) [ft]
R = gravel pack radius [ft]

Both the Hvorslev and Bouwer-Rice methods can be applied for partially-penetrating wells. Hvorslev is generally applicable only to fully penetrating wells.

5. References

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Chirlin, G.R. (1989), A Critique of the Hvorslev Method for Slug Test Analysis: The Fully Penetrating Well.

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U. S. EPA ENVIRONMENTAL RESPONSE TEAM STANDARD OPERATING PROCEDURES SOP: 2046,"Slug Tests" REV: 0.0, 10/03/94

6. Attachments

Attachment A – Slug Test Data Form

7. Contacts

Andy Adinolfi
Saskia Oosting

Attachment A. Slug Test Data Form

SITE ID: _____ SLUG TYPE (solid/bailer/pumped)

LOCATION/WELL ID _____ SLUG DIAMETER: _____

DATE: _____ SLUG LENGTH: _____

FIELD PERSONNEL: _____ METHOD:

_____ RISING HEAD _____

DATALOGGER TYPE: FALLING HEAD _____

_____

_____

COMMENTS:

_____

_____

==========

SETUP

Time _____
Depth to Water - Initial Static (before installing troll/slug) _____
Confirm well recovers to static after installing slug, or note otherwise

_____

==========

MANUAL CONFIRMATORY MEASUREMENTS

ELAPSED TIME (min.)	DTW	ELAPSED TIME	DTW

Form based on:
USEPA, 1994; Sanders, 1998.

STANDARD OPERATING PROCEDURE

GW-011 Constant Head Permeability Testing

1. Objective

Describe procedures for performing constant head borehole permeability testing in granular soils. Constant head permeability testing is used when the soil permeability is sufficiently high for testing to be practical.

2. Execution

- All borehole permeability testing shall be performed below the static groundwater table. As the boring is advanced, attempt to determine the static groundwater level by:
  - Observing the water content of samples collected from the boring to identify the transition from moist to saturated soil.
  - For higher permeable soils, allowing the water level in the borehole to stabilize before performing the test.
  - If the borehole is left open overnight or for an extended period, measure the static groundwater level in the borehole at the beginning of the next day.
  - Measure the water level in nearby observation wells or piezometers.
  - If a well or piezometer is installed in the borehole, measure the water level in the well or piezometer after the water level has stabilized.
- Advance the drill casing to the top of the test zone and clean the borehole to the bottom of the casing.
- Obtain a split spoon sample in the test zone below the bottom of the casing.
- Advance the borehole 2 feet below the bottom of the casing using a side discharge roller bit. The roller bit should be only slightly smaller than the inside diameter of the casing. Record the diameter of the casing and the diameter of the roller bit. Avoid jetting the borehole walls or bottom during cleaning. Continue flushing the borehole until return water is clear.
- Measure the depth to groundwater in the borehole over a 10 to 15 minute period to observe if the groundwater elevation has approximately stabilized. Compare the saturated soil depth estimated from split-spoon samples to the measured water level in the borehole.
- Using a weighted tape, sound the bottom of the borehole to verify that the hole is cleaned to the correct depth and caving hasn't occurred. If more than 3 inches of wash remains in the borehole, lower the roller bit back to the bottom of the borehole and continue to clean the borehole.
- Measure and record the depth to the bottom of the borehole to the nearest 0.05 feet.
- Determine the length of the test zone (L = distance from the bottom of the casing to the bottom of the borehole) to the nearest 0.05 feet and record on the field form.
- Add clean water to fill the casing.

- Using a calibrated flow meter, adjust the flow rate into the casing so the water level remains within 0.5 inches of the top of the casing. Once the water level has stabilized, take a flow meter reading at the start of the test (time=0). Record the inflow volume at regular intervals (generally 1 minute) for a period of 10 minutes.
- Check the depth to the bottom of the borehole after completion of the test to check for caving.
- Record all measurements and observations on the Borehole Permeability Test Field Data Form.

3. Limitations

Site-specific conditions must be evaluated to determine appropriate test intervals. Test interval shall be determined by the Project Manager or their designee.

4. References

GEI Procedure No. 44, Borehole Permeability Testing in Granular Soils

U.S. Department of the Interior Bureau of Reclamation Ground Water Manual, Chapter 10: Permeability Tests in Individual Drill Holes and Wells.

5. Attachments

Attachment A - GEI Borehole Permeability Test Field Data Form – Constant Head

6. Contacts

Steve Hawkins

BOREHOLE PERMEABILITY TEST - CONSTANT HEAD
FIELD DATA FORM

PROJECT:			BORING :
LOCATION:			PROJ NO.:
CLIENT:			TEST NO.:
PERF'D BY:	DATE:		PAGE NO.:
CALC'D BY:	DATE:		GROUND
CHECKED:	DATE:		SURF. EL.:

STANDPIPE/RISER DETAILS

Riser inside diameter,d,inches: _____

Riser length, feet: _____

Riser stick up above ground surface, feet: _____

Groundwater depth below ground surface, H, feet: _____

Test Start Time: _____

Test End Time: _____

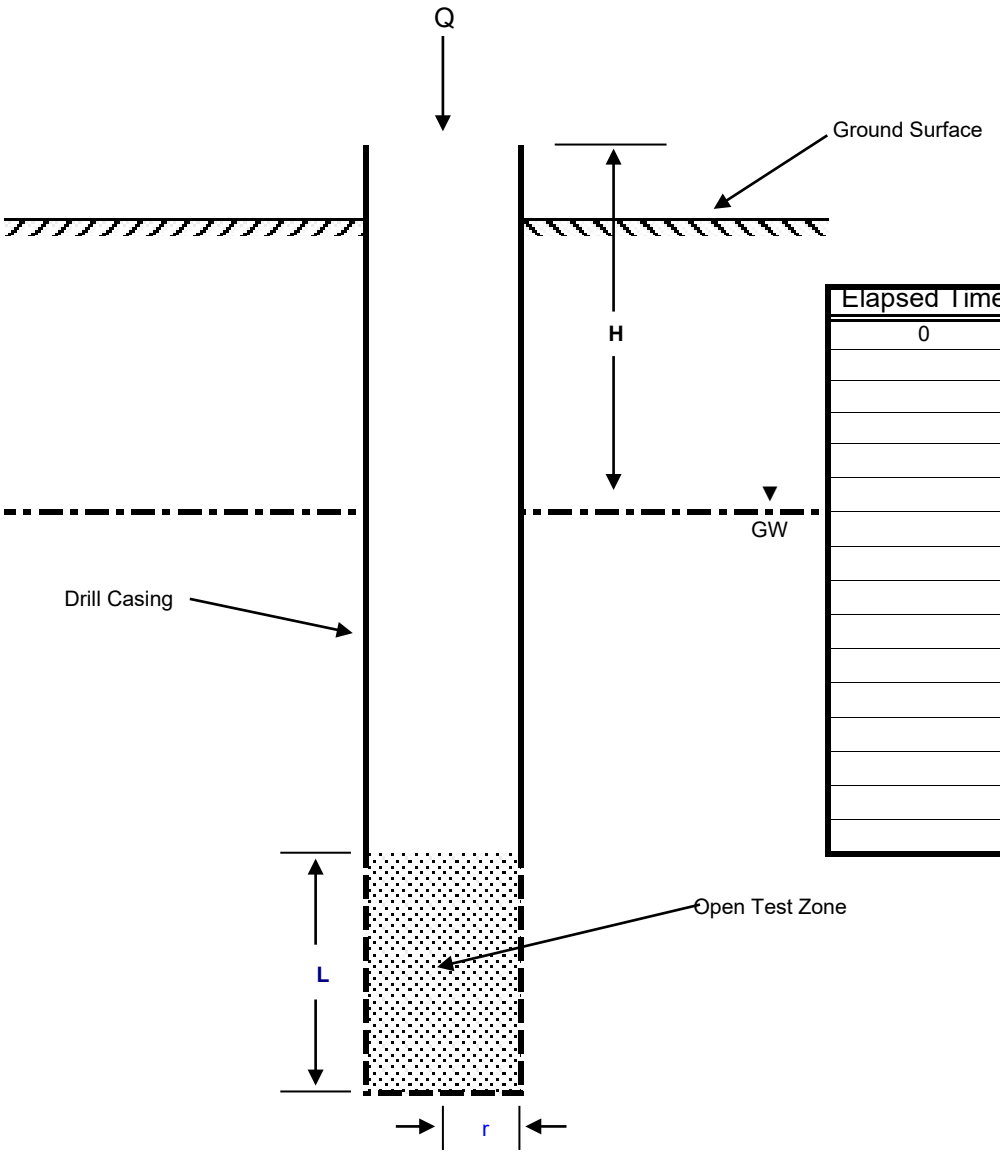
TEST INTERVAL DETAILS

Depth to bottom, feet (below ground surface): _____

Depth to top, feet (below ground surface): _____

Length, L, inches: _____

Water flow to achieve constant head, Q: _____ (volume/time)



Elapsed Time	Inflow	Overflow
0		

NOTES: 1. Based on the Constant Head Permeability Test SOP:
Created for the CT River Levee Projects, GEI Consultants
October 2008.

GEI Consultants

STANDARD OPERATING PROCEDURE

GW-014 Dense Non-Aqueous Phase Liquid (DNAPL) Measurement and Recovery

1. Objective

Provide procedural guidance for routine gauging and recovery of dense non-aqueous phase liquids (DNAPL) related to former manufactured gas plant (MGP) operations.

2. Execution

2.1 Equipment and materials

The following materials and equipment are necessary for this procedure:

- Oil/water interface probe
- Appropriate pump and required tubing/piping
- Double check valve bailers and string
- Drums or buckets for NAPL collection
- Proper PPE including gloves and protective eyewear
- Drum labels
- Field data sheets or logbooks
- Decontamination supplies and plastic sheeting
- Additional equipment identified by site-specific work plan and HASP
- Example specifications of DNAPL management equipment is included as Attachment A.

2.2 General Measurement Procedures

Using an oil/water interface probe will provide a depth to water and a depth to product in each monitoring well. Refer to probe manual to determine changes between liquid type. To achieve accurate depth measurements, ensure the oil/water interface probe is decontaminated (GEI SOP QA-001 prior to and between each measurement taken at each well.

To calculate the volume of product in monitoring wells with these specifications, take the following measurements:

- Total well length
- Depth to water
- Depth to product (s) – c1 and c2

Using the following equations, determine the length of the water column and the length of the product column:

[1] (a) – (b) = Water column length (d)
[2] (a) – (c1) = Product column length (e) dense non-aqueous phase liquid (DNAPL)

Calculate the volume of DNAPL product in the well using the following equation:

DNAPL for a 2" diameter well
[4] (e) x 0.1632 = Volume (gallons) of product in well
(e) x 0.6178 = Volume (liters) of product in well

DNAPL for a 4" diameter well
[4] (e) x 0.6528 = Volume (gallons) of product in well
(e) x 2.4711 = Volume (liters) of product in well

DNAPL for a 6" diameter well
[4] (e) x 1.469 = Volume (gallons) of product in well
(e) x 5.561 = Volume (liters) of product in well

Once measurements have been taken and calculations have been made, collection of dense non-aqueous phase liquid (DNAPL) may commence.

2.3 DNAPL Collection Procedures

Collection of DNAPL shall be accomplished using common recovery techniques or technologies as follows:

- Peristaltic pumps
- Bailers
- Positive displacement down hole pumps (e.g. Hammerhead, Blackhawk pumps, etc)

Special care shall be taken to prevent any purged DNAPL causing a spill and coming into contact with the ground and sampling personnel. This includes the use of proper personal protective equipment (PPE), including gloves and protective eyewear (Tyvek® if necessary), along with plastic sheeting set beneath the pump, tubing, and collection container (sealed top 55-gallon drum or 5-gallon bucket with lid), and the surrounding work area. A site-specific work plan, HASP and job specific job safety analysis need to be developed prior to the start of work. Examples of DNAPL specific management equipment and tools are included as Attachment A. The specific operating procedures for common recovery methods are discussed in the following sections.

2.3.1 Sampling and recovery via peristaltic pump with dedicated tubing:

- Take and record the required measurements prior to commencing pumping.
- Connect the dedicated tubing to the peristaltic pump with the long end of the silicon tubing set to discharge water and product directly into either a 5-gallon bucket or a 55-gallon closed-top drum, ensuring that the entire set-up is underlain by plastic sheeting.
- Begin purging the well, occasionally checking the depth to water and depth to product.
- Once the DNAPL has been purged from the well, a sample will be collected and preserved if required, in accordance with laboratory standards.

- Following completion of NAPL recovery, disconnect the tubing from the pump, secure the well and road box, and clean/decontaminate the pump and oil/water interface probe, prior to moving to the next location.
- Impacted tubing will either be containerized for proper disposal or left in well for reuse.

2.3.2 Sampling and recovery via double check valve bailer:

- Take and record the required measurements prior to commencing bailing.
- Ensure the entire work area is covered in plastic sheeting to avoid potential spills of water and/or product.
- Tie the bailer to a piece of string that will allow the bailer to reach the bottom of the well.
- Using slow and controlled motions while lowering (and raising) the bailer to the bottom of the well, commence bailing product out of the well and draining the bailer directly into either a 5-gallon bucket or a 55-gallon closed-top drum.
- Once the NAPL has been purged from the well, collect and preserve the analytical sample, if required, in accordance with laboratory standards.

2.3.3 Sampling via piston-style pumps (HammerHead, Blackhawk etc)

For significant accumulations of DNAPL a variety of dedicated pumping technologies exist. Refer to manufacturer-specific operating procedures and site specific means and methods.

2.4 Waste Management and Disposal

Investigation derived waste should be managed in accordance with GEI SOP SC-003. Additional care should be taken with DNAPL while infrequent the potential for hazardous waste characteristics does exist. DNAPL waste management and disposal should be evaluated on a site by site basis as discussed in Section 3.

2.5 Troubleshooting Information

If there are any performance problems with the oil/water interface probe which result in inability to achieve the proper measurements presented in Section 5.1, or if there are any problems with the peristaltic pump, consult the appropriate section of the probe instruction manual for the checkout and self-test procedures. If the problem persists, consult the manufacturer's customer service department immediately for further instructions.

Lower temperatures can affect the ability to pump and/or bail NAPL. Weather should be taken into consideration when scheduling gauging and recovery sampling events.

2.6 Data and records management

All information pertaining to maintenance of the oil/water interface probe and the peristaltic pump shall be maintained in the project file. Field measurements (depth to

water, product, *etc.*) and all calculations (product column length, volume of product, *etc.*) shall be recorded on the appropriate field data sheets or in the logbook consistent with GEI SOP Section 5.

2.7 Health and safety considerations

The health and safety considerations for the work associated with this SOP, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed job safety analysis (JSA) should be completed prior to the start of work.

3. Limitations

- DNAPL gauging and recovery can be problematic and requires adaptive thinking. A variety of measurement and collection techniques may be necessary to properly execute the work.
- Exposure to DNAPL can accelerate the required maintenance/replacement intervals for tools and equipment.
- A site specific work plan, HASP and JSA needs to be developed prior to commencing work. The documents should address: safety, recovery technologies, waste containment and waste management.

4. References

U.S. EPA. Ground Water Issue: Dense Non-aqueous Phase Liquids, EPA/540/4-91-002, March 1991.

5. Attachments

Attachment A – Example specifications of DNAPL recovery and management tools and equipment.

6. Contact

Kathleen Slimon
Mike Quinlan

Section 8

Air Sampling and Monitoring (AR)

STANDARD OPERATING PROCEDURES

AR-001 General Guidance on Work Zone Monitoring Methods

1. Objective

Protect human health by measuring air quality at the perimeter of a work area.

2. Execution

Walk-around perimeter and work zone monitoring for Total Volatile Organic Compounds (TVOC), Respirable Particulate matter less than 10 microns (RPM_{10}), and odor will occur along the perimeter of the project site on a regular and as-needed basis. Specific site conditions that will trigger walk-around perimeter or work zone monitoring include:

- visible dust
- odor complaints
- detection of TVOCs and/or RPM_{10} at levels approaching or exceeding action levels
- direction by the site oversight consultant or client

Perimeter air monitoring and work zone monitoring, in the absence of any specific triggering criteria, will be conducted on a regular basis during the normal work day. Particular attention will be given to the direction of any residences or other sensitive receptors.

At the time when a triggering condition is observed, the walk-around perimeter and work zone monitoring will occur continuously until the conditions that triggered the monitoring have subsided. Additional temporary monitoring points may be established due to changing site or meteorological conditions.

TVOC concentrations will be monitored and recorded using a Rae Systems MiniRAE 2000 Portable Ionization Detector (PID) or equivalent. RPM_{10} will be measured and recorded using a MIE personal DataRAM 1200 (PDR-1200) portable real-time aerosol monitor equipped with a PM-10 monitor and Gilian personal air sampling pump. AR-002 Suspended Particulate Matter in Ambient Air using the MIE DataRAM Real-time Aerosol Monitor (Portable) provides guidance on the use of this meter. Odors will be noted based on the n-butanol scale, as adapted from ASTM E544-99.

At each monitoring point, the 15-minute average value of TVOC and RPM_{10}, sample time, and sample location will be collected and recorded. The odor intensity based on the n-butanol scale will be monitored over a 15-minute period and recorded. At each location, air temperature, wind direction, and wind speed may be monitored and recorded using a hand-held wind meter.

Odors as a function of naphthalene concentration will be monitored over a 15-minute period and recorded. To measure naphthalene concentrations, the zNose™ Model 4200 system will be used. The zNose™ is an ultra-fast gas chromatograph (GC) that is capable of analyzing airborne concentrations of VOCs and SVOCs in less than one minute. The zNose™ uses a surface acoustic wave (SAW) detector that changes in vibration frequency as compounds elute from the column and condense onto the surface of the detector.

The zNose™ is a portable instrument and will be positioned downwind of the remedial activities. Up to five samples will be analyzed for naphthalene concentrations over a 15-minute period. The concentrations will be averaged to produce a 15-minute result. The calibration will be checked at the start of the day, at mid-day, and at the end of the day. An air blank will be run every two hours. A blank will also be run if a reading exceeds the calibration range of the instrument.

The zNose™ also has the capability of generating fingerprint images of the chemical constituents in the vapor called VaporPrints™. A VaporPrint™ of an air sample can be collected through a headspace analysis. This VaporPrint™ can be compared to others generated at the perimeter and off-site to see if remedial operations are the source of the odors. VaporPrints™ can allow for identification of odors that may not be affiliated with remedial operations.

To monitor cyanide (as hydrogen cyanide gas), a real-time hand-held meter in conjunction with the Dräger Chip Measuring System (CMS) will be used. Types of continuously monitoring equipment include the V-RAE by Rae Systems and the Mini-Warn by Dräger Safety Systems and are available from rental equipment suppliers. Due to potential interference from sulfur compounds, hydrogen sulfide gas (H_2S) will also be monitored for comparison to the hydrogen cyanide gas levels detected. Hydrogen cyanide gas detections will also be confirmed with CMS Dräger tubes due to this interference. The Dräger CMS can quantify other gases that could potentially provide false positives for hydrogen cyanide gas (including sulfur dioxide, hydrogen sulfide, phosphine gas, chlorine, and nitrogen dioxide) detected by the real-time meter.

At each location, air temperature, wind direction, and wind speed will be monitored and recorded using a hand-held wind meter.

3. References

New York State Department of Environmental Conservation. 2010. DER-10 / Technical Guidance for Site Investigation and Remediation. Division of Environmental Remediation. May 3, 2010. Appendix 1A. pp. 204-206

ASTM E544 - 99(2004) Standard Practices for Referencing Suprathreshold Odor Intensity

4. Attachments

None

5. Contact

Chris Gordon/Mike Quinlan

STANDARD OPERATING PROCEDURE

AR-002 Air Sampling for Dust (Particulate Matter) using the MIE DataRAM™ Real-Time Aerosol Monitor

1. Objective

Describe standard procedures for the real-time monitoring of airborne particulate matter using a MIE DataRAM™ model DR-2000 real-time aerosol monitor.

The MIE DataRAM™ is a real-time, portable monitor that measures airborne particulate matter. It is capable of monitoring total suspended particulate matter, particulate matter less than 10 microns (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$) by using an appropriate orifice to control the size of the particles being measured. The DataRAM can be programmed to collect continuous real-time data, or to record time averaged data.

2. Materials

- MIE DataRAM™ model DR-2000
- Shelter/Enclosure - a pre-constructed enclosure capable of protecting the instrumentation from severe weather conditions during sample collection
- Omnidirectional inlet
- Inlet heater
- $PM_{2.5}/PM_{10}$ impactor
- IBM compatible computer loaded with MIE DataRAM™ software
- Field notebook

3. Meter Calibration

- Assemble all necessary DataRAM™ attachments.
- Make sure the power selector switch on the rear panel is in the "on" position. Turn on the power by pressing the "on" button on the front display panel of the DataRAM™. "Main Menu I" will appear on the screen.
- Activate the zero mode by pressing the button indicating zero.
- When the screen indicates the zero mode is complete, activate the span check mode by pressing the button indicated, and follow the prompts that appear on the screen.
- Record the time of the zeroing and the calibration difference percent in the field notebook. If the zeroing procedure takes longer than 5 minutes press "exit" and then "off," and then put the power switch on the rear panel of the instrument in the "off" position. Wait several minutes, turn on the power and zero the instrument again. If the calibration difference percent is more than ±5% then follow the "Calibr Diff" Resetting Procedure in the DataRAM™ Instruction Manual.
- Set the DataRAM™ to automatically log data. Refer to the Instruction Manual for details on how to set the data logging function.

- Record the instrument flow rate from the parameters menu in the field notebook.

4. Sample Collection

- Set the DataRAM™ at the predetermined sampling location in a rain or weatherproof containment, with only the inlet tubing exposed to ambient air.
- Start the run.
- When sampling is completed, terminate run and download data using the RS-232 cable connector and the MIE DR-COM software.
- Once the data file has been successfully downloaded and saved in an appropriate location, clear the data from the instrument memory.

5. Limitations

Each instrument must be calibrated using the internal reference standard and zeroed at the start of each sampling event and at a frequency of once per day throughout the duration of the sampling event.

The DataRAM™ can be programmed to collect continuous real-time data, or can collect "averaged" real-time data. These various options should be addressed prior to field operations and must be referenced in an approved work plan. This work plan must be available to all field personnel.

Project objectives will usually dictate the sampling location. In general, for air monitoring, meters are usually placed near breathing height and away from objects that can interfere with air motions. Since the DataRAM™ is measuring particulate matter, placement of the instrument directly on the ground should be avoided to prevent the sampling of dust concentrations that may not be representative of the air that is intended to be sampled (e.g. air at breathing height).

6. References

Code of Federal Regulations, 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, US Environmental Protection Agency, Office of Air Quality Planning and Standards, Washington, D.C. EPA-454/B-08-003 December, 2008.

7. Contacts

Chris Gordon
Mike Quinlan

STANDARD OPERATING PROCEDURE

AR-003 Air Sampling for PM_{10} Particulate Matter using the High-Volume Sampler Method

1. Objective

Describe standard procedures for the collection of air samples for laboratory analysis of PM_{10} particulate matter using the high volume sampler method.

2. Materials

- General Metal Works (GMW) Model IP 10-8000 or equivalent. The GMW sampler can be rented.
- Calibration kit, as specified for the selected sampler.
- PM_{10} sampling filters, to be supplied by the contract laboratory. A Whatman QM-A quartz filter is currently the only commercially available PM_{10} filter that satisfies all criteria specified in 40 CFR 50, Appendix J. .
- Ice chest for sample storage or shipping.

3. Sampling

This method measures the mass concentration of particulate matter with an aerodynamic diameter equal to or less than 10 micrometers (µm). A high volume (HV) sampler draws a known volume of ambient air at a constant flow rate through a size selective inlet and through one or more filters. Particulates of 10 µm or smaller are collected on the filter(s) during the prescribed time period. Each sample filter is weighed before and after sampling to determine the net weight gain of the collected PM_{10} sample.

A HV sampler consists of two basic components: a specially designed inlet that transmits only particles equal to or less than 10 µm in diameter and a flow control system capable of maintaining a constant flow rate within the design specifications of the inlet.

3.1. Sampler Installation

- On receipt of the sampler, inspect all shipping cartons to ensure that all components have been received and verify that the unit is operational.
- On site, assemble the unit according to the manufacturer's instructions. Check all power cords and tubing for crimps, cracks, and breaks. The HV sampler should be placed on a sturdy platform or table, with the air inlet 4 to 6 feet above ground level.
- The sampler should be strategically placed according to the work plan or objectives of the study and located free of any obstructions to ambient air flow.
- The HV sampler requires 110 V AC power. The electrical outlet should be protected by a ground fault interrupter and water proof electrical connectors should be used.

- Operate the sampler for 30 minutes to ensure that the motor is operating at full performance.
- Calibrate the sampler in accordance with the instructions provided with the appropriate calibration kit. Proper calibration of the sampler is critical.
- Field personnel should be familiar with both the sampling unit and the calibration procedure before attempting to record data.

3.2. Sampling Procedure

- Operate sampler as per manufacturer's instructions.
- Filters are received from the laboratory numbered and pre-weighed in their individual envelope or folder within an envelope. Powder free latex gloves, or equivalent, should be worn during the handling of filters. Only touch the edges of the filter.
- Examine the filter support screen to confirm that it is clean. If it appears to be dirty, wipe it clean using lint free wipes such as laboratory wipes or equivalent. Check the gasket to be sure that it is in good condition. The filter is placed on the support screen with the numbered side facing down. Tighten thumb nuts on alternate corners to properly align and seat the gasket. The nuts should be only hand tightened to avoid damaging the gasket.
- Record the sampler serial number, filter ID number, sampler location, sampling date, and the operator's initials in the field notebook, any field data sheets being used, and on the back of a clean chart and install the chart in the flow recorder.
- Turn the sampler on and allow it to equilibrate to operating temperature, about 3 to 5 minutes. Verify that the recorder is operating and that the pen is inking. Allow the sampler to run for the required sampling interval.
- When sampling interval is completed, turn off the sampler and carefully remove the filter as soon as possible. Sample degredation can occur if the filter is left in the sampler for an extended period of time. The filter should be folded in half with the exposed side inward and the folded filter carefully placed in its respective folder and/or envelope. When removing and folding the filter touch only the outer edges. Powder free latex gloves, or equivalent, should be worn when handling filters.
- Record the following parameters in the field notebook and in any field data sheet being used:
    1. Elapsed time of sampling interval in minutes
    2. Average recorder response in arbitrary units
    3. Starting flow rate and ending flow rate
- The average flow rate for GMW Model IP 10-8000 sampler should be close to 1.13 m^3/min.
- Calculate the total flow rate for the sampling interval by time weighted averaging the flow rate readings. Air monitoring results where the flow rates

varied more than +/- 10%, from beginning to end, should be qualified accordingly and discussed with the project manager.

- The exposed filters, folded in half, are placed back into their shipping envelope and forwarded with completed chain of custody forms to the contracted laboratory for analyses. Follow the contracted laboratory's instructions for handling and returning the exposed filters.

4. General Guidance

The total volume of air sampled is determined from the measured volumetric flow rate and the sampling time. The mass concentration of PM_{10} in the ambient air is calculated as the total mass of collected PM_{10} particles divided by the total volume of air sampled. The PM_{10} measurement is expressed as micrograms (µg) per standard cubic meter (µg/std M^3). The sampled volume must be corrected to EPA standard conditions, 25° C, 760 mm Hg or 101 kPa.

A field blank may be collected, which consists of an unexposed filter removed from its envelope, put in place in the HV sampler, immediately removed, folded, replaced in its envelope and sent to the laboratory. Field blanks, if collected, should be taken at a frequency of one per twenty samples. If fewer than twenty samples will be collected during one week, collect one field blank weekly during sampling.

5. References

Code of Federal Regulations, 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods (Interim Edition), Addendum to Section 2.11 Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High-Volume Sampler Method), US Environmental Protection Agency, Office of Research and Development, Washington, D.C. EPA/600/R-94/038b April 1994.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, US Environmental Protection Agency, Office of Air Quality Planning and Standards, Washington, D.C. EPA-454/B-08-003 December, 2008.

6. Contacts

Chris Gordon
Melissa Felter

STANDARD OPERATING PROCEDURE

AR-005 Hydrogen Cyanide Work Zone Air Monitoring Procedures

1. Objective

Describe real-time monitoring of hydrogen cyanide gas during field activities.

2. Equipment

To monitor cyanide (as hydrogen cyanide gas), the GEI field representative should utilize a real time handheld meter in conjunction with the Dräger Chip Measuring System (CMS) during subsurface activities including subsurface excavations, borings and monitoring well installation, materials handling, and groundwater sampling in areas with confirmed or suspected cyanide impacts.

Continuous monitoring equipment includes the V-RAE by Rae Systems and the Mini-Warn by Dräger Safety Systems, and are available from rental equipment suppliers. Due to potential interference from sulfurs, hydrogen sulfide gas (H_2S) should also be monitored for comparison to the hydrogen cyanide gas levels detected. Hydrogen cyanide gas detections will also be confirmed with CMS Dräger tubes due to this interference. The Dräger CMS can quantify other gases that could potentially provide false positives for hydrogen cyanide gas (including sulfur dioxide, hydrogen sulfide, phosphine gas, chlorine, and nitrogen dioxide) detected by the real time meter.

3. Calibration

Prior to commencing work on-site, the real-time cyanide meter should be calibrated in accordance with the equipment manufacturer's specifications. If the meter is calibrated in the field, the daily calibration results should be recorded in the field notebook.

4. Execution

Cyanide will be monitored around the perimeter of the work zone on a regular basis. Continuous monitoring should be completed every fifteen minutes if sulfur odor or suspected purifier waste material (former MGP sites only) is encountered. Measurements should be monitored in the breathing zone and should be recorded into the field notebook or on an applicable form. In the event that hydrogen cyanide is detected, the GEI field representative should proceed as follows:

4.1. Action Level: HCN ≤1 ppm for 15-minute average using real time meter

- Run CMS Dräger tube.
- Continue monitoring with real time meter.
- Continue work if CMS Dräger tube for hydrogen cyanide reads <2 ppm.

4.2. Action Level: 1 ppm < HCN < 2ppm for 15-minute average using real time meter.

- Run CMS Dräger using hydrogen cyanide gas chip and confirm <2 ppm concentration.
- Continue monitoring with real time meter.
- Run CMS Dräger tube using sulfur dioxide, hydrogen sulfide phosphine chip to evaluate potential interference.
- Recalibrate the real time meter and continue to monitor the work zone.

4.3. Action Level: HCN 2 ppm on CMS Dräger tube

- Stop work and move (with continuous monitoring meter) at least 25 feet upwind from excavation or until continuous monitoring meter registers <1 ppm.
- Run CMS Dräger hydrogen cyanide chip and re-evaluate activities
- Continue monitoring with real time meter.
- Allow area to ventilate and continue to monitor while returning to the work zone.
- Do not move into an area when readings are >1 ppm without confirming with additional CMS Dräger measurement.
- May resume work if Dräger tube for cyanide reads <2 ppm.

5. Limitations

No air purifying respiratory protection is available for hydrogen cyanide gas.

The American Conference of Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for Hydrogen Cyanide is 4.7 ppm.

6. References

Code of Federal Regulations, 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods (Interim Edition), Addendum to Section 2.11 Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High-Volume Sampler Method), US Environmental Protection Agency, Office of Research and Development, Washington, D.C. EPA/600/R-94/038b April 1994.

7. Contacts

Ryan Hoffman

Section 9

Quality Control – Quality Assurance (QA)

STANDARD OPERATING PROCEDURE

QA-001 Equipment Decontamination

1. Objective

This SOP describes methods used to decontaminate reusable sampling equipment for projects that require collection of organic and inorganic analytical samples. The goal is to minimize cross-contamination between samples. This maximizes confidence that field samples will be representative of specific locations and conditions.

Refer to the work plan or project manager to determine if different decontamination methods are acceptable.

2. Execution

- All contractor-provided equipment (augers, rods, spoons, backhoe buckets) should be decontaminated by steam cleaning or pressure washing prior to coming on site. If there is doubt about cleanliness of drilling tools, they should be decontaminated before use at the site.
- Sampling equipment decontamination is a sequential procedure consisting of the following steps:

    - Alconox-solution wash (or equivalent non-phosphate detergent)
    - Potable water rinse
    - A ten percent reagent grade nitric acid wash should be used to strip potential inorganic contaminants from sampling devices.
    - Laboratory grade 100 percent methanol, should be used to strip potential organic contaminants from sampling devices.
    - Three distilled/deionized water rinses.

- Alconox solution is a mixture of approximately 1 cup of Alconox per 1 gallon of potable water. Alconox solution wash requires scrubbing the equipment with a brush soaked in Alconox solution to remove visible contamination or dirt from sampling devices.
- Split-spoon samplers must be decontaminated prior to collecting each sample. The procedure follows:

    - Overall wash and scrub in a bucket of Alconox solution
    - Potable water rinse.
    - 10% nitric rinse
    - 100% laboratory grade methanol rinse
    - Three distilled-water rinses.

The same procedure is applied to all devices that may contact soil or groundwater slated for analytical samples - spoons and knifes used to inspect or sample soils; water level indicators; oil/water interface probes.

Equipment used for well development of multiple wells must be decontaminated between wells.

Pumps and tubing should be flushed using a minimum of one gallon of Alconox-solution followed by a gallon of potable water. Some projects may require methanol (in much lower quantities) and distilled water instead of or in addition to the Alconox-solution and potable water.

For pumps and tubing, a final rinse of the sampling equipment may be performed with the water being sampled.

Equipment blanks measure the effectiveness of the decontamination procedures. Blanks should be collected per guidance provided in QA-002, Field Quality Control Samples.

3. Limitations

- Do not store the deionized/distilled water in polyethylene bottles, use Nalgene, glass, or Teflon. Polyethylene may leach phthalates.
- Do not attempt to decontaminate string or rope - replace it.
- Due to eye and skin absorption hazards, safety glasses and gloves must be worn when handling decontamination solvents.
- Decontamination procedures may also require modification based on state or federal requirements.
- Steam cleaning or pressure washing with potable water is generally an acceptable decontamination method for drilling equipment (i.e., augers). Check with the work plan.
- Dedicated equipment need not be decontaminated beyond initial decontamination prior to field use.

4. References

Environmental Response Team (ERT), US EPA. Sampling Equipment

Decontamination, SOP No. 2006, Revision 0.0. August 11, 1994.

US EPA Region 9. Sampling Equipment Decontamination, SOP No. 1230, Revision 1.September 1999.

5. Contacts

Mackenzie Fannon
Pat King

STANDARD OPERATING PROCEDURE

QA-002 Field Quality Control Samples

1. Objective

Field Quality Control (QC) samples are used to monitor the reproducibility and representativeness of field sampling. The QC samples are handled, transported, and analyzed in the same manner as the associated field samples. QC samples may include trip blanks, equipment blanks, and field duplicates.

2. Execution

2.1. Trip blanks

- Used to monitor possible sources of contamination from transport, storage, inadequate bottle cleaning, or laboratory methodologies.
- Sample containers filled at the laboratory with analyte-free water are transported to and from the site, and are not opened until time of analysis.
- Trip blanks are stored with the sample containers prior to and after field activities and remain with the collected samples until analyzed.
- Generally, one trip blank per volatiles analysis (e.g. volatile organic compounds) shipment.
- Consider submitting a trip blank when sample shipment is by Fed Ex or other large carrier, or laboratory courier.
- Trip blanks should be recorded in the field notebook and on the chain-of-custody that same as all other samples.

2.2. Equipment blanks

- Equipment blanks (also known as equipment rinsate blanks) are used to monitor possible sources of contamination associated with sample collection. Monitors on-site sampling environment, sampling equipment decontamination, sample container cleaning, the suitability of sample preservatives and analyte-free water, and sample transport and storage conditions
- Equipment blanks are collected by pouring laboratory supplied or distilled or deionized water over sampling tools that have been decontaminated per the work plan, into sample containers.
- Equipment blanks are stored with the associated field samples until submitted for analysis.
- Generally collected when site conditions indicate site related contamination is a concern. Check project-specific work plan and/or quality assurance project plan for required frequency.
- Prepare equipment blanks immediately after the equipment is cleaned in the field and before leaving the sampling site.
- Prepare equipment blanks by rinsing the decontaminated sampling equipment set with the appropriate type of analyte-free water and collecting the rinse water in appropriate sample containers.

- If a potable water rinse is the typical final step, collect the equipment blank with analyte-free water after the potable water rinse.
- Equipment blanks should be recorded in the field notebook and on the chain-of-custody that same as all other samples.

2.3. Field Duplicates

- Used to evaluate the precision and representativeness of the sampling procedures.
- Field duplicates are two samples collected from the same location using the same procedures. Both samples are submitted to the laboratory as individual samples with different sample identification.
- Field duplicates from groundwater sampling for all analyses except volatiles analysis are collected by alternating filling sample containers from the same sampling device. Field duplicates for volatiles analysis are filled sequentially.
- Soil or sediment field duplicates are collected by homogenizing the sample for all analyses except volatiles. The homogenized sample is then divided into two equal portions and placed in separate sample containers. Field duplicates for volatile analysis are collected at two adjacent sampling locations.
- Each sample is assigned different sample identifications.
- Field duplicates are generally collected at frequency of 1/20 samples. Check project-specific work plan and/or quality assurance project plan for required frequency.
- All field QC samples should be labeled in the field and submitted “blind” to the laboratory – as if they are separate, primary samples.
- Field duplicates should be recorded in the field notebook and on the chain-of-custody that same as all other samples.
-

2.4. Matrix-Spike samples (MS/MSD)

- Matrix spike and matrix spike duplicate samples (MS/MSDs) are environmental samples that are spiked in the laboratory or in the field with a known concentration of a target analyte(s) to verify percent recoveries.
- Matrix spike and matrix spike duplicate samples are primarily used to check sample matrix interferences. They can also be used to monitor error due to laboratory bias and poor precision. However, a data set of at least three or more results is necessary to statistically distinguish between laboratory performance and matrix interference.
- Generally, the laboratory is required to extract and analyze MS or MS / MSDs at a minimum frequency of 5% of samples being analyzed for the target analyte(s). If the project or client criteria require an MS or MS/MSD, collect sufficient volume in the appropriate containers, and designate the sample to be used as the MS or MS/MSD on the chain of custody.
- Calculate the percent recovery for all spiked analytes for both the MS and MSD. For MS/MSDs also calculate the relative percent difference (RPD). The

RPD for each spiked analyte is calculated using the amount detected not percent recovery. If your data will be subjected to validation, the % recovery and the RPD will generally be determined by the validator.

2.5. Typical QA/QC Frequency

- QA/QC frequency is determined by project, client or regulatory criteria and should be verified prior to sample collection. Generally, QA/QC samples are collected according to the frequency described below:

Duplicate Samples	One per sampling event, one per 10 samples collected, or one every two weeks, whichever comes first.
Equipment Blanks	For each equipment type that is not dedicated or disposable - one per sampling event, one per 20 samples collected, or one every two weeks, whichever comes first.
Trip Blanks	One per sample delivery group, or in each cooler containing VOC soil or aqueous samples, depending on project.
MS or MS / MSDs	One MS or MS/MSD per sampling event, one per 20 samples collected, or one every two weeks, whichever comes first.

3. Limitations

- Trip blanks must never be opened in the field.
- Trip blanks are usually for VOCs only because less volatile compounds are not likely to cross-contaminate other samples by simply being in close proximity.
- Laboratory-grade water must be used during the collection of equipment blanks.
- Field duplicates must have different sample identifications.

4. References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (November 1986), U.S. Environmental Protection Agency Department of Solid Waste, Washington, D.C.

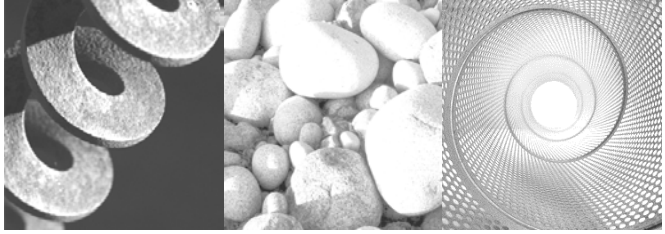
U.S. Environmental Protection Agency Office of Emergency and Remedial Response, 1990, Quality assurance/quality control guidance for removal activities: EPA/540/G-90/004, Sampling QA/QC Plan and Data Validation Procedures Interim Final, April, 1990.

5. Contact

Pat King

Appendix D

Quality Assurance Project Plan



GEI Consultants

Consulting
Engineers and
Scientists

Quality Assurance Project Plan

Parcels 3 and 4 Portion of Williamsburg Works Site

Brooklyn, New York
AOC Index No. A2-0552-0606
Site #: 224055

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Appendices

A Laboratory Quality Manual

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Abbreviations and Acronyms

ASP	Analytical Service Protocols
ASTM	American Society for Testing and Materials
CAS	Chemical Abstract Service
CMS	Chip Measurement System
CLP	Contract Laboratory Protocol
COC	Chain Of Custody
DQO	Data Quality Objective
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
GC/MS	Gas Chromatography/Mass Spectroscopy
GEI	GEI Consultants, Inc., P.C.
LCS	Laboratory Control Sample
LEL	Lower Explosive Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
PM	Project Manager
PQL	Practical Quantification Limit
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation Recovery Act
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SD	Standard Deviation
SOP	Standard Operating Procedures
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compounds
TOX	Total Organic Halides
TPH	Total Petroleum Hydrocarbons
USDOT	United States Department of Transportation
VOC	Volatile Organic Compound

Quality Assurance Glossary

"Analytical Services Protocol" or "ASP" means the New York State Department of Environmental Conservation (NYSDEC's) compendium of approved EPA and NYSDEC laboratory methods for sample preparation and analysis and data handling procedures.

"Confirmatory Sample" means a sample taken after remedial action is expected to be complete to verify that the cleanup requirements have been met. This term has the same meaning as "post remediation sample."

"Contract laboratory program" or "CLP" means a program of chemical analytical services developed by the United States Environmental Protection Agency (EPA) to support CERCLA.

"Data Usability Summary Report, (DUSR)" is a document that provides a thorough evaluation of the analytical data to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and use.

"Effective solubility" means the theoretical aqueous solubility of an organic constituent in groundwater that is in chemical equilibrium with a separate phase mixed product (product containing several organic chemicals). The effective solubility of a particular organic chemical can be estimated by multiplying its mole fraction in the product mixture by its pure phase solubility.

"Environmental Laboratory Accreditation Program" or "ELAP" means a program conducted by the New York State Department of Health (NYSDOH), which certifies environmental laboratories through on-site inspections and evaluation of principles of credentials and proficiency testing.

"Intermediate Sample" means a sample taken during the investigation process that will be followed by another sampling event to confirm that remediation was successful or to confirm that the extent of contamination has been defined to below a level of concern.

"Method detection limit" or "MDL" means the minimum concentration of a substance that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from the analysis of a sample in a given matrix containing the analyte.

"Non-targeted compound" means a compound detected in a sample using a specific analytical method that is not a targeted compound, a surrogate compound, a system monitoring compound or an internal standard compound.

"Practical quantitation level" or "PQL" means the lowest quantitation level of a given analyte that can be reliably achieved among laboratories within the specified limits of precision and accuracy of a given analytical method during routine laboratory operating conditions.

"PAH" means polycyclic aromatic hydrocarbon as defined by United States Environmental Protection Agency (USEPA) Method 8270.

"Quality assurance" or "QA" means the total integrated program for assuring the reliability of monitoring and measurement data, which includes a system for integrating the quality planning, quality assessment and quality improvement efforts to meet data end-use requirements.

"Quality assurance project plan" or "QAPP" means a document, which presents in specific terms the policies, organization, objectives, functional activities, and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of a specific project or operation.

"Quality control" or "QC" means the routine application of procedures for attaining prescribed standards of performance in the monitoring and measurement process.

"Semi volatile organic compound" or "SVOC" means compounds amenable to analysis by extraction of the sample with an organic solvent. For the purposes of this section, semi volatiles are those target compound list compounds identified in the statement of work in the current version of the EPA Contract Laboratory Program.

"Target analyte list" or "TAL" means the list of inorganic compounds/elements designated for analysis as contained in the version of the EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, and Multi-Concentration in effect as of the date on which the laboratory is performing the analysis. For the purpose of this chapter, a Target Analyte List scan means the analysis of a sample for Target Analyte List compounds/elements.

"Targeted compound," means a hazardous substance, hazardous waste, or pollutant for which a specific analytical method is designed to detect that potential contaminant both qualitatively and quantitatively.

"Target compound list plus 30" or "TCL+30" means the list of organic compounds designated for analysis (TCL) as contained in the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis, and up to 30 non-targeted organic compounds (plus 30) as detected by gas chromatography/mass spectroscopy (GC/MS) analysis. For the purposes of this chapter, a Target Compound List+30 scan means the analysis of a sample for Target Compound List compounds and up to 10 non-targeted volatile organic compounds and up to 20 non-targeted semi volatile organic compounds using GC/MS analytical methods. Non-targeted compound criteria should be pursuant to the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, and Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis.

"Tentatively identified compound" or "TIC" means a non-targeted compound detected in a sample using a GC/MS analytical method, which has been tentatively, identified using a mass spectral library search. An estimated concentration of the TIC is also determined.

"Unknown compound" means a non-targeted compound, which cannot be tentatively identified. Based on the analytical method used, the estimated concentration of the unknown compound may or may not be determined.

"Volatile organics" means organic compounds amenable to analysis by the purge and trap technique. For the purposes of this chapter, analysis of volatile organics means the analysis of a sample for either those priority pollutants listed as amenable for analysis using EPA method 624 or those target compounds identified as volatiles in the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis.

"**Waste oil"** means used and/or reprocessed engine lubricating oil and/or any other used oil, including but not limited to: fuel oil, engine oil, gear oil, cutting oil, transmission fluid, oil storage tank residue, animal oil and vegetable oil, which has not subsequently been refined.

1. Purpose

GEI Consultants, Inc. (GEI) has prepared this Quality Assurance Project Plan (QAPP) for the Williamsburg Works site located in Brooklyn, New York (the Site). The QAPP is a companion document to the draft *Remedial Investigation Work Plan Addendum – Parcels 3 and 4 Portion of Williamsburg Works Site* (RIWP Addendum) and Field Sampling Plan (FSP) dated December 2020. The project location is shown on Figure 1 of the RIWP Addendum. The QAPP presents the project scope and goals, organization, objectives, sample handling procedures and specific QA/QC procedures for samples collected under the RIWP Addendum.

Furthermore, this QAPP identifies project responsibilities, prescribes guidance and specifications to make certain that:

- Samples are identified and controlled through sample tracking systems and chain-of-custody (COC) protocols
- Field and laboratory analytical results are valid and usable by adherence to established protocols and procedures
- Laboratory data are validated so they can be applied to developing a conceptual understanding of the nature and extent of contamination of soils and ground waters at the Williamsburg Works site
- All aspects of the investigation, from field to laboratory are documented to provide data that are technically sound and legally defensible

The requirements of this QAPP apply to all contractor activities as appropriate for their respective tasks.

This QAPP was prepared based upon guidance provided by the NYSDEC:

- *DER-10, Technical Guidance for Site Investigation and Remediation.* New York State Department of Environmental Conservation. May 2010.

2. Project Goals and Objectives

On behalf of National Grid, GEI prepared an RIWP Addendum to investigate the nature and extent of impacts at the Williamsburg Works site in the Williamsburg neighborhood of Brooklyn, New York (Site). This QAPP was prepared to provide quality assurance guidelines for sampling proposed at the Site. The Site was used to manufacture gas from 1850 until prior to 1941.

3. Project Organization and Responsibility

Qualified Environmental Professional (QEP) is responsible for the implementation of the scope of work, including the supervision of contractors, field activities, and the evaluation and interpretation of data. The Consultant will direct the sampling activities and coordinate submittal of samples to testing laboratories. The project organization and key personnel for the Consultant are listed below:

Program Manager: Jim Ash
Project Manager (PM): Melissa Felter
Field Team Leader: TBD
Quality Assurance Officer: Lorie MacKinnon
Corporate Health & Safety Officer: Steve Hawkins
Data Validator: Lorie MacKinnon
Data Manager: Jaimie Wargo

The primary responsibilities of each of these personnel are described in the following table.

Key Project Personnel and Responsibilities		
Position	**Consultant Personnel**	**Areas of Responsibilities**
Program Manager	Jim Ash	▪ Overall program oversight ▪ Project management ▪ Project schedule ▪ Client contact regarding project related issues ▪ Personnel and resource management ▪ Review of project submittals ▪ Budgeting
Project Manager (PM)	Melissa Felter	▪ Client contact regarding project related issues ▪ Coordination of contractors ▪ Technical development and implementation of Work Plan and Field Sampling Plan ▪ Personnel and resource management ▪ Preparation and review of project submittals ▪ Preparation of project submittals ▪ Budgeting
Field Team Leader	TBD	▪ Client contact regarding project related issues on day to day basis as part of field operations ▪ Coordination of contractors ▪ Implementation of Work Plan and Field Sampling Plan ▪ Personnel and resource management ▪ Preparation of project submittals
Quality Assurance	Lorie MacKinnon	▪ QA/QC for sampling and laboratory

Key Project Personnel and Responsibilities		
Position	**Consultant Personnel**	**Areas of Responsibilities**
Officer		performance
Data Validator	Lorie MacKinnon	▪ Perform data validation activities ▪ Prepare data usability summary reports ▪ Evaluate data with regards to quality objectives
Data Managers	Jaimie Wargo Julie Dicostanzo	▪ Manage raw data from the laboratory

A New York State Department of Health (NYSDOH) Environmental Laboratory approval Program (ELAP) approved laboratory will be utilized to perform standard analytical chemistry parameters for surface soils, subsurface soil, groundwater, and soil vapor samples including:

- Volatile Organic Compounds (VOCs) by EPA Method 8260C
- Semi volatile Organic Compounds (SVOCs) by EPA Method 8270D
- Alkylated Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270D SIM
- Target Analyte List (TAL) Metals including tin by EPA Method 6000/7000 series
- N-alkanes and Isoprenoids by EPA Method 8015D Modified
- Extractable Petroleum Hydrocarbon (EPH) by NJDEP EPH Method
- Per- and Polyfluoroalkyl Substances (PFAS) by LC-MS/MS using methodologies based on EPA Method 537
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082
- Pesticides by EPA Method 8081
- Herbicides by EPA Method 8151A
- Total Cyanide by EPA Method 9014 (groundwater only)
- Free Cyanide by EPA Method 9014 (soils only)
- Disposal Parameters (total metals, Toxicity Characteristic Leaching Procedure (TCLP) by EPA 1311, Resource Conservation Recovery Act (RCRA) 8 metals by EPA 6000/ 7000 series, TCLP pesticides EPA 8081A, TCLP herbicides by 8151A, TCLP VOC by EPA 8260B, TCLP SVOC by EPA 8270C, paint filter test, ignitability by EPA 1030 (soils)/EPA 1010 (water), corrosivity by EPA 9040 (water)/ 9045 (soils) , reactivity [cyanide by EPA 7.3.3.2 and sulfide by EPA 7.3.4.2] by , total petroleum hydrocarbons (TPH) by EPA 8015B/ 418.1, total PCBs by EPA 8082, flashpoint, total organic halides (TOX) EPA 450.1, and % solids)
- VOCs including Naphthalene by EPA Method TO-15

The NYSDOH ELAP's relevant certifications are summarized in the following table.

Table 1 provides a summary of soil analyses, Table 2 provides a summary of groundwater analyses, and Table 3 provides a summary of soil vapor and outdoor air analyses. Table 4 provides a summary of quality assurance samples, holding times and analysis for each media.

Drilling and test pit excavation contractors will be identified once the work plan is approved.

4. Quality Assurance Objectives

This section establishes the QA objectives for measurements that are critical to the project. The QA objectives are developed for relevant data quality indicators. These indicators include the method detection limit, reporting limit, precision, accuracy, completeness, representativeness, and comparability. The data quality objectives (DQOs) are based on project requirements and ensure: (1) that the data generated during the project are of known quality and (2) that the quality is acceptable to achieve the project's technical objectives provided in the Work Plan. All analytical data will be provided by the laboratory using the New York State ASP Category B deliverable format.

Quantitation Limits are laboratory-specific and reflect those values achievable by the laboratory performing the analyses. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy, precision, and completeness. The analytical methods to be used at this site will provide a level of data quality and can be used to evaluate potential impacts to soil and groundwater from the former Site operations, compared to NYSDEC Part 375 soil cleanup objectives and New York State Ambient Groundwater Standards, Criteria and Guidance values, and for purposes of risk assessment.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs. Specific procedures for sampling, chain of custody, laboratory instruments calibration, laboratory analysis, reporting of data, internal quality control, and corrective action are described in other sections of the QAPP.

The data quality indicators are presented in subsections 4.1 through 4.6. Procedures to assess the data quality indicators are given below in Section 13. Laboratory MDLs and PQLs for soils, groundwater, and soil vapor are located on Tables 5 through 7, respectively. Soil clean-up objectives and groundwater standards and guidance values are located on Tables 8 and 9.

4.1 Required Quantification Limit

The required quantification limit is the quantitative analytical level for individual analytes needed to make decisions relative to the objectives of the project. Quantitative limits may be expressed as the MDL or some quantitative level defined in terms relative to the program. It

should be noted that there is some ambiguity in the definitions and use of terms that define quantification limits. The MDL presented herein is a well-defined and accepted entity, although attainable only under ideal laboratory conditions.

Method Detection Limit: The MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. MDL is determined from analysis of a sample in a given matrix type containing the analyte.

Practical Quantitation Limit: The PQL [also referred to as the reporting limit (RL)] is the concentration in the sample that corresponds to the lowest concentration standard of the calibration curve.

Laboratory MDLs and PQLs for soils, groundwater, soil vapor and ambient air are located on Tables 5 through 7, respectively.

4.2 Accuracy

Accuracy is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of equipment being used (e.g., sample liners, drilling shoe, or stainless–steel sampling implements).

The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses, or %R of spiked compounds in matrix spikes (MSs), matrix spike duplicates (MSDs) and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. The laboratory accuracy will be evaluated in accordance with laboratory quality assurance plan and standard operating procedures located in Appendix A.

4.3 Precision

Precision is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. In environmental sampling, precision is the result of field sampling and analytical factors. Precision in the laboratory is easier to measure and control than precision in the field. Replicate laboratory analyses of the same sample provide information on analytical precision; replicate field samples provide data on overall measurement precision. The difference between the overall measurement precision and the analytical precision is attributed to sampling precision. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation. The difference between the overall measurement precision and the analytical precision is attributed to sampling precision.

Precision in the field is assessed through the collection and measurement of field duplicates. Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter, with the exception of the waste characterization parameters. Precision will be measured through the calculation of relative percent differences (RPDs) as described below in subsection 13.2. The resulting information will be used to assess sampling and analytical variability. Field duplicate RPDs must be less than 50% for soil samples and less than 30% for aqueous samples. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are <5x the quantitation limit, the criterion will be doubled. Duplicate samples are described in below in subsection 5.1.5. Table 4 summarizes the number of duplicates per media sampled.

Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic analyses, laboratory precision will be assessed through the analysis of MS/MSD samples and field duplicates. For the inorganic analyses, laboratory precision will be assessed through the analysis of matrix duplicate pairs and field duplicate pairs. MS/MSD samples or matrix duplicate pairs will be performed at a frequency of one per twenty primary samples per matrix. Duplicate samples are described in below in subsection 5.1.5. Table 4 summarizes the number of duplicates per media sampled.

4.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. "Normal conditions" are defined as the conditions expected if the sampling plan was implemented as planned. The objective for completeness is a sufficient amount of valid data to achieve a predetermined statistical level of confidence. Critical samples must be identified, and plans must be formulated to secure requisite valid data for these samples.

Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

To ensure that these percentages are met, materials for crucial parameters will be retained if re-sampling is required and strict adherence to holding times will be required.

4.5 Representativeness

Representativeness is a qualitative parameter that expresses the degree to which data accurately and precisely represents either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data.

Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the RIWP Addendum and FSP are followed and that proper sampling, sample handling, and sample preservation techniques are used.

Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample-holding times. These are provided in Table 4 and within Appendix A.

4.6 Comparability

Comparability is a qualitative parameter that expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the RIWP Addendum and FSP are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

Comparability is dependent on the use of recognized EPA or equivalent analytical methods and the reporting of data in standardized units. To facilitate data comparison, the data-reporting format as presented below will be used:

- Conventions (units reported as): for solids (weight/unit weight [i.e., mg/kg]); for liquids (weight/unit volume [i.e., mg/L]); for air (weight/unit volume [i.e., mg/m3]).
- Use common chemical name with corresponding chemical abstract system (CAS) code.
- Report all data for soils on a dry-weight basis.

5. Sampling Plan

Environmental sampling will include subsurface soil, groundwater, and waste characterization sampling. Subsurface soil borings and monitoring wells will be installed utilizing drilling methods presented in the FSP. Groundwater samples will be collected utilizing low-flow sampling methods, peristaltic pumps, bailers, whale pumps, or bladder pumps. Performing grab or composite sampling by appropriate hand-held sampling equipment will be the preferred method for waste characterization sampling. Analytical samples and analysis methods are described in the RIWP Addendum and sampling methods and procedures are described in the FSP.

5.1 Sample Type, Location, and Frequency

Samples required by the RIWP Addendum are described below.

5.1.1 Subsurface Borings Soil Sampling

Soil borings locations will be sampled utilizing drilling methods listed in the FSP. Soil borings may be completed as permanent monitoring wells. The actual number of subsurface soil samples and their location may be modified based upon subsurface utilities and property access. The number and location of samples will vary based upon access and subsurface obstructions. Soils will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Soil samples will be collected and submitted for laboratory analysis in general accordance with the RIWP Addendum and the FSP. Monitoring wells will be installed in accordance with the RIWP Addendum and FSP. A summary of subsurface soil samples and analysis are located in Table 1.

5.1.2 Test Pit Sampling

Test pits will be excavated using a backhoe or other excavation equipment. Soils will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Soil samples will be collected and submitted for laboratory analysis in general accordance with the RIWP Addendum and the FSP. A summary of subsurface soil samples and analysis are located in Table 1.

5.1.3 Groundwater Sampling

Monitoring wells will be gauged and sampled. Groundwater samples will be collected from monitoring wells screened across the water table or targeted intervals at the proposed sample locations. Groundwater samples will be collected and submitted for laboratory analysis in

general accordance with the FSP and RIWP Addendum. Water quality parameters including temperature, pH, turbidity, salinity, dissolved oxygen (DO), oxidation reduction potential (ORP), and specific conductance, will be collected prior to laboratory analysis in general accordance with the FSP. A summary of groundwater samples and analysis are located in Table 2.

5.1.4 Soil Vapor Sampling

Soil vapor sample points will be installed and samples will be collected in general accordance with the *New York State Department of Health's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York"*. For exterior soil vapor locations, the soil vapor samples will be collected from temporary soil vapor probes, which will be installed, to a depth of approximately five feet below grade. Soil vapor samples will be collected in certified clean SUMMA canisters and submitted for laboratory analysis in general accordance with the FSP and Work Plan. A summary of soil vapor samples and analysis are located on Table 3.

5.1.5 Ambient Air Samples

Ambient air samples will be used to assess the potential for soil vapor intrusion. The proposed location is shown on Plate 1 of the Work Plan. A summary of ambient air sample and analysis are located in Table 3.

The proposed ambient air sample will be collected from the approximate breathing height (approximately 3 to 5 feet aboveground) utilizing an individually certified 6-Liter SUMMA® canister with a laboratory-supplied flow controller that is calibrated to an 8-hour period. The regulator flow rate will not exceed 0.2 liters per minute. Each SUMMA® canister will be shipped to an approved-NYSDOH ELAP registered laboratory for analysis. The sample will be analyzed for VOCs and naphthalene by the modified EPA Method TO-15.

5.1.6 Investigation-Derived Waste Sample Collection

Waste classification sampling will be conducted for soil and liquid wastes. The purpose of characterizing a waste is for its proper off-site disposal. Composite samples will be collected from the on-site waste storage vessels (drums or roll-off) for parameters required by the approved disposal facility. Soil samples will be collected utilizing stainless steel sampling tools, shovel, or auger that had been decontaminated. Liquid samples will be collected utilizing disposable bailer, peristaltic pump, a pump with tubing, or other similar methods. These samples will be handled in general accordance with sample handling procedures presented in the FSP. Investigation derived waste samples will be analyzed for parameters listed in Section 3 or other analyses that are required by the National Grid-approved facility.

5.1.7 Field QC Sample Collection

Field QC samples are used to monitor the reproducibility and representativeness of field sampling activities. The field QC samples are handled transported and analyzed in the same manner as the associated field samples. Field QC samples will include equipment blanks, trip blanks, field duplicates and MS/MSDs. The quantity, field QC sample type and analysis is detailed in Table 4.

Equipment Blank Samples are used to monitor the adequacy of decontamination procedures and possible sources of contamination such as potential laboratory methodologies. Equipment blanks will consist of laboratory-supplied, distilled or de-ionized water and will be used to check for potential contamination of the equipment, which may cause sample contamination. Equipment blanks will be collected by routing the distilled water through decontaminated piece of sampling equipment or disposable sampling equipment into laboratory supplied bottles. Non-dedicated field equipment will be decontaminated as specified below in subsection 4.3. Equipment blanks will be submitted to the laboratory at a frequency of one per 20 samples per matrix per type of equipment being used per parameter. Equipment blanks will be submitted daily for PFAS analysis. Equipment blanks will not be completed for waste characterization sampling activities.

Trip Blank Samples will consist of analyte free water and will be prepared by the laboratory. (Trip blanks are used to assess the potential for VOC contamination of samples due to contaminant migration during sample shipment and storage. Trip blanks will be transported to the project location unopened, stored with the site characterization samples, and kept closed until analyzed by the laboratory. Trip blanks will be submitted to the laboratory at a frequency of one per cooler, which contains samples submitted for VOC analysis.

Field Duplicate Samples, also referred to as blind duplicate samples, are two samples that are submitted form the same interval using the same sample procedures. Field duplicates will be used to assess the sampling and analytical reproducibility. Both samples are collected utilizing the same methods and are submitted for the same laboratory analysis however different sample identification numbers are used. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters. Field duplicates will not be completed for waste characterization sampling activities.

MS/MSD Samples are two additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology. MS/MSDs will be submitted at a frequency of one per 20 investigative samples per matrix for organic and inorganic parameters. MS/MSDs will not be completed for waste characterization sampling activities.

Refer to Table 4 for a summary of QC sample preservation and container requirements.

5.2 Sample Preservation and Containerization

The analytical laboratory will supply the sample containers for the chemical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest United States EPA's Specifications and Guidance for Contaminant-Free Sample Containers. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to United States EPA specifications. The containers will be pre-preserved, where appropriate (Table 4).

5.3 Equipment Decontamination

All non-dedicated sampling equipment shall be cleaned between each use in the following manner:

- Wash/scrub with a biodegradable degreaser ("Simple Green") if there is oily residue on equipment surface
- Tap water rinse
- Wash and scrub with Alconox (or non-phosphate soap) and water mixture
- Tap water rinse
- All equipment used to collect samples for VOCs and SVOC analysis will then receive a methanol rinse followed by a de-ionized water rinse.
- All equipment used to collect samples for metals analysis will then receive a 10% nitric acid solution rinse followed by a de-ionized water rinse.
- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location, where appropriate.

The drilling and excavation equipment will be decontaminated in general accordance with methods described in the FSP.

Groundwater sampling pumps will be cleaned by washing and scrubbing with an Alconox/water solution, rinsing with tap water and irrigating with de-ionized water.

Decontamination fluids will be containerized into United States Department of Transportation (USDOT)/UN-approved 55-gallon drums or containment vessels and will be characterized and disposed of by National Grid at an approved disposal facility.

6. Documentation and COC

6.1 Sample Collection Documentation

6.1.1 Field Notes

Field notes documenting field activities will be maintained in a field notebook in general accordance with the FSP. Field logbooks will provide the means of recording the chronology of data collection activities performed during the investigation. The logbook will be a bound notebook with water-resistant pages. Logbook entries will be dated, legible, and contain accurate and inclusive documentation of the activity. Each page of the logbook will be signed in permanent ink and dated. No erasures or obliterations of field notes will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark, which is signed and dated by the sampler. The correction shall be written adjacent to the error.

Field logbooks will be reviewed at regular intervals by the field team leader, site manager and PM for completeness and representativeness. Logbooks will be supported by daily activity reports as described in the FSP.

6.1.2 COC Records

Sample custody is discussed in detail below in subsection 6.2. COC records are initiated by the samplers in the field. The field portion of the custody documentation should include:

- The project name
- Signature(s) of sampler (s) responsible for sample custody
- Sample ID number
- Date and time of collection
- Whether the sample is grab or composite
- Names of individuals involved in sampling
- Air bill or other shipping number (if applicable)

On a regular basis (daily or on such a basis that all holding times will be met), samples will be transferred to the custody of the respective laboratories, via third-party commercial carriers or via laboratory courier service. Sample packaging and shipping procedures, and

field COC procedures are described below in subsection 6.2.1 of this Plan. Sample receipt and log-in procedures at the laboratory are described below in subsection 6.2.2 of this Plan.

6.1.3 Sample Labeling

Each sample will be labeled with a pre-printed adhesive label using indelible ink. The label should include the date and time of collection, sampler's initials, tests to be performed, preservative (if applicable), and a unique identification. The following identification scheme will be used:

PRIMARY SAMPLES TYPES	QA/QC SAMPLE TYPES
SOIL SAMPLES	**FIELD BLANKS**
Test Pit-ID (SAMPLE DEPTH-FEET)	SAMPLE-ID – [DATE]
WW-TP-01 (0-0.2)	WW-FB-033107
Boring -ID (SAMPLE DEPTH-FEET)	**MATRIX SPIKE/DUP**
WW -SB-01 (10-15)	SAMPLE [ID] [DEPTH] [EITHER MS OR MSD]
GROUNDWATER SAMPLES	WW-TP-01 (2-4) MS/MSD
Monitoring Well-ID	WW-SB-01 (10-15) MS/MSD
WW-MW-01	WW-MW-01 (10-15) MS/MSD
SOIL VAPOR SAMPLES	**TRIP BLANKS**
Soil Vapor Point-ID	SAMPLE- ID [DATE]
WW -SV-01	WW-TB-063007
AMBIENT AIR SAMPLES	**BLIND DUPLICATES**
Outdoor Air	SAMPLE -ID[XX][DATE]
WW-OA-01	WW-SB-XX-063007
	WW-MW-XX-063007
	WW-SV-01-063007

This sample label contains the authoritative information for the sample. Inconsistencies with other documents will be settled in favor of the vial or container label unless otherwise corrected in writing from the field personnel collecting samples or the Data Manager and/or the Project QA Officer.

6.1.4 Sample Handling

Samples will be handled in general accordance with the FSP.

6.2 Sample Custody

The COC provides a record of the custody of any environmental field sample from the time of collection to the delivery to the laboratory. Custody is one of several factors that are necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and

authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files.
A sample is considered to be under a person's custody if:

- The item is in the actual possession of a person
- The item is in the view of the person after being in actual possession of the person
- The item was in the actual physical possession of the person but is locked up to prevent tampering
- The item is in a designated and identified secure area

6.2.1 Field Custody Procedures

Samples will be collected following the sampling procedures indicated in the Work Plan and the FSP. A summary of samples and collection methods are provided above in Section 5 of this QAPP. Documentation of sample collection is described above in subsection 6.1. Sample COC and packaging procedures are summarized below. These procedures will ensure that the samples will arrive at the laboratory with the COC intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.
- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of collection, and type of analysis. The sample numbering system is presented above in subsection 6.1.3.
- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions.
- Samples will be accompanied by a completed COC form. The sample numbers and locations will be listed on the COC form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, and to the laboratory facility.
- All shipments will be accompanied by the COC record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.
- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be secured with strapping tape and custody seals for shipment to the laboratory. The custody seals will be attached to the cooler and covered with clear plastic tape after being signed by field personnel.
- If the samples are sent by common carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not

required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian, and signature of the laboratory sample custodian on COC document as receiving the samples and signature of sampler as relinquishing samples.

6.2.2 Laboratory Custody Procedures

After accepting custody of the shipping containers, the laboratory will document the receipt of the shipping containers by signing the COC record. The laboratory will:

- Examine the shipping containers to verify that the custody tape is intact
- Examine all sample containers for damage
- Determine if the temperature required for the requested testing program has been maintained during shipment and document the temperature on the COC records
- Compare samples received against those listed on the COC
- Verify that sample holding times have not been exceeded
- Examine all shipping records for accuracy and completeness
- Determine sample pH (if applicable) and record on COC forms
- Sign and date the COC immediately (if shipment is accepted) and attach the air bill
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the laboratory project manager, who will be responsible for contacting the data manager
- Attach laboratory sample container labels with unique laboratory identification and test
- Place the samples in the proper laboratory storage.

Following receipt, samples will be logged in according to the following procedure:

- The samples will be entered into the laboratory tracking system. At a minimum, the following information will be entered: project name or identification, unique sample numbers (both client and internal laboratory), type of sample, required tests, date and time of laboratory receipt of samples, and field ID provided by field personnel.
- The completed COC, air bills, and any additional documentation will be placed in the final evidence file.

7. Calibration Procedure

7.1 Field Instruments

Field instruments will be calibrated according to the manufacturer's specifications. Air monitoring instruments will be calibrated to a known reference gas standard and ambient air outside the work zone. Calibration will be completed daily. If concentrations of VOCs are encountered above the reference gas standard, the soil screening photoionization detector (PIDs) may be calibrated or re-checked against the reference gas standard. Water quality meters will be calibrated with known reference solutions. All calibration procedures performed will be documented in the field logbook and will include the date/time of calibration, name of person performing the calibration, reference standard used, and the readings. The following equipment has been identified for use to implement sampling required by the RIWP Addendum.

Subsurface Soil Sampling Activities:

- RAE Systems MultiRAE Plus equipped with VOC (10.6 eV lamp), lower explosive limit (LEL), percent oxygen, hydrogen sulfide and hydrogen cyanide
- RAE Systems MiniRAE 2000 (PID) with 10.6 eV lamp
- Drager Chip Measurement System (CMS) and compound specific chips (including benzene, hydrogen sulfide, hydrogen cyanide, etc.)
- MIE pDR 1200 with cyclone and pump [particulate monitor]
- MSA LC Pump or SKC 224-PCXR4 [air pump for dust monitoring]
- BIOS Dry Cal DC Lite Primary Flow Meter Model ML [air pump calibration]

Groundwater Sampling Activities

- In-Situ Multi-Parameter Troll 9000
- YSI 6280 XLM water quality meter

Similar field equipment can be substituted that perform the same functions can be substituted if selected equipment is not available from equipment supplier.

7.2 Laboratory Instruments

Calibration procedures for a specific laboratory instrument will consist of initial calibrations, initial calibration verifications, and/or continuing calibration verification. Detailed descriptions of the calibration procedures for a specific laboratory instrument are included in

the laboratory's quality assurance plan, which describe the calibration procedures, their frequency, acceptance criteria, and the conditions that will require recalibration. These procedures are as required in the respective analytical methodologies summarized in Tables 1 through 3 of this QAPP.

8. Sample Preparation and Analytical Procedures

Analytical samples will be collected in general accordance with the FSP and as specified in the RIWP Addendum. Tables 1 through 3 provide a sample collection matrix that is separated by media. Analytical samples will be collected into laboratory-preserved sample containers and will be preserved as indicated in Table 4.

9. Data Reduction, Validation, and Reporting

Appropriate QC measures will be used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in this project. Complete data packages suitable for data validation to support the generation of a DUSR according to NYSDEC requirements will be provided by the analytical laboratory.

9.1 Field Data Evaluation

Measurements and sample collection information will be transcribed directly into the field logbook or onto standardized forms. If errors are made, results will be legibly crossed out, initialed and dated by the person recording the data, and corrected in a space adjacent to the original (erroneous) entry. Reviews of the field records by the field team leader, site manager, and PM will ensure that:

- Logbooks and standardized forms have been filled out completely and that the information recorded accurately reflects the activities that were performed.
- Records are legible and in accordance with good record keeping procedures, i.e., entries are signed and dated, data are not obliterated, changes are initialed, dated, and explained.
- Sample collection, handling, preservation, and storage procedures were conducted in accordance with the protocols described in the FSP and Work Plan, and that any deviations were documented and approved by the appropriate personnel.

9.2 Analytical Data Validation

The consultant will be responsible for performing an independent validation of the analytical data. Project-specific procedures will be used to validate analytical laboratory data. The basis for the validation will be the USEPA CLP National Functional Guidelines for Organic Data Review (February 2005) and the USEPA CLP National Functional Guidelines for Inorganic Data Review (October 2004), modified to accommodate the criteria in the analytical methods used in this program, and Region II Standard Operating Procedures (SOPs) for CLP Organic Data review (Revision 11, June 1996) and Evaluation of Metals for the CLP Program (Revision 11, February 1992). Critical functions for determining the validity of generated data are: (1) strict adherence to the analytical methods, (2) assurance that the instrumentation employed was operated in accordance with defined operating procedures, (3) assurance that quality parameters built into the analytical procedures have

been adhered to, and (4) confirmation that the DQOs have been met.

Table 4 highlights the QC criteria and holding time requirements for all analyses conducted under this program. These criteria will be used to evaluate and qualify the data during validation.

The consultant or qualified contracted personnel will validate analytical samples collected under the RIWP Addendum. Samples collected for waste classification will not be validated. Validation will include all technical holding times, as well as QC sample results (blanks, surrogate spikes, laboratory duplicates, MS/MSDs, and LCSs), tunes, internal standards, calibrations, target compound identification, and results calculations.

For all analyses, the laboratory will report results, which are below the laboratory's reporting limit; these results will be qualified as estimated (J) by the laboratory. The laboratory may be required to report TICs for the VOC and SVOC analyses; this will be requested by the consultant on an as-needed basis

The overall completeness of the data package will also be evaluated by the data validator. Completeness checks will be administered on all data to determine whether full data deliverables were provided. The reviewer will determine whether all required items are present and request copies of missing deliverables.

Upon completion of the validation, a report will be prepared. This report will summarize the samples reviewed, elements reviewed, any nonconformance with the established criteria, and validation actions. Data qualifiers will be consistent with EPA National Functional Guidelines. This report will be in a format consistent with NYSDEC's DUSR.

9.3 Analytical Data Validation

Laboratory deliverables will consist of an original hard copy data package that is in general accordance with NYSDEC ASP Category B data deliverable requirements.

10. Internal Quality Control

Laboratory and field quality internal control checks will be used to ensure the data quality objectives. At a minimum, this will include:

- Matrix spike and/or matrix spike duplicate samples
- Matrix duplicate analyses
- Laboratory control spike samples
- Instrument calibrations
- Instrument tunes for VOC 8260C and SVOC 8270D analyses
- Method and/or instrument blanks
- Surrogate spikes for organic analyses
- Internal standard spikes for VOC 8260C and SVOC 8270D analyses
- Detection limit determination and confirmation by analysis of low-level calibration standard

The laboratory quality plan for the selected ELAP is located in Appendix A.

Field quality control samples will include:

- Equipment blanks as outlined in Table 4
- Field duplicate samples as outlined in Table 4
- Trip blanks as outlined in Table 4
- MS/MSDs as outlined in Table 4

11. Performance and System Audits

Audits are an independent means of: 1) evaluating the operation or capability of a measurement system, and 2) documenting the use of QC procedures designed to generate data of know and acceptable quality.

Field audits may be completed to assess sample collection protocols, determine the integrity of COC procedures, and evaluate sample documentation and data handling procedures. Field audits may be scheduled by the QA officer, PM, site manager or in-house consultant, at their discretion. Written records of audits and any recommendations for corrective action will be submitted to the PM.

The QA officer is the interface between management and project activities in matters of project quality. The QA officer will review the implementation of the QAPP. Reviews will be conducted at the completion of field activities and will include the results of any audits and an evaluation of the data quality.

12. Preventative Maintenance

Preventative maintenance will be performed on field equipment in accordance with the manufacturer's recommendations. Preventative maintenance to field will be provided by the equipment vendor. The following equipment has been identified for use to implement the RIWP Addendum.

Subsurface Soil Sampling Activities:

- RAE Systems MultiRAE Plus equipped with VOC (10.6 eV lamp), LEL, percent oxygen, hydrogen sulfide and hydrogen cyanide
- RAE Systems MiniRAE 2000 PID with 10.6 eV lamp.
- RAE Systems VRAE Surveying Monitor with LEL, hydrogen cyanide, hydrogen sulfide, carbon monoxide, and percent oxygen.
- Drager CMS and compound specific chips.
- MIE pDR 1200 with cyclone and pump
- MSA LC Pump
- BIOS DCL-5k pump calibrator

Groundwater Sampling Activities

- In-Situ Troll 9000
- YSI 600 XLM

Similar equipment will be substituted that perform the same functions can be substituted if selected equipment is not available from equipment supplier.

Laboratory equipment calibration and maintenance procedures are specified in the ELAP laboratory quality manual located in Appendix A.

13. Specific Procedures to Assess Data Quality Indicators

QC analyses conducted as a part of the testing program will provide a quantitative quality assessment of the data generated and their adherence to the data quality indicators. The data quality indicators ensure that the quality assurance objectives for the project are met.

13.1 Detection Limits

13.1.1 Method Detection Limit

The MDL is defined as follows for all measurements:

MDL = (t[n-1,1-a=0.99]) x (s)

where: s = standard deviation of the replicate analysis,
t(n-1, 1-a=0.99) = student's t-value for a one-sided, 99 percent confidence level and a standard deviation estimate with n-1 degrees of freedom

The MDLs calculated by the laboratory are determined under ideal conditions. MDLs for environmental samples are dependent on the sample aliquot, the matrix, the concentration of analyte, and interference present in the matrix, the percent of moisture, dilution factor, etc. The MDL for each sample analysis will be adjusted accordingly.

13.1.2 *Reporting Limit*

The RL is the concentration of an analyte in the sample that corresponds to the lowest concentration standard of the calibration curve. As with the MDLs, the RLs are dependent on the sample aliquot, the final sample volume, the percent of moisture, dilution factor, etc.

The RL is determined as follows:

$$RL = \frac{Lowest\ conc.\ std\ (ng)}{Volume\ injected\ (uL)} \ x \ \frac{Sample\ aliquot\ (mL\ or\ g)}{Final\ volume\ (mL)} \ x\ DF\ x \frac{100}{(100 - \%M)}$$

where: DF = dilution factor, including all dilutions or lost samples not accounted for in a sample aliquot/final volume ratio
%M = percent moisture for solid samples.

13.2 Precision

Variability will be expressed in terms of the RPD when only two data points exist. The RPD is calculated as:

$$RPD = \frac{(Larger\ Value - Smaller\ Value)}{[(Larger\ Value + Smaller\ Value)/2]} \ x\ 100\%$$

For data sets greater than two points, the percent relative standard deviation (percent RSD) is used as the precision measurement. It is defined by the equation:

$$Percent\ RSD = \frac{Standard\ Deviation}{Mean} \ x\ 100\%$$

Standard deviation (SD) is calculated as follows:

$$SD = \sqrt{\sum_{i=1}^{n} \frac{(y_i - y)^2}{n - 1}}$$

where: SD = standard deviation
yi = measured value of the ith replicate
y = mean of replicate measurements
n = number of replicates

For measurements such as pH, where the absolute variation is more appropriate, precision is usually reported as the absolute range (D) of duplicate measurements:

D = | first measurement - second measurement |

or as the absolute standard deviation previously given. RPD, %RSD, and D are independent of the error of the analyses and reflect only the degree to which the measurements agree with each other, not the degree to which they agree with the true value for the parameter measured.

13.3 Accuracy

Accuracy is related to the bias in a measurement system. Accuracy describes the degree of agreement of a measurement with a true value. Accuracy will be expressed as percent recovery for each matrix spike analyte by using the following equation:

$$\% \ Recovery = \frac{Css - Cus}{Csa} \ X \ 100\%$$

where: Css = measured concentration in spiked sample
Cus = measured concentration in unspiked sample
Csa = known concentration added to the sample

Accuracy for a measurement such as pH is expressed as bias in the analysis of a standard reference sample according to the equation:

$$Bias = pH_m - pH_t$$

where: pH_m = measured pH
pH_t = the true pH of the standard reference sample

13.4 Completeness

Data completeness is a measure of the amount of usable data resulting from a measurement effort. For this program, completeness will be defined as the percentage of valid data obtained compared to the total number of measurements necessary to achieve our required statistical level of confidence for each test. The confidence level is based on the total number of samples proposed in the Work Plan.

Data completeness is calculated as:

$$Completeness = \frac{Number\ of\ valid\ data\ points}{Number\ of\ data\ points\ necessary\ for\ confidence\ level} x\ 100\%$$

The completeness goal is to generate a sufficient amount of valid data. It is anticipated that 95 percent of the data will be complete. Data validation criteria discussed in the work plan and Section 10 of this QAPP will be used to determine data completeness. Any data deficiencies and their effect on project goals will be evaluated in the DUSR.

13.5 Representativeness

Representativeness is a qualitative statement that expresses the extent to which the sample accurately and precisely represents the characteristics of interest of the study. Representativeness is primarily concerned with the proper design of the sampling program and is best ensured by proper selection of sampling locations and the taking of a sufficient number of samples. It is addressed by describing the sampling techniques, the matrices sampled, and the rationale for the selection of sampling locations, which are discussed in the field sampling plan and Work Plan

13.6 Comparability

Comparability is a qualitative parameter expressing the confidence that one set of data can be compared to another. Comparability is possible only when standardized sampling and analytical procedures are used.

14. Corrective Action

If unacceptable conditions are identified as a result of audits or are observed during field sampling and analysis, the PM, Field Team Leader, and QA officer will document the condition and initiate corrective procedures. The specific condition or problem will be identified, its cause will be determined, and appropriate action will be implemented.

The entire sampling program will be under the direction of the PM and QA officer. The emphasis in this program is on preventing problems by identifying potential errors, discrepancies, and gaps in the data collection, laboratory analysis, and interpretation process. Any problems identified will be promptly resolved. Likewise, follow-up corrective action is always an option in the event that preventative corrective actions are not effective.

The acceptance limits for the sampling and analyses to be conducted in this program will be those stated in the method or defined by other means in the RIWP Addendum and FSP. Corrective actions are likely to be immediate in nature and most often will be implemented by the contracted laboratory analyst or the PM. The corrective action will usually involve recalculation, reanalysis, or repeating a sample run.

14.1 Immediate Corrective Action

Corrective action in the field may be needed when the sample requirements are changed (i.e., more/less samples, sampling locations), or when sampling procedures and/or field analytical procedures require modification, etc. due to unexpected conditions. The field team may identify the need for corrective action. The Field Team Leader, Site Manager, and PM will approve the corrective action and notify the QA officer. The PM and QA officer will approve the corrective measure. The Field Team Leader and Site Manager will ensure that the corrective measure is implemented by the field team.

Corrective actions will be implemented and documented in the field record book. Documentation will include:

- A description of the circumstances that initiated the corrective action
- The action taken in response
- The final resolution
- Any necessary approvals

No staff member will initiate corrective action without prior communication of findings through the proper channels.

Corrective action in the laboratory will be completed in accordance with the quality assurance procedures located in the Appendix A. Any corrective actions completed by the laboratory will be documented in both the laboratory's corrective action files, and the narrative data report sent from the laboratory to the PM. If the corrective action does not rectify the situation, the laboratory will contact the PM, who will determine the action to be taken and inform the appropriate personnel.

If potential problems are not solved as an immediate corrective action, the contractor will apply formalized long-term corrective action if necessary.

Tables

Table 1. Soil Field Sampling Matrix
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

SAMPLE SELECTION PROTOCOL:
1. Shallow soils within observed impacts (0 to 5' bgs) and below recent fill;
2. Subsurface soils within heaviest observed impacts below 5 feet (if present);
3. Subsurface soils below deepest observed visual impacts.

IF NO IMPACTS ARE OBSERVED:
1. Shallow soils (0 to 5' bgs) and below recent fill;
2. Water table interface;
3. Completion depth of boring.

Sample I.D.	Sample Location	Sample Number			Sample Zone Depths					Analysis (Method[1])										
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below deepest observed visual impacts	Completion depth of boring	VOCs (8260C)	SVOCs (8270D)	TAL Metals (6000/7000)	Free Cyanide (9014)	Alkylated PAHs (8270D SIM)	N-alkanes and Isoprenoids (8015D)	EPH (NJDEP EPH)	PFAS (EPA 537)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
Subsurface Soils																				
WW-SB-200	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-201	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-202	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-203	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-204	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-205	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-206	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-207	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-208	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-209	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-210	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-211	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-212	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-213	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-214	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-215	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-216	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-217	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-218	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-219	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-220	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-221	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-222	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-223	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-224	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-225	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-226	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-227	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-228	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-229	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-230	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-231	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-232	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-233	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-234	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-235	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-236	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-237	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-238	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-239	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-240	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-241	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-242	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-243	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-244	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-245	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-246	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-247	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-248	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-249	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-250	N 12th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-251	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1

Table 1. Soil Field Sampling Matrix
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

SAMPLE SELECTION PROTOCOL:
1. Shallow soils within observed impacts (0 to 5' bgs) and below recent fill;
2. Subsurface soils within heaviest observed impacts below 5 feet (if present);
3. Subsurface soils below deepest observed visual impacts.

IF NO IMPACTS ARE OBSERVED:
1. Shallow soils (0 to 5' bgs) and below recent fill;
2. Water table interface;
3. Completion depth of boring.

Sample I.D.	Sample Location	Sample Number			Sample Zone Depths					Analysis (Method[1])										
		Number Samples Proposed	Number Samples Collected	Date Collected	0 to 5' bgs	Heaviest Impacted Zone below 5 feet (if Present)	Water Table Interface	Subsurface soils below deepest observed visual impacts	Completion depth of boring	VOCs (8260C)	SVOCs (8270D)	TAL Metals (6000/7000)	Free Cyanide (9014)	Alkylated PAHs (8270D SIM)	N-alkanes and Isoprenoids (8015D)	EPH (NJDEP EPH)	PFAS (EPA 537)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-SB-252	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-SB-253	N 11th Street	3								3	3	3	3	3	3	3	3	1	1	1
WW-MW-200	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-MW-201	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-MW-202	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-MW-203	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-MW-204	Lot 16	3								3	3	3	3	3	3	3	3	1	1	1
WW-MW-205	Lot 30	3								3	3	3	3	3	3	3	3	1	1	1
WW-TP-200	Lot 30	1								1	1	1	1	1	1	1	1	1	1	1
WW-TP-201	Lot 30	1								1	1	1	1	1	1	1	1	1	1	1
WW-TP-202	Lot 30	1								1	1	1	1	1	1	1	1	1	1	1
WW-TP-203	Lot 30	1								1	1	1	1	1	1	1	1	1	1	1

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
ASTM - American Society for Testing and Materials
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.

Table 2. Groundwater Field Sampling Matrix
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: Collect one groundwater sample at the water table or installed monitoring well depth.				Water Quality Measurements						Analysis (Method[1])										
		Sample Number			Sample Zone																	
		Number Samples Proposed	Number Samples Collected	Date Collected	Water Table	pH	Specific Conductance	Temperature	Oxidation Reduction Potential (ORP)	Turbidity	Dissolved Oxygen	VOCs (8260C)	SVOCs (8270D)	TAL Metals (6000/7000)	Total Cyanide (9014)	Alkylated PAHs (8270D SIM)	N-alkanes and Isoprenoids (8015D)	EPH (NJDEP EPH)	PFAS (EPA 537)	Herbicides (8151A)	PCBs (8082)	Pesticides (8081A)
WW-MW-200	Lot 16	1										1	1	1	1	1	1	1	1	1	1	1
WW-MW-201	Lot 30	1										1	1	1	1	1	1	1	1	1	1	1
WW-MW-202	Lot 30	1										1	1	1	1	1	1	1	1	1	1	1
WW-MW-203	Lot 30	1										1	1	1	1	1	1	1	1	1	1	1
WW-MW-204	Lot 16	1										1	1	1	1	1	1	1	1	1	1	1
WW-MW-205	Lot 30	1										1	1	1	1	1	1	1	1	1	1	1

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.

Table 3. Soil Vapor and Ambient Air Field Sampling Matrix
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Sample I.D.	Sample Location	**SAMPLE SELECTION PROTOCOL:** **1. Collect one soil vapor sample at the installed soil vapor point depth.** **2. Collect indoor air and outdoor air samples from the height of the breathing zone, approximately 3-5 feet above the ground surface.**			Analysis (Method)
		Sample Number			VOCs (expanded) (modified TO-15)
		Number Samples Proposed	Number Samples Collected	Date Collected	
WW-SV-200	Lot 16	1			X
WW-SV-201	Lot 16	1			X
WW-SV-202	Lot 16	1			X
WW-SV-203	Lot 16	1			X
WW-SV-204	Lot 30	1			X
WW-SV-205	Lot 30	1			X
WW-OA-01	Lot 16	1			X

Notes:
VOCs - volatile organic compounds

Table 4. Analytical Methods/Quality Assurance Summary Table
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Media	Number of Primary Samples	QA/QC Samples				Total Number of Samples	Analytical Parameters	Method	Preservative	Holding Time	Container
		TB	FB[2]	DUP	MS/MSD						
Subsurface Soil	184	40	10	10	10	239	VOCs	8260C	Cool to 4°C	14 days to analysis	3 Encore or Terracore samplers
	184	0	10	10	10	199	SVOCs	8270D	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	184	0	10	10	10	199	TAL Metals	6000/7000	Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	Wide mouth 8-oz. and 4oz. clear glass jars1
	184	0	10	10	10	199	Free Cyanide	9013A/ ASTM Method D4282-02	Cool to 4° C	14 days	Wide-mouth amber 8-oz.
	184	0	10	10	10	199	Alkylated PAHs	8270D SIM	Cool to 4° C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	184	0	10	10	10	199	N-alkanes and Isoprenoids	8015D	Cool to 4° C	TBD	TBD
	184	0	10	10	10	199	EPH	NJDEP EPH	Cool to 4° C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	184	0	60	10	10	264	PFAS	537	Cool to 6° C	14 days from collection	Wide mouth 8-oz. or 4oz. HDPE container
	64	0	4	4	4	108	Herbicides	8151A	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	64	0	4	4	4	108	PCBs	8082	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	64	0	4	4	4	108	Pesticides	8081A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
Groundwater	6	1	1	1	1	10	VOCs	8260C	pH<2 with HCl, Cool to 4°C	14 days to analysis	(2) 40 mL VOA vials
	6	0	1	1	1	9	SVOCs	8270D	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(2) 1 L amber glass jar
	6	0	1	1	1	6	TAL Metals	6000/7000	pH<2 with HNO_3; Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	(1) 500 mL polyethylene container
	6	0	1	1	1	6	Total Cyanide	9012	NaOH to pH>12/Cool to 4°C	14 days to analysis	(1) 500 mL polyethylene container
	6	0	1	1	1	9	Alkylated PAHs	8270D SIM	Cool to 4° C	7 days to extraction; 40 days from extraction to analysis	(2) 1 L amber glass jar
	6	0	1	1	1	9	N-alkanes and Isoprenoids	8015D	Cool to 4° C	TBD	TBD
	6	0	1	1	1	9	EPH	NJDEP EPH	Cool to 4° C	7 days to extraction; 40 days from extraction to analysis	TBD
	6	0	1	1	1	9	PFAS	537	Cool to 6°C	14 days from collection	250 mL HDPE bottle
	6	0	1	1	1	9	Herbicides	8151A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(1)-1 L amber glass jar
	6	0	1	1	1	9	PCBs	8082	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(1)-1 L amber glass jar
	6	0	1	1	1	9	Pesticides	8081A	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	1)-1 L amber glass jar
Soil Vapor	6	0	0	1	0	7	VOCs (including naphthalene)	TO-15	None	14 Days to analysis	2.7-Liter Summa Canister
Outdoor Air	1	0	0	0	0	1	VOCs (including naphthalene)	TO-15	None	14 Days to analysis	6-Liter Summa Canister

[1]: SVOC, TAL metals, herbicides, pesticides and PCBs will be collected from the (1)- 8 oz jar and the (1)- 4 oz jar
[2]: Soil field blanks will include bottles listed in groundwater section of the table.
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
PCBs - polychlorinated biphenyls
PAH - polycyclic aromatic hydrocarbons
TPH - total petroleum hydrocarbons
ASTM - American Society for Testing and Materials
°C- Degrees Celsius
L - Liter
oz. - ounce
mL - Milliliter
HNO3 - Nitric acid
HCl - Hydrochloric Acid
NAOH-Sodium Hydroxide

Table 5. Quantification Limits for Soils
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Metals by EPA Method 6000/7000 series			
Aluminum	258	20	mg/Kg
Antimony	11.7	1.14	mg/Kg
Arsenic	8	1.22	mg/Kg
Barium	2	0.18	mg/Kg
Beryllium	2	0.5	mg/Kg
Cadmium	3	1	mg/Kg
Calcium	85	11.6	mg/Kg
Chromium	3	0.34	mg/Kg
Cobalt	2	0.42	mg/Kg
Copper	5	0.8	mg/Kg
Iron	145	10.2	mg/Kg
Lead	9	0.76	mg/Kg
Magnesium	35	9.2	mg/Kg
Manganese	2.5	0.64	mg/Kg
Mercury	0.05	0.02	mg/Kg
Nickel	6.25	0.44	mg/Kg
Potassium	200	40	mg/Kg
Selenium	16	1.6	mg/Kg
Silver	3	0.32	mg/Kg
Sodium	94	20	mg/Kg
Thallium	20	4.17	mg/Kg
Vanadium	4	0.36	mg/Kg
Zinc	20	3.8	mg/Kg
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D			
1,2,4-Trichlorobenzene	333	55.96	ug/Kg
1,2-Dichlorobenzene	333	56.43	ug/Kg
1,2-Diphenylhydrazine	333	32.86	ug/Kg
1,3-Dichlorobenzene	333	50.49	ug/Kg
1,4-Dichlorobenzene	333	52.75	ug/Kg
2,2-oxybis (1-chloropropane)	333	47.18	ug/Kg
2,4,5-Trichlorophenol	1667	120.96	ug/Kg
2,4,6-Trichlorophenol	333	85.18	ug/Kg
2,4-Dichlorophenol	333	108.95	ug/Kg
2,4-Dimethylphenol	333	172.3	ug/Kg
2,4-Dinitrophenol	1667	114.87	ug/Kg
2,4-Dinitrotoluene	333	60.09	ug/Kg
2,6-Dinitrotoluene	333	60.57	ug/Kg
2-Chloronaphthalene	333	48.46	ug/Kg
2-Chlorophenol	333	86.27	ug/Kg
2-Methylnaphthalene	333	52.92	ug/Kg
2-Methylphenol	333	89.03	ug/Kg
2-Nitroaniline	1667	42.32	ug/Kg
2-Nitrophenol	333	115.71	ug/Kg
3,3-Dichlorobenzidine	667	88.96	ug/Kg
3-Nitroaniline	1667	68.54	ug/Kg
4,6-Dinitro-2-methylphenol	1667	239.28	ug/Kg
4-Bromophenyl phenyl ether	333	51.16	ug/Kg
4-Chloro-3-methylphenol	333	112.76	ug/Kg

Table 5. Quantification Limits for Soils
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D (Continued)			
4-Chloroaniline	333	107.34	ug/Kg
4-Chlorophenyl phenyl ether	333	45.74	ug/Kg
4-Methylphenol	333	179.39	ug/Kg
4-Nitroaniline	667	48.17	ug/Kg
4-Nitrophenol	1667	141.69	ug/Kg
Acenaphthene	333	55.32	ug/Kg
Acenaphthylene	333	40.59	ug/Kg
Aniline	333	73.83	ug/Kg
Anthracene	333	54.55	ug/Kg
Benzidine	3333	1134.9	ug/Kg
Benzo(a)anthracene	333	45.31	ug/Kg
Benzo(a)pyrene	333	41.16	ug/Kg
Benzo(b)fluoranthene	333	93.11	ug/Kg
Benzo(ghi)perylene	333	36.99	ug/Kg
Benzo(k)fluoranthene	333	37.12	ug/Kg
Benzoic acid	1667	90.33	ug/Kg
Benzyl alcohol	333	62.93	ug/Kg
Bis(2-chloroethoxy)methane	333	57.03	ug/Kg
Bis(2-chloroethyl)ether	333	44.86	ug/Kg
Bis(2-ethylhexyl)phthalate	333	44.37	ug/Kg
Butyl benzyl phthalate	333	43.04	ug/Kg
Carbazole	333	48.63	ug/Kg
Chrysene	333	41.6	ug/Kg
Dibenzo(a,h)anthracene	333	36.71	ug/Kg
Dibenzofuran	333	52.67	ug/Kg
Diethyl phthalate	333	48.88	ug/Kg
Dimethyl phthalate	333	51.27	ug/Kg
Di-n-butyl phthalate	333	43.98	ug/Kg
Di-n-octyl phthalate	333	34.97	ug/Kg
Fluoranthene	333	41.87	ug/Kg
Fluorene	333	43.39	ug/Kg
Hexachlorobenzene	333	48.52	ug/Kg
Hexachlorobutadiene	333	67.85	ug/Kg
Hexachlorocyclopentadiene	333	247.96	ug/Kg
Hexachloroethane	333	59.22	ug/Kg
Indeno(1,2,3-cd)pyrene	333	33.74	ug/Kg
Isophorone	333	60.02	ug/Kg
Naphthalene	333	56.66	ug/Kg
Nitrobenzene	333	40.4	ug/Kg
n-Nitrosodimethylamine	333	48.87	ug/Kg
n-Nitroso-di-n-propylamine	333	44.63	ug/Kg
n-Nitrosodiphenylamine	333	49.76	ug/Kg
Pentachlorophenol	1667	287.85	ug/Kg
Phenanthrene	333	38.58	ug/Kg
Phenol	333	96.98	ug/Kg
Pyrene	333	45.56	ug/Kg
Pyridine	667	39.9	ug/Kg

Table 5. Quantification Limits for Soils
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Volatile Organic Compounds (VOCs) by EPA Method 8260C			
1,1,1-Trichloroethane	5	0.84	ug/Kg
1,1,2,2-Tetrachloroethane	5	1.21	ug/Kg
1,1,2-Trichloroethane	5	1.04	ug/Kg
1,1-Dichloroethane	5	0.81	ug/Kg
1,1-Dichloroethene	5	1.09	ug/Kg
1,2,3-Trichloropropane	5	1.62	ug/Kg
1,2,4-Trichlorobenzene	5	0.61	ug/Kg
1,2-Dichloroethane	5	0.99	ug/Kg
1,2-Dichloropropane	5	1.06	ug/Kg
2-Butanone (MEK)	10	1.78	ug/Kg
2-Chloroethylvinylether	5	1.37	ug/Kg
2-Hexanone	10	2.53	ug/Kg
4-Methyl-2-pentanone (MIBK)	5	1.18	ug/Kg
Acetone	20	3.15	ug/Kg
Acrolein	20	3.1	ug/Kg
Acrylonitrile	5	1.19	ug/Kg
Benzene	5	0.86	ug/Kg
Bromodichloromethane	5	0.84	ug/Kg
Bromoform	5	0.99	ug/Kg
Bromomethane	5	0.82	ug/Kg
Carbon disulfide	5	0.61	ug/Kg
Carbon tetrachloride	5	0.78	ug/Kg
Chlorobenzene	5	0.79	ug/Kg
Chloroethane	5	1.89	ug/Kg
Chloroform	5	0.53	ug/Kg
Chloromethane	5	0.9	ug/Kg
cis-1,2-Dichloroethene	5	1.04	ug/Kg
cis-1,3-Dichloropropene	5	0.78	ug/Kg
Dibromochloromethane	5	0.41	ug/Kg
Dichlorodifluoromethane	5	1.25	ug/Kg
Ethylbenzene	5	0.79	ug/Kg
Isopropyl ether	5	0.44	ug/Kg
Methylene chloride	20	2.21	ug/Kg
Methyl-tert-butyl-ether (MTBE)	5	0.93	ug/Kg
Styrene	5	1.06	ug/Kg
tert-Butyl alcohol	20	4.69	ug/Kg
Tetrachloroethene	5	0.7	ug/Kg
Toluene	5	0.84	ug/Kg
trans-1,2-Dichloroethene	5	0.58	ug/Kg
trans-1,3-Dichloropropene	5	0.92	ug/Kg
Trichloroethene	5	0.68	ug/Kg
Trichlorofluoromethane	5	0.6	ug/Kg
Trichlorotrifluoroethane	5	0.63	ug/Kg
Vinyl acetate	10	2.7	ug/Kg
Vinyl chloride	5	0.87	ug/Kg
Xylenes (total)	5	1.96	ug/Kg

Table 5. Quantification Limits for Soils
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Free Cyanide by EPA Method 9016			
Cyanide	TBD	TBD	ug/Kg
PFAS Method 537			
Perfluorobutanesulfonic acid	0.200	0.00880	ug/Kg
Perfluorohexanesulfonic acid	0.200	0.0150	ug/Kg
Perfluoroheptanesulfonic acid	0.200	0.0150	ug/Kg
Perfluorooctanessulfonic acid	0.200	0.0670	ug/Kg
Perfluorodecanesulfonic acid	0.200	0.0190	ug/Kg
Perfluorobutanoic acid	0.500	0.190	ug/Kg
Perfluoropentanoic acid	0.200	0.0180	ug/Kg
Perfluorohexanoic acid	0.200	0.0240	ug/Kg
Perfluoroheptanoic acid	0.200	0.0230	ug/Kg
Perfluorooctanoic acid	0.200	0.0140	ug/Kg
Perfluorononanoic acid	0.200	0.0200	ug/Kg
Perfluorodecanoic acid	0.200	0.0210	ug/Kg
Perfluoroundecanoic acid	0.200	0.0240	ug/Kg
Perfluorododecanoic acid	0.200	0.0150	ug/Kg
Perfluorotridecanoic acid	0.200	0.0130	ug/Kg
Perfluorotetradecanoic acid	0.200	0.0190	ug/Kg
6:2 Fluorotelomer sulfonate	2.00	0.0220	ug/Kg
8:2 Fluorotelomer sulfonate	2.00	0.0290	ug/Kg
Perfluroroctanesulfonamide	0.200	0.00880	ug/Kg
N-methyl perfluorooctanesulfonamidoacetic acid	2.00	0.0340	ug/Kg
N-ethyl perfluorooctanesulfonamidoacetic acid	2.00	0.0300	ug/Kg

Notes:
mg/kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
TBD - To Be Determined
EPA - Environmental Protection Agency
ASTM - American Standard for Testing and Materials

Table 6. Quantification Limits for Groundwater
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Cyanide by EPA Method 9012			
Cyanide, Total	10	1	ug/L
Metals by EPA Method 6000/7000 series			
Aluminum	500	92	ug/L
Antimony	20	5.4	ug/L
Arsenic	40	3.9	ug/L
Barium	5	0.74	ug/L
Beryllium	5	0.54	ug/L
Cadmium	10	1.1	ug/L
Calcium	300	56	ug/L
Chromium	10	1.3	ug/L
Cobalt	10	1.8	ug/L
Copper	10	4.3	ug/L
Iron	100	54	ug/L
Lead	10	3	ug/L
Magnesium	100	26	ug/L
Manganese	15	6.9	ug/L
Mercury	0.4	0.07	ug/L
Nickel	10	1.9	ug/L
Potassium	400	191	ug/L
Selenium	30	5	ug/L
Silver	6	1.1	ug/L
Sodium	400	98	ug/L
Thallium	40	10	ug/L
Vanadium	6	1.5	ug/L
Zinc	50	11	ug/L
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D			
1,2,4-Trichlorobenzene	10	0.68	ug/L
1,2-Dichlorobenzene	10	0.74	ug/L
1,2-Diphenylhydrazine	10	0.84	ug/L
1,3-Dichlorobenzene	10	0.68	ug/L
1,4-Dichlorobenzene	10	0.46	ug/L
2,2-oxybis (1-chloropropane)	10	0.62	ug/L
2,4,5-Trichlorophenol	50	0.78	ug/L
2,4,6-Trichlorophenol	10	0.79	ug/L
2,4-Dichlorophenol	10	0.84	ug/L
2,4-Dimethylphenol	10	0.73	ug/L
2,4-Dinitrophenol	50	5.13	ug/L
2,4-Dinitrotoluene	10	0.8	ug/L
2,6-Dinitrotoluene	10	0.59	ug/L
2-Chloronaphthalene	10	0.73	ug/L
2-Chlorophenol	10	0.6	ug/L
2-Methylnaphthalene	10	0.64	ug/L
2-Methylphenol	10	0.59	ug/L
2-Nitroaniline	50	1.12	ug/L
2-Nitrophenol	10	0.75	ug/L
3,3-Dichlorobenzidine	10	0.98	ug/L

Table 6. Quantification Limits for Groundwater
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D (Continued)			
3-Nitroaniline	50	0.67	ug/L
4,6-Dinitro-2-methylphenol	50	4.24	ug/L
4-Bromophenyl phenyl ether	10	0.91	ug/L
4-Chloro-3-methylphenol	10	0.51	ug/L
4-Chloroaniline	10	0.43	ug/L
4-Chlorophenyl phenyl ether	10	0.82	ug/L
4-Methylphenol	10	0.33	ug/L
4-Nitroaniline	20	1.05	ug/L
4-Nitrophenol	50	1.85	ug/L
Acenaphthene	10	0.8	ug/L
Acenaphthylene	10	0.75	ug/L
Aniline	10	0.63	ug/L
Anthracene	10	0.99	ug/L
Benzidine	100	2.15	ug/L
Benzo(a)anthracene	10	1.19	ug/L
Benzo(a)pyrene	10	1.08	ug/L
Benzo(b)fluoranthene	10	1.54	ug/L
Benzo(ghi)perylene	10	1.04	ug/L
Benzo(k)fluoranthene	10	0.91	ug/L
Benzoic acid	50	5.88	ug/L
Benzyl alcohol	10	0.99	ug/L
Bis(2-chloroethoxy)methane	10	0.87	ug/L
Bis(2-chloroethyl)ether	10	0.87	ug/L
Bis(2-ethylhexyl)phthalate	10	1.31	ug/L
Butyl benzyl phthalate	10	0.96	ug/L
Carbazole	10	1.11	ug/L
Chrysene	10	0.97	ug/L
Dibenzo(a,h)anthracene	10	1.34	ug/L
Dibenzofuran	10	0.82	ug/L
Diethyl phthalate	10	0.82	ug/L
Dimethyl phthalate	10	0.63	ug/L
Di-n-butyl phthalate	10	1.14	ug/L
Di-n-octyl phthalate	10	1.3	ug/L
Fluoranthene	10	1.08	ug/L
Fluorene	10	0.77	ug/L
Hexachlorobenzene	10	1.07	ug/L
Hexachlorobutadiene	10	0.84	ug/L
Hexachlorocyclopentadiene	10	2.21	ug/L
Hexachloroethane	10	1.06	ug/L
Indeno(1,2,3-cd)pyrene	10	1.17	ug/L
Isophorone	10	0.66	ug/L
Naphthalene	10	0.66	ug/L
Nitrobenzene	10	0.79	ug/L
n-Nitroso-di-n-propylamine	10	0.7	ug/L
n-Nitrosodiphenylamine	10	1.08	ug/L
n-Nitrosomethylethylamine	10	0.5	ug/L

Table 6. Quantification Limits for Groundwater
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D (Continued)			
Pentachlorophenol	50	5.04	ug/L
Phenanthrene	10	0.66	ug/L
Phenol	10	0.35	ug/L
Pyrene	10	1.01	ug/L
Pyridine	20	2.31	ug/L
Volatile Organic Compounds (VOCs) by EPA Method 8260C (continued)			
1,1,1-Trichloroethane	5	0.4	ug/L
1,1,2,2-Tetrachloroethane	5	0.4	ug/L
1,1,2-Trichloroethane	5	0.6	ug/L
1,1-Dichloroethane	5	0.6	ug/L
1,1-Dichloroethene	5	0.7	ug/L
1,2,3-Trichloropropane	5	1.1	ug/L
1,2,4-Trichlorobenzene	5	0.9	ug/L
1,2-Dichloroethane	5	0.6	ug/L
1,2-Dichloropropane	5	0.9	ug/L
1,3-Dichloropropane	5	0.4	ug/L
2-Butanone (MEK)	5	1.2	ug/L
2-Chloroethylvinylether	5	0.6	ug/L
2-Hexanone	5	0.8	ug/L
4-Methyl-2-pentanone (MIBK)	5	0.7	ug/L
Acetone	5	1.4	ug/L
Acrolein	10	7.8	ug/L
Acrylonitrile	5	1.6	ug/L
Benzene	5	0.4	ug/L
Bromodichloromethane	5	0.4	ug/L
Bromoform	5	0.8	ug/L
Bromomethane	5	1.2	ug/L
Carbon disulfide	5	0.9	ug/L
Carbon tetrachloride	5	1	ug/L
Chlorobenzene	5	0.4	ug/L
Chloroethane	5	0.8	ug/L
Chloroform	5	0.7	ug/L
Chloromethane	5	0.5	ug/L
cis-1,2-Dichloroethene	5	0.6	ug/L
cis-1,3-Dichloropropene	5	0.5	ug/L
Dibromochloromethane	5	0.5	ug/L
Dichlorodifluoromethane	5	0.6	ug/L
Ethylbenzene	5	1	ug/L
Isopropyl ether	5	N/A	ug/L
Methylene chloride	5	0.4	ug/L
Methyl-tert-butyl-ether (MTBE)	5	0.3	ug/L
Styrene	5	0.5	ug/L
Tetrachloroethene	5	0.5	ug/L
Toluene	5	0.3	ug/L
trans-1,2-Dichloroethene	5	0.5	ug/L
trans-1,3-Dichloropropene	5	0.3	ug/L

Table 6. Quantification Limits for Groundwater
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Volatile Organic Compounds (VOCs) by EPA Method 8260C (continued)			
Trichloroethene	5	0.7	ug/L
Trichlorofluoromethane	5	0.6	ug/L
Trichlorotrifluoroethane	5	0.5	ug/L
Vinyl acetate	5	0.2	ug/L
Vinyl chloride	5	0.8	ug/L
Xylenes (total)	5	1	ug/L
PFAS Method 537			
Perfluorobutanesulfonic acid	2.00	0.630	ng/L
Perfluorohexanesulfonic acid	2.00	0.670	ng/L
Perfluoroheptanesulfonic acid	2.00	0.390	ng/L
Perfluorooctanessulfonic acid	2.00	0.870	ng/L
Perfluorodecanesulfonic acid	2.00	0.480	ng/L
Perfluorobutanoic acid	5.00	1.13	ng/L
Perfluoropentanoic acid	2.00	1.08	ng/L
Perfluorohexanoic acid	2.00	0.830	ng/L
Perfluoroheptanoic acid	2.00	0.460	ng/L
Perfluorooctanoic acid	2.00	0.980	ng/L
Perfluorononanoic acid	2.00	0.580	ng/L
Perfluorodecanoic acid	2.00	0.460	ng/L
Perfluoroundecanoic acid	2.00	0.730	ng/L
Perfluorododecanoic acid	2.00	0.460	ng/L
Perfluorotridecanoic acid	2.00	0.430	ng/L
Perfluorotetradecanoic acid	2.00	0.590	ng/L
6:2 Fluorotelomer sulfonate	5.00	0.720	ng/L
8:2 Fluorotelomer sulfonate	2.00	0.660	ng/L
Perfluroroctanesulfonamide	2.00	0.570	ng/L
N-methyl perfluorooctanesulfonamidoacetic acid	5.00	0.790	ng/L
N-ethyl perfluorooctanesulfonamidoacetic acid	5.00	0.930	ng/L

Notes:
ug/L - micrograms per liter
ng/L - nanograms per liter
EPA - Environmental Protection Agency

Table 7. Quantification Limits for Soil Vapor and Ambient Air
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Analyte	CAS Number	Molecular Weight	Reporting Limit (ppbv)	Reporting Limit (µg/m3)
NYSDEC DER TO-15 TCL				
Benzene	71-43-2	78.11	0.20	0.64
Benzyl chloride	100-44-7	140.57	0.40	2.3
Bromodichloromethane	75-27-4	163.83	0.20	1.3
Bromoform	75-25-2	252.75	0.20	2.1
Bromomethane (Methyl bromide)	74-83-9	94.95	0.20	0.78
2-Butanone (Methyl ethyl ketone)	78-93-3	72.11	1.0	2.9
Carbon Tetrachloride	56-23-5	153.84	0.20	1.3
Chlorobenzene	108-90-7	112.56	0.20	0.92
Chloroethane	75-00-3	64.52	0.20	0.53
Chloroform	67-66-3	119.39	0.20	0.98
Chloromethane (Methyl chloride)	74-87-3	50.49	0.50	1
Cyclohexane	110-82-7	84.16	0.50	1.7
Dibromochloromethane	124-48-1	208.29	0.20	1.7
1,2-Dibromoethane	106-93-4	187.88	0.20	1.5
1,2-Dichlorobenzene	95-50-1	147.01	0.20	1.2
1,3-Dichlorobenzene	541-73-1	147.01	0.20	1.2
1,4-Dichlorobenzene	106-46-7	147.01	0.20	1.2
Dichlorodifluoromethane (Freon 12)	75-71-8	120.92	0.20	0.99
1,1-Dichloroethane	75-34-3	98.97	0.20	0.81
1,2-Dichloroethane	107-06-2	98.96	0.20	0.81
1,1-Dichloroethene	75-35-4	96.95	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2	96.95	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5	96.95	0.20	0.79
1,2-Dichloropropane	78-87-5	112.99	0.20	0.92
cis-1,3-Dichloropropene	10061-01-5	110.98	0.20	0.91
trans-1,3-Dichloropropene	10061-02-6	110.98	0.20	0.91
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	170.93	0.20	1.4
1,4-Dioxane	123-91-1	88.11	0.50	1.8
Ethanol *	64-17-5	46.07	0.20	0.38
Ethylbenzene	100-41-4	106.16	0.20	0.87
Hexachlorobutadiene	87-68-3	260.76	1.0	10.7
n-Hexane	110-54-3	86.18	0.50	1.8
Methylene Chloride	75-09-2	84.94	0.50	1.7
4-Methyl-2-pentanone (MIBK)	108-10-1	100.16	0.50	2
MTBE (Methyl tert-butyl ether)	1634-04-4	88.15	1.0	3.6
Styrene	100-42-5	104.14	0.20	0.85
Tertiary Butyl Alcohol (TBA)	76-65-0	74.12	2.00	6.1
1,1,2,2-Tetrachloroethane	79-34-5	167.86	0.20	1.4
Tetrachloroethene (PCE)	127-18-4	165.85	0.20	1.4
Toluene	108-88-3	92.13	0.20	0.75

Table 7. Quantification Limits for Soil Vapor and Ambient Air
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Analyte	CAS Number	Molecular Weight	Reporting Limit (ppbv)	Reporting Limit (µg/m3)
1,2,4-Trichlorobenzene	120-82-1	181.46	1.0	7.4
1,1,1-Trichloroethane	71-55-6	133.42	0.20	1.1
1,1,2-Trichloroethane	79-00-5	133.42	0.20	1.1
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	187.38	0.20	1.5
Trichloroethene (TCE)	79-01-6	131.4	0.20	1.1
Trichlorofluoromethane (Freon 11)	75-69-4	137.38	0.20	1.1
1,2,4-Trimethylbenzene	95-63-6	120.19	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8	120.19	0.20	0.98
2,2,4-Trimethylpentane	540-84-1	114.23	0.50	2.3
Vinyl Chloride	75-01-4	62.5	0.20	0.51

Notes:
a. Actual reporting limits of field samples may be higher due to sample dilution by the laboratory to quantify compounds at elevated concentrations. (see note b)
b. The laboratory must notify KeySpan prior to sample dilution.
c. ppbv = part per billion by volume
d. ug/m 3 = microgram per cubic meter

Table 8. Soil Cleanup Objectives
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Volatile Organic Compounds							
Acetone	0.05	100	100	500	1,000	0.05	2.2
Benzene	0.06	2.9	4.8	44	89	0.06	70
Butanone, 2-	0.12	100	100	500	1,000	0.12	100
Butylbenzene, n-	12	100	100	500	1,000	12	NE
Butylbenzene, tert-	5.9	100	100	500	1,000	5.9	NE
Butylbenzene,sec-	11	100	100	500	1,000	11	NE
Carbon tetrachloride	0.76	1.4	2.4	22	44	0.76	NE
Chlorobenzene	1.1	100	100	500	1,000	1.1	40
Chloroform	0.37	10	49	350	700	0.37	12
Dichlorobenzene,1,2-	1.1	100	100	500	1,000	1.1	NE
Dichlorobenzene,1,3-	2.4	17	49	280	560	2.4	NE
Dichlorobenzene,1,4-	1.8	9.8	13	130	250	1.8	20
Dichloroethane,1,1-	0.27	19	26	240	480	0.27	NE
Dichloroethane,1,2-	0.02	2.3	3.1	30	60	0.02	10
Dichloroethene, cis-1,2-	0.25	59	100	500	1,000	0.25	NE
Dichloroethene,1,1-	0.33	100	100	500	1,000	0.33	NE
Dioxane,1,4-	0.1	9.8	13	130	250	0.1	0.1
Ethylbenzene	1	30	41	390	780	1	NE
Methyl tert-butyl ether	0.93	62	100	500	1,000	0.93	NE
Methylene chloride	0.05	51	100	500	1,000	0.05	12
Naphthalene	12	100	100	500	1,000	12	NE
Propylbenzene, n-	3.9	100	100	500	1,000	3.9	NE
Tetrachloroethene	1.3	5.5	19	150	300	1.3	2
Toluene	0.7	100	100	500	1,000	0.7	36
Trans-1,2-dichloroethene	0.19	100	100	500	1,000	0.19	NE
Trichloroethane, 1,1,1-	0.68	100	100	500	1,000	0.68	NE
Trichloroethene	0.47	10	21	200	400	0.47	2
Trimethylbenzene, 1,2,4-	3.6	47	52	190	380	3.6	NE
Trimethylbenzene, 1,3,5-	8.4	47	52	190	380	8.4	NE
Vinyl chloride	0.02	0.21	0.9	13	27	0.02	NE
Xylene, total	0.26	100	100	500	1,000	1.6	0.26

Table 8. Soil Cleanup Objectives
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Semivolatile Organic Compounds							
Acenaphthene	20	100	100	500	1,000	98	20
Acenaphthylene	100	100	100	500	1,000	107	NE
Anthracene	100	100	100	500	1,000	1,000	NE
Benz[a]anthracene	1	1	1	5.6	11	1	NE
Benzo[a]pyrene	1	1	1	1	1.1	22	2.6
Benzo[b]fluoranthene	1	1	1	5.6	11	1.7	NE
Benzo[g,h,i]perylene	100	100	100	500	1,000	1,000	NE
Benzo[k]fluoranthene	0.8	1	3.9	56	110	1.7	NE
Chrysene	1	1	3.9	56	110	1	NE
Dibenz[a,h]anthracene	0.33	0.33	0.33	0.56	1.1	1,000	NE
Dibenzofuran	7	14	59	350	1,000	210	NE
Fluoranthene	100	100	100	500	1,000	1,000	NE
Fluorene	30	100	100	500	1,000	386	30
Hexachlorobenzene	0.33	0.33	1.2	6	12	3.2	NE
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.5	5.6	11	8.2	NE
Methylphenol, 4-	0.33	34	100	500	1,000	0.33	NE
Cresol, m (methylphenol, 3-)	0.33	100	100	500	1,000	0.33	NE
Methylphenol,2-	0.33	100	100	500	1,000	0.33	NE
Pentachlorophenol	0.8	2.4	6.7	6.7	55	0.8	0.8
Phenanthrene	100	100	100	500	1,000	1,000	NE
Phenol	0.33	100	100	500	1,000	0.33	30
Pyrene	100	100	100	500	1,000	1,000	NE
Pesticides							
Aldrin	0.005	0.019	0.097	0.68	1.4	0.19	0.14
Alpha-bhc	0.02	0.097	0.48	3.4	6.8	0.02	0.04
Alpha-chlordane	0.094	0.91	4.2	24	47	2.9	1.3
Beta-BHC	0.036	0.072	0.36	3	14	0.09	0.6
DDD,4,4-	0.0033	2.6	13	92	180	14	0.0033
DDE,4,4-	0.0033	1.8	8.9	62	120	17	0.0033
DDT,4,4-	0.0033	1.7	7.9	47	94	136	0.0033
Delta-BHC	0.04	100	100	500	1,000	0.25	0.04
Dieldrin	0.005	0.039	0.2	1.4	2.8	0.1	0.006
Endosulfan I	2.4	4.8	24	200	920	102	NE
Endosulfan II	2.4	4.8	24	200	920	102	NE
Endosulfan sulfate	2.4	4.8	24	200	920	1,000	NE

Table 8. Soil Cleanup Objectives
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Endrin	0.014	2.2	11	89	410	0.06	0.014
Gamma-BHC	0.1	0.28	1.3	9.2	23	0.1	6
Heptachlor	0.042	0.42	2.1	15	29	0.38	0.14
Silvex	3.8	58	100	500	1,000	3.8	NE
Polychlorinated Biphenyls (PCBs)							
Total PCBs	0.1	1	1	1	25	3.2	1
Metals							
Arsenic	13	16	16	16	16	16	13
Barium	350	350	400	400	10,000	820	433
Beryllium	7.2	14	72	590	2700	47	10
Cadmium	2.5	2.5	4.3	9.3	60	7.5	4
Chromium (VI)	1	22	110	400	800	19	1
Chromium (III)	30	36	180	1500	6800		41
Copper	50	270	270	270	10,000	1720	50
Lead	63	400	400	1000	3900	450	63
Manganese	1600	2000	2,000	10,000	10,000	2,000	1600
Mercury	0.18	0.81	0.81	2.8	5.7	0.73	0.18
Nickel	30	140	310	310	10,000	130	30
Selenium	3.9	36	180	1500	6800	4	3.9
Silver	2	36	180	1500	6800	8.3	2
Zinc	109	2200	10,000	10,000	10,000	2480	109
Cyanide							
Cyanide, Total	27	27	27	27	10,000	40	NE
PFAS (ppb)							
PFOA	0.66	6.6	33	500	600	1.1	NE
PFOS	0.88	8.8	44	440	440	3.7	NE

Notes:
ppm - parts per million
ppb - parts per billion

Table 9. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Parameter	DQL[1]
Volatile Organic Compounds (ug/L)	
Acetone	50
Benzene	1
2-Butanone	50
Carbon Disulfide	NE
Carbon Tetrachloride	5
Chlorobenzene+A1	5
Chloroethane	5
Chloroform	7
Dibromochloromethane	50
1,2-Dichlorobenzene	3
1,3-Dichlorobenzene	3
1,4-Dichlorobenzene	3
1,1-Dichloroethane	5
1,2-Dichloroethane	**0.6**
1,1-Dichloroethene	5
trans-1,2-Dichloroethene	5
1,3-Dichloropropane	5
Ethylbenzene	5
Freon 113	5
Methylene chloride	5
4-Methyl-2-pentanone	503
Tetrachloroethene	5
1,1,1-Trichloroethane	5
1,1,2,2-Tetrachloroethane	5
1,2,3-Trichloropropane	**0.04**
1,2,4-Trichlorobenzene	5
Toluene	5
Trichloroethene	5
Vinyl chloride	2
Xylenes	5
Isopropylbenzene	5
n-Propylbenzene	5
p-Isopropyltoluene	5
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
n-Butylbenzene	5
sec-Butylbenzene	5
t-Butylbenzene	5
MTBE	10

Table 9. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Parameter	DQL[1]
Pesticides	
Aldrin	ND
alpha-BHC	**0.01**
beta-BHC	0.04
delta-BHC	0.04
Chlordane	**0.05**
4,4'-DDD	0.3
4,4'-DDE	0.2
4,4'-DDT	0.2
Dieldrin	**0.004**
Endosulfan I	NE
Endosulfan II	NE
Endosulfan sulfate	NE
Endrin	ND
Endrin ketone	5
gamma-BHC (Lindane)	0.05
gamma-Chlordane	NE
Heptachlor	0.04
Heptachlor epoxide	0.03
Methoxychlor	35
2,4'-DDD	NE
Aniline	5
Semivolatile Organic Compounds (ug/L)	
Acenaphthene	20
Acenaphthylene	NS
Anthracene	50
Benzo(a)anthracene	**0.002**
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	**0.002**
Benzo(g,h,i)perylene	NE
Benzo(k)fluoranthene	**0.002**
Bis(2-ethylhexyl)phthalate	5
Butylbenzylphthalate	50
Chrysene	**0.002**
4-Chloroaniline	5
4-Chloro-3-methylphenol	**1**
2-Chlorophenol	**1**
Dibenzofuran	NE
Dibenz(a,h)anthracene	NE
3,3'-Dichlorobenzidine	5
2,4-Dichlorophenol	5
2,4-Dinitrophenol	**10**
2,6-Dinitrotoluene	5

Table 9. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Parameter	DQL[1]
Diethylphthalate	50
Dimethylphthalate	50
Di-n-butylphthalate	50
Di-n-octylphthalate	50
Fluoranthene	50
Fluorene	50
Hexachlorobenzene	**0.04**
Indeno(1,2,3-cd)pyrene	**0.002**
Isophorone	50
2-Methylnaphthalene	NE
2-Methylphenol	**1**
4-Methylphenol	**1**
Naphthalene	10
Nitrobenzene	**0.4**
2-Nitroaniline	5
2-Nitrophenol	**1**
4-Nitrophenol	**1**
3-Nitroaniline	5
Pentachlorophenol	**1**
Phenanthrene	50
Phenol	**1**
Pyrene	50
2,4,5-Trichlorophenol	**1**
Total Metals (ug/L)	
Aluminum	NE
Antimony	**3**
Arsenic	25
Barium	1000
Beryllium	3
Cadmium	5
Calcium	NE
Chromium	50
Cobalt	NE
Copper	200
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Mercury	0.7
Nickel	100
Potassium	NE
Selenium	10
Silver	50

Table 9. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Parameter	DQL[1]
Sodium	20,000
Thallium	**0.5**
Vanadium	NE
Zinc	2000
Polychlorinated Biphenyls (PCBs)	
Aroclor 1016	**0.09**
Aroclor 1221	**0.09**
Aroclor 1232	**0.09**
Aroclor 1242	**0.09**
Aroclor 1248	**0.09**
Aroclor 1254	**0.09**
Aroclor 1260	**0.09**
Cyanide (ug/L)	
Cyanide	200
PFAS (ng/L)	
Perfluorobutanesulfonic acid	100
Perfluorohexanesulfonic acid	100
Perfluoroheptanesulfonic acid	100
Perfluorooctanessulfonic acid	10
Perfluorodecanesulfonic acid	100
Perfluorobutanoic acid	100
Perfluoropentanoic acid	100
Perfluorohexanoic acid	100
Perfluoroheptanoic acid	100
Perfluorooctanoic acid	10
Perfluorononanoic acid	100
Perfluorodecanoic acid	100
Perfluoroundecanoic acid	100
Perfluorododecanoic acid	100
Perfluorotridecanoic acid	100
Perfluorotetradecanoic acid	100
6:2 Fluorotelomer sulfonate	100
8:2 Fluorotelomer sulfonate	100
Perfluroroctanesulfonamide	100
N-methyl perfluorooctanesulfonamidoacetic acid	100
N-ethyl perfluorooctanesulfonamidoacetic acid	100
Total PFAS	500

[1] DQL based on TOGS Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June, 1998)
[2] DQL listed is for total PCBs
DQL = Data Quality Level
NE = None established
ND = Not detected when analyzed by method listed in Table 7
Compounds which will not achieve the DQL are highlighted

Appendix A

Laboratory Quality Manual

QUALITY MANUAL

of

ESS LABORATORY
Division of Thielsch Engineering, Inc.

185 Frances Ave.
Cranston, RI 02910

QA Telephone: 401-461-7181x3060

Website: www.esslaboratory.com

Name	Function (Unit)	Signatures	Date
Laurel Stoddard	Laboratory Director		2/20/19
Sharyn Lawler	Quality Manager		2/14/2019
Eric Baanante	Operations Manager		2/22/2019
Eric Baanante	Technical Manager		2/22/2019

Revision Number:	**13**	**Effective Date:**	**Jan 1st 2014**
Revision Number:	**14**	**Effective Date:**	**Jan 1st 2015**
Revision Number:	**15**	**Effective Date:**	**Jan 1st 2016**
Revision Number:	**16**	**Effective Date:**	**Jan 1st 2017**
Revision Number:	**16-1***	**Effective Date:**	**Dec 19th 2017**
Revision Number:	**16-1****	**Effective Date:**	**July 1st 2018**
Revision Number:	**16-1*****	**Effective Date:**	**Oct 23rd 2018**
Revision Number:	**17**	**Effective Date:**	**March 1st 2019**

*Sections 6-2, 26-2; Appendices A, C, D; and Figure 26-2 updated to reflect current practice.
**Sections 16.1, 24.4 and 28; Appendices A, D updated to reflect current practice.
*** Section 23 updated to reflect current practice.

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Section 3

INTRODUCTION AND SCOPE
(TNI V1:M2 – Sections 1, 2, 3)

The purpose of this *Quality Manual* is to describe the management system for ESS LABORATORY. The *Quality Manual* defines the policies, procedures, and documentation that assure analytical services continually meet a defined standard of quality that is designed to provide clients with data of known and documented quality and, where applicable, demonstrate regulatory compliance.

The *Quality Manual* sets the standard under which all laboratory operations are performed, including the laboratory's organization, objectives, and operating philosophy. The *Quality Manual* has been prepared to assure compliance with the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 **–** Management and Technical Requirements for Laboratories Performing Environmental Analysis (EL-V1-M1 through M7-ISO-2009-Rev.0.2). This Standard is consistent with ISO/IEC 17025:2005 requirements that are relevant to the scope of environmental testing services and thus, the laboratory operates a quality system in conformance with ISO/IEC 17025:2005(E). In addition, the policies and procedures outlined are compliant with the requirements of other State and Federal accreditation and certification programs, as listed in Appendix D.

The *Quality Manual* is available to regulatory bodies and their representatives, in English.

3.1 Scope of Testing

The laboratory's scope of analytical testing services includes those listed in Appendix D.

3.2 Table of Contents, References and Appendices

The Table of Contents is in Section 2 and Appendices are in Section 29.

This *Quality Manual* uses the references included in Modules 1, 2 and 4 of the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 – Management and Technical Requirements for Laboratories Performing Environmental Analysis; the International Standard ISO/IEC 17025:2005(E), Clause 2; USEPA SW-846 On-line; US Title 40 CFR, Parts 136, 141, 142, 143; Massachusetts 310 CMR 42.00; APHA/AWWA/WEF Standard Methods 20th and 22nd Editions; pertinent ASTM Methods, and various other references, as listed in ESS LABORATORY SOPs.

3.3 Glossary and Acronyms Used

Quality control terms are generally defined within the Section that describes the activity.

3.3.1 Glossary

The **Terms and Definitions** used by ESS Laboratory may be found in the references listed below.

3.3.1.1 **The TNI Standard:** Modules 1-7 in the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 – Management and Technical Requirements for Laboratories Performing Environmental Analysis (EL-V1, M1 through M7, ISO-2009).

3.3.1.2 **ESS Laboratory Certificates of Analysis (Customer Reports) and SOPs.**

3.3.2 Acronyms

A list of acronyms used in this document and their definitions are:

AB	–	Accrediting Body
A2LA	–	American Association for Laboratory Accreditation
ANSI	–	American National Standards Institute
ASQC	–	American Society for Quality Control
ASTM	–	American Society for Testing and Materials
BLK	–	Blank
BS/BSD	–	Blank Spike/Blank Spike Duplicate (a/k/a LCS/LCSD)
°C	–	degrees Celsius
°F	–	degrees Fahrenheit
CAL	–	calibration
CAB	-	Conformity Assessment Body (A2LA)
CAS	–	Chemical Abstract Service
CCV	–	Continuing calibration verification
COC	–	Chain of Custody
DL	-	Detection Limit
DO	–	Dissolved oxygen
(I)DOC	–	(Initial) Demonstration of Capability
EPA	–	Environmental Protection Agency
g/L	–	grams per liter
GC/MS	–	gas chromatography/mass spectrometry
ICP-MS	–	inductively coupled plasma-mass spectrometry
ICV	–	Initial Calibration Verification
ISO/IEC	–	International Organization for Standardization/International Electrochemical Commission
lb/in2	–	pound per square inch
LCS/LCSD	–	Laboratory Control Sample/ Laboratory Control Sample Duplicate
LFB	–	Laboratory Fortified Blank
LIMS	-	Laboratory Information Management System (Promium "Element")
LOD	-	Limit of Detection
LOQ	-	Limit of Quantitation
LLOQ	-	Lower Limit of Quantitation
MB	-	Method Blank
MDL	–	Method Detection Limit
mg/Kg	–	milligrams per kilogram
mg/L	–	milligrams per liter
MRL	-	Method Reporting Limit

MS	–	Matrix Spike
MSD	–	Matrix Spike Duplicate
NELAC	–	National Environmental Laboratory Accreditation Conference
NELAP	–	National Environmental Laboratory Accreditation Program
NIST	–	National Institute of Standards and Technology
PE	-	Performance Evaluation
PT	–	Proficiency Test(ing)
PTP	-	Proficiency Testing Provider
PTPA	–	Proficiency Testing Provider Accreditor
QA	–	Quality Assurance
QC	–	Quality Control
QM	–	*Quality Manual*
RL	–	Reporting level
RPD	–	Relative percent difference
RSD	–	Relative standard deviation
SOPs	–	Standard operating procedures
SVOC	–	Semivolatile organic compound
SPK	–	spike
STD	–	standard
TNI	-	The NELAC Institute
µg/L	–	micrograms per liter
UV	–	Ultraviolet
VOC	–	Volatile organic compound
WET	–	Whole effluent toxicity

3.4 Management of the *Quality Manual*

The Quality Manager is responsible for maintaining the currency of the *Quality Manual*.

The *Quality Manual* is reviewed at least annually by the Quality Manager and laboratory personnel to ensure it still reflects current practices and meets the requirements of any applicable regulations or client specifications. Sections of the manual are updated by making a change to the Section and then increasing the revision number by one (x-xx in the case of a minor revision). The cover sheet of the *Quality Manual* (Section 1) must be re-signed and the Table of Contents (Section 2) is updated whenever a Section is updated.

The *Quality Manual* is considered confidential within ESS LABORATORY and may not be altered in anyway except by approval of the Laboratory Director and Quality Manager. If it is distributed to external users, it is for the purpose of reviewing ESS LABORATORY's management system and may not be used for any other purpose without written permission.

Section 4

ORGANIZATION
(TNI V1:M2 – Section 4.1; ISO/IEC 17025/2005(E) - Clause 4.1)

ESS LABORATORY, a DIVISION OF THIELSCH ENGINEERING INC, a legally responsible entity, is a commercial analytical testing laboratory specializing in environmental chemistry. ESS Laboratory, while owned by Thielsch Engineering, Inc., maintains independent management systems, has no conflicting interests, and does not support the functions of Thielsch Engineering, Inc.

ESS Laboratory was established in 1978 and was acquired by Thielsch Engineering, Inc. in June of 1996. The laboratory has evolved into a state-of-the art facility that provides a wide range of Analytical Services in support of:

- Soil and Water Pollution Monitoring
- Environmental Impact Assessment
- Industrial Process Control
- Effluent and Emission Pollution Control

These services are provided to various customers including:

- Federal and State agencies
- Engineering Firms
- Private Industry/Homeowners

The laboratory is responsible for carrying out testing activities that meet the requirements of the TNI Standard, the ISO/EIC 17025 Standard and that meet the needs of the client and appropriate regulatory authorities. These objectives are achieved through application of the policies and procedures outlined in this Section and throughout the *Quality Manual*:

- The laboratory assures that it is impartial and that personnel are free from undue commercial, financial, or other undue pressures that might influence their technical judgment.

- Management and technical personnel have the authority and resources to carry out their duties, including the implementation, maintenance and improvement of the management system, and have procedures to identify and correct departures from the laboratory's management system.

- Personnel understand the relevance and importance of their duties as related to the maintenance of the laboratory's management system.

- Ethics and data integrity policy and procedures (see Section 5 – "Management" and Section 19 – "Data Integrity Investigations") ensure personnel do not engage in activities that diminish confidence in the laboratory's capabilities.

- Confidentiality is maintained. Every effort to protect customers' confidential information and proprietary rights, including procedures for protecting the electronic storage and transmission of results, is made.

4.1 Organization

The laboratory is a commercial organization. The Tax ID number is available on request, when applicable.

The laboratory conducts analytical operations in Cranston, RI and operates a satellite in Hopkinton, Mass, the latter being solely for the purpose of subsidiary customer field services and courier services. The management system covers work at both locations.

The Corporate Organization Chart can be found in Figure 4-1 below:

The laboratory's organization chart can be found in Appendix B.

Additional information regarding responsibilities, authority and interrelationship of personnel who manage, perform or verify testing is included in Section 5 –"Management" and Section 20 – "Personnel". These Sections also include information on supervision, training, technical management, job descriptions, quality personnel, and appointment of deputies for key managerial personnel.

The laboratory has the resources and authority to operate a management system that is capable of identifying departures from that system and from procedures during testing, and initiates actions to minimize or prevent departures. It is the policy of ESS Laboratory not to engage in any activities that may endanger trust in the independence of its judgement regarding its testing activities.

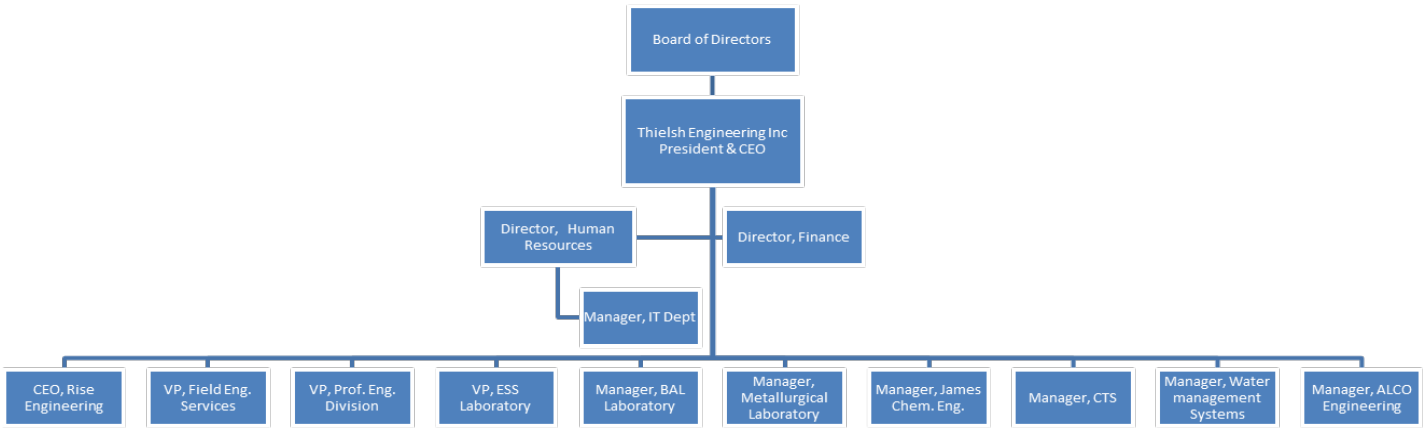
4.2 Conflict of Interest and Undue Pressure

The organizational structure indicated above minimizes the potential for conflicting or undue interests that might influence the technical judgment of analytical personnel.

Arrangements, such as policies and procedures to prevent commercial, financial or other influences that may negatively affect the quality of the work or negatively reflect on the competence, impartiality, judgment, quality of work or operational integrity are described in Appendix E.

In order to ease any scheduling pressures, employees are allowed flexible working hours, at the discretion of Management.

Figure 4-1 – Corporate Organization Chart



Section 5

MANAGEMENT
(TNI V1:M2 – Section 4.2; ISO/IEC 17025/2005(E) - Clause 4.2)

The laboratory maintains a management system that is appropriate to the scope of its activities.

5.1 Management Requirements

Top management ("Management") includes the Laboratory Director, Laboratory/ Operations/Technical Manager and the Quality Manager.

Management's commitment to good professional practice and to the quality of its products is defined in the Quality Policy statement, Section 5.3 below.

Management establishes, implements and maintains, by periodic review, a management system appropriate to the scope of its activities, ensuring that the laboratory documents its policies, systems, programs, procedures and instructions to the extent necessary to assure the quality of its data and ensures the integrity of the management system is maintained when changes to the management system are planned and implemented. Management ensures that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system.

Management has overall responsibility for the technical operations and has the authority needed to generate the required quality of laboratory operations. Management ensures communication within the organization to maintain an effective management system and to communicate the importance of meeting customer, statutory, and regulatory requirements. Management assures that management system documentation is known and available so that appropriate personnel can implement their part. When changes to the management system occur or are planned, managers ensure that the integrity of the system is maintained.

Management is responsible for carrying out testing activities that meet the requirements of the TNI Standard, the ISO/IEC 17025 Standard, various state-specific regulations, and that meet the needs of the client.

Managers implement, maintain, and improve the management system, and identify noncompliance with the management system of procedures by using available tools such as audit and surveillance results, control charts, participation in a suitable program of inter-laboratory comparisons where possible, data analysis, corrective and preventive actions, customer feedback and management reviews, in efforts to monitor trends. Managers initiate actions to prevent or minimize noncompliance.

Management ensures technical competence of personnel operating equipment, performing tests, evaluating results, or signing reports, and limits authority to perform laboratory functions to those appropriately trained and/or supervised.

Personnel are hired with sufficient education to meet written specified job requirements and undergo mandatory on-the-job training per SOP 80_0016, culminating in a formal Demonstration of Capability for each method they perform, at which time they may act independently, per written method requirements. See also Section 20 – Personnel, of this Quality Manual.

Management is responsible for defining the minimal level of education, qualifications, experience, and skills necessary for all positions in the laboratory and assuring that technical staff have demonstrated capabilities in their tasks and maintain records of such demonstrations. Training is kept up to date as described in Section 20 – "Personnel" by periodic review of training records and through employee performance review.

Management bears specific responsibility for maintenance of the management system. This includes defining roles and responsibilities to personnel, approving documents, providing required training and adequate supervision, providing a procedure for confidential reporting of data integrity issues, and periodically reviewing data, procedures, and documentation. The assignment of responsibilities, authorities, and interrelationships of the personnel who manage, perform, or verify work affecting the quality of environmental tests is documented in the ESS Laboratory Policy Manual (Job Descriptions) and in this section.

Management ensures that all sample acceptance criteria are verified and that samples are logged into the sample tracking system and properly labeled and stored.

Management is responsible for recording all analytical and operational activities of the laboratory and recording the quality of all data reported.

Management ensures that audit findings and corrective actions are completed within required time frames.

Designated deputies are appointed by management during the absence of the Laboratory Manager, Laboratory/Operations/Technical Manager or the Quality Manager, and always if the absence is more than 15 days.

5.2 Management Roles and Responsibilities

The following laboratory management staff members are considered key management personnel:

5.2.1 Laboratory Director

The Laboratory Director is responsible for the overall quality, safety, financial, technical, human resource and service performance of the laboratory. The Laboratory Director provides the resources necessary to implement and maintain an effective quality and data integrity program.

5.2.1.1 Responsibilities

The Laboratory Director is responsible for:

a. Planning, directing and controlling the operation and development of the laboratory to meet financial and operational performance standards.

b. Building and leading a strong, cohesive management team that is continually focused on ESS Laboratory's key success factors in the areas of data quality, customer service, people management and financial discipline.

c. Ensuring that all operations are in compliance with the laboratory's quality assurance manual. Suspending any activities which do not meet the standards set forth in this quality manual.

d. Ensuring that personnel are free from any conflicts/undue pressures that might adversely affect the quality of their work.

e. Reviewing and approving all SOPs and policies prior to their implementation and ensuring all approved SOPs and policies are provided to laboratory personnel and are adhered to.

f. Ensuring that appropriate corrective actions are taken to address analyses identified as requiring such actions by internal and external performance or procedural audits.

g. Continually improving the effectiveness of the management system.

5.2.2 Quality Manager

The Quality Manager (or Officer) is responsible for the oversight and review of quality control data, but is independent from laboratory operations, per the laboratory organizational chart (Appendix B). The Quality Manager's training and proof of experience in QA/QC procedures, knowledge of analytical methods, and the laboratory's management system are available in the employee's records, which are kept in the Quality Assurance Department.

5.2.2.1 Responsibilities

The Quality Manager is responsible for:

a. serving as a focal point for QA/QC;

b. arranging or conducting annual internal audits without outside (e.g., managerial) influence;

c. notifying management of deficiencies;

d. independent oversight and review of quality control data;

e. having knowledge of analytical methods for which data is reviewed.

f. monitoring corrective actions;

g. ensuring that the management system related to quality is implemented and followed at all times;

h. monitoring and maintaining laboratory certifications;

i. keeping this *Quality Manual* current by updating as needed;

j. has the authority and responsibility for ensuring all personnel understand their contribution to the quality system;

k. ensuring communication takes place at all levels within the laboratory regarding the effectiveness of the quality system;

l. evaluating the effectiveness of training;

m. ensuring that personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system; and

n. using available tools, such as audit and surveillance results, control charts, proficiency testing results, data analysis, corrective and preventive actions, customer feedback, daily operations reports and management reviews in efforts to monitor trends and continually improve the quality system.

5.2.3 Laboratory/Operations Manager/Technical Manager

The Technical Manager (or designee) is a full-time laboratory staff member and supervises laboratory operations and data reporting. The Technical Manager's proof of experience in the fields of accreditation may be found in the pertinent training file which is maintained by the Quality Assurance Department.

If the Technical Manager is absent for fifteen (15) calendar days or more, a deputy (see Table 5-1 below) with appropriate qualifications will perform the Technical Manager's duties. Beyond a thirty-five (35) calendar day absence, management will notify the primary accreditation body in writing of the absence of the Technical Manager and the appointment of the deputy.

The Technical Manager is not the technical manager of more than one accredited environmental laboratory.

5.2.3.1 Responsibilities

The Technical Manager is responsible for:

a. meeting the general and education requirements and qualifications found in Sections 4.1.7.2 and 5.2.6.1 of the TNI Standard - EL-V1M2-2009 and in Massachusetts 310 CMR 42.00;

b. ongoing monitoring of timeliness of response to client needs, performance data, and the validity of the analyses for the laboratory;

c. managing operations in accordance with laboratory policies pertaining to hiring, training and individual performance review;

d. ensuring operations meet laboratory budgetary control procedures;

e. providing opportunities for training and cross training to ensure smooth operations and enhancement of employees growth; and

f. continually improving the effectiveness of the management system.

5.2.4 Departmental Technical Supervisors

5.2.5 Support System and Administrative Managers

5.2.5.1 Project (Customer Services) Managers

5.2.5.2 Administration Department Supervisor

5.2.5.3 Sample Receiving Department Supervisor

5.2.5.4 IT/LIMS Administrator

5.2.5.5 Purchasing Agent

5.2.4.6 Sales Executives

5.2.6 Laboratory Key Personnel Deputies

The following table defines who assumes the responsibilities of key personnel in their absence:

Table 5-1 Key Personnel Deputies		
Key Personnel	**Deputy(ies)**	**Comment**
Laboratory Director	Operations/Technical Manager	
QA Manager	Laboratory Director /QA Officer	
Operations/Technical Manager	Laboratory Director	
Departmental Supervisors	Operations/Technical Manager	
Supervisor, Project Management	Other Project Managers	
Admin Supervisor	Laboratory Director	
Purchasing Agent	Corporate Purchasing	
IT/LIMS Administrator	Laboratory Director	
Sample Receiving Supervisor	Operations Manager	
Logistics Manager	Project Manager(s)	
Sales Executives	Other Sales Executives	

5.3 Quality Policy

Management's commitment to quality and to the management system is stated in the Quality Policy below, which is upheld through the application of related policies and procedures described in the laboratory's *Quality Manual*, SOPs and policies.

Quality Assurance/Quality Control (QA/QC) in the laboratory is a company-wide function that depends upon cooperative working relationships and multi-level review. Responsibilities for QA/QC functions begin with the bench scientist and extend to the Laboratory Director. The primary level of quality assurance resides with the bench scientist who, after matriculation in the laboratory training program, is responsible for:

- Precisely following the analytical methods as documented in the Standard Operating Procedures (SOP).
- Good Laboratory Practices (GLP)
- Good Automated Laboratory Practices (GALP)
- Good documentation skills
- Carefully documenting each step in the appropriate format
- Conscientiously obtaining peer review as required
- Promptly alerting laboratory managers and/or QA staff members to problems or anomalies.

The supervisor of each laboratory department is responsible for the quality of the data generated by the scientists in that department. The laboratory implements and monitors the specific QC protocols and QA programs within the laboratory to ensure a continuous flow of high-quality data. The laboratory provides its scientists with up-to-date resources including space, equipment, instrumentation, and time in order to accomplish top-quality performance.

All laboratory personnel are responsible for assisting the Laboratory Director with the implementation and maintenance of their quality functions. These responsibilities

may include monitoring QC practices, updating laboratory SOPs, and helping to manage analysis of Performance Evaluation samples.

Ultimately, the success of the QA program depends on the cooperation and support of the entire organization. ESS Laboratory's most valuable resource is its staff of dedicated professionals who take personal pride in the quality of their performance.

Management firmly believes that only by appropriately communicating the QA Plan to all employees, and ensuring that it is effectively implemented, can the needs of clients and regulatory bodies be met.

ESS Laboratory Quality Assurance Mission Statement

Our mission is to establish and implement a quality assurance program that provides our clients with data of known and documented quality in a timely manner.

From the moment an environmental sample arrives at the laboratory to the final reporting of reliable and accurate data, our quality assurance and quality control program is our key to continued success and, as company policy, is strictly enforced.

While the quality assurance manager directs and oversees all quality policies, we regard it as essential that employees at all levels of operation and management thoroughly understand the quality documentation and execute the program. The management of ESS Laboratory is committed to good professional practice, complying with all accreditation standards and improving the quality system and the effectiveness of the management system. Each ESS employee is individually responsible for realizing our commitment to quality and the achievement of our mission.

5.4 Ethics and Data Integrity System

The laboratory's Ethics and Data Integrity policy, program, training and investigations are discussed in Section 19 – "Data Integrity Investigations".

5.5 Documentation of Management/Quality System

The management system is defined through the policies and procedures provided in this *Quality Manual* and written laboratory Standard Operating Procedures (SOPs) and policies.

5.5.1 Quality Manual

The *Quality Manual* contains the following required items:

5.5.1.1 Document title;

5.5.1.2 Laboratory's full name and address;

5.5.1.3 Name, address (if different from above), and telephone number of individual(s) responsible for the laboratory;

5.5.1.4 Identification of all major organizational units which are to be covered by this quality manual and the effective date of the version;

5.5.1.5 Identification of the laboratory's approved signatories;

5.5.1.6 the signed and dated concurrence (with appropriate names and titles), of all responsible parties including the quality manager(s), technical manager(s), and the agent who is in charge of all laboratory activities, such as the laboratory director or laboratory manager;

5.5.1.7 The objectives of the management system and contain or reference the laboratory's policies and procedures;

5.5.1.8 The laboratory's official quality policy statement, which shall include management system objectives and management's commitment to ethical laboratory practices and to upholding the requirements of the referenced Standards; and

5.5.1.9 A table of contents, and applicable lists of references, glossaries and appendices.

This *Quality Manual* contains or references all required elements as defined by the TNI Standard - V1:M2, Section 4.2.8.4., and ISO/IEC 17025:2005(E), Clause 4.2.

5.5.2 Standard Operating Procedures (SOPs)

Standard operating procedures (SOPs) represent all phases of current laboratory operations including an effective date, revision number, and signature of the approving authorities, as designated in SOP 80_0012 (Document Control) and are available to all personnel. They contain sufficient detail such that suitably qualified personnel could perform the procedures. There are two types of SOPs used in the laboratory: 1) test method SOPs, which have specific requirements as outlined below, and 2) general use SOPs which document general procedures.

All technical SOPs (e.g., sample preparation, analytical procedures, sample storage, or sample receipt) shall be reviewed for accuracy and adequacy at least annually, and updated if necessary, and be readily accessible to all personnel. All such reviews shall be conducted by personnel having the pertinent background, are recorded, and made available for assessment.

Each accredited analyte or method has an SOP. Sometimes an SOP is a copy of a method, and any additions are clearly described. The laboratory's test method SOPs include the following topics, where applicable, per SOP 80_0012:

i. identification of the method;
ii. applicable matrix or matrices;
iii. limits of detection and quantitation;
iv. scope and application, including parameters to be analyzed;
v. summary of the method;
vi. definitions;
vii. interferences;
viii. safety;
ix. equipment and supplies;
x. reagents and standards;

xi. sample collection, preservation, shipment and storage;
xii. quality control;
xiii. calibration and standardization;
xiv. procedure;
xv. data analysis and calculations;
xvi. method performance;
xvii. pollution prevention;
xviii. data assessment and acceptance criteria for quality control measures;
xix. corrective actions for out-of-control data;
xx. contingencies for handling out-of-control or unacceptable data;
xxi. waste management;
xxii. references; and any tables, diagrams, flowcharts and validation data;
xxiii. data management and records;
xxiv. personnel qualifications;
xxv. equipment/instrument maintenance;
xxvi. computer hardware and software; and
xxvii. troubleshooting.

5.5.3 Order of Precedence

In the event of a conflict or discrepancy between policies, the order of precedence is as follows unless otherwise noted:

- Quality Manual
- SOPs and Policies
- Other (Work Instructions (WI), memos, flow charts, etc.)

Section 6

DOCUMENT CONTROL
(TNI V1:M2 – Section 4.3; ISO/IEC 17025/2005(E) - Clause 4.3

This Section describes how the laboratory establishes and maintains a process for document management. Procedures for document management include controlling, distributing, reviewing, and accepting modifications. The purpose of document management is to keep documents up to date and preclude the use of invalid and/or obsolete documents.

Documents can be SOPs, policy statements, standards, instruction manuals, specifications, calibration tables, charts, textbooks, posters, notices, memoranda, software, drawings, plans, etc. These may be on various media, whether hard copy or electronic, and they may be digital, analog, photographic or written.

The laboratory manages three types of documents: 1) controlled, 2) approved/uncontrolled, and 3) obsolete.

A controlled document is one that is uniquely identified, issued, tracked, and kept current as part of the management system. Controlled documents may be internal documents or external documents. Any documents providing instructions to laboratory personnel (e.g., operator aids) are considered part of the management system and are subject to document control procedures.

An approved document means it has been reviewed, and either signed and dated, or acknowledged in writing or by secure electronic means by the issuing authority(ies).

An uncontrolled document is watermarked with the ESS Logo and is watermarked "uncontrolled" at the top and bottom of the page.

Obsolete documents are documents that have been superseded by more recent versions or are no longer needed.

6.1 Controlled Documents

Documents will be reviewed, revised (as appropriate) and approved for use by authorized personnel in accordance with SOP 80_0012 (Document Control) and 80_0029 (Management of Procedure Documents), prior to issue.

Documents are reviewed (and revised, if necessary) at least annually to ensure their contents are suitable and in compliance with the current management systems requirements, and accurately describe current operations. Reviews (internal or external) of management system documentation shall be maintained and made available for assessment.

Approved hard copies of documents are available to staff at all locations where operations are essential to the effective functions of the laboratory; it is not laboratory policy to make SOPs available electronically.

Controlled internal documents are uniquely identified with 1) a unique name or number identification 2) date of issue, 3) revision identification, 4) page number, 5) the total number of pages (or a mark to indicate the end of the document), and 6) the signatures of the issuing authority (i.e. management) in accordance with SOPs 80_0012, 80_0016 and 80_0029. Documents are distributed by the Quality Assurance Manager in accordance with these SOPs.

A master list of controlled internal documents is maintained that includes location, and major revision number and dates. A master list of controlled external documents is also maintained that includes title, author, copyright date (where applicable), revision number or date of publication, and location. The controlled document list is maintained and kept in the QA Dept. files by the Quality Assurance Manager and is updated whenever revisions occur. Distribution lists of controlled documents are maintained by the Quality Assurance Manager. A list of active Standard Operating Procedures and major controlled internal documents is included as Appendix A.

6.1.1 Document Changes to Controlled Documents

Affected personnel are notified of changes to management systems documents and supporting procedures, including technical documents, in accordance with SOPs 80_0012, 80_0016 (Training) and 80_0029.

6.1.1.1 Paper Document Changes

Document changes are approved by the same function that performed the original review unless specifically designated otherwise.

The document management process allows for handwritten or minor modifications to documents. The date and approval is documented with the modifications and these changes are processed and tracked per SOP 80_0012.

All document modifications are approved. Changes that are not process modifications but clarifications may be performed without revision. Approval is required. The modified document is then copied and distributed, and obsolete documents are removed according to the master list of controlled documents.

Amendments/modifications to documents are incorporated into a new revision and reissued when the document is reviewed and updated on or before its scheduled review cycle.

A reason for the modification or change is provided as historical information in the revised document per SOP 80_0012.

6.1.1.2 Electronic Document Changes

Suggested revisions to electronic documents are presented to top management (Director, Operations and Quality) for review and approval. Changes to electronic documents are approved as outlined in SOP 80_0012.

Where practical, the altered text or new text in the draft is identified during the revision or review process to provide for easy identification of the modifications.

Procedures (Series 70 SOPs and 80_0040) have been established describing how changes in documents maintained in computerized systems are made and controlled.

6.2 Obsolete Documents

All invalid or obsolete documents are removed from general distribution, or otherwise prevented from unintended use.

Obsolete documents retained for legal use or historical knowledge preservation are appropriately marked and retained per SOP 80_0029. They are stamped "Archived" and initialed and dated by the QA Manager. Archived computer resident documents are kept on file in the QA Dept. for at least 10 years. Hardcopy documents may be retained, depending upon their nature.

Section 7

REVIEW OF REQUESTS, TENDERS AND CONTRACTS
(TNI V1:M2 – Section 4.4; ISO/IEC 17025/2005(E) - Clause 4.4)

The review of all new work assures that oversight is provided so that requirements are clearly defined, that the laboratory (lab) has adequate resources and capability and that the test method is applicable to the customer's needs. This process assures that all work will be given adequate attention without shortcuts that may compromise data quality.

NOTE: A request originates with a client who requires testing services; a tender is a proposal from the lab in response to the client's request, and a contract is the final agreement between lab and client.

Contracts for new work may be formal bids, signed documents, verbal, or electronic. The client's requirements, including the methods to be used, must be clearly defined, documented and understood. Requirements might include target analyte lists, project specific reporting limits (if any), project specific quality control requirements (if any), turnaround time, and requirements for data deliverables. The review must also cover any work that will be subcontracted by the laboratory.

7.1 Procedure for the Review of Work Requests

The Laboratory Director, Operations Manager, and Quality Manager determine if the laboratory has the necessary accreditations, resources, including schedule, equipment, deliverables, and personnel to meet the work request. The procedure is detailed in SOPs 80_0051 (Requests, Tenders & Contracts) and 80_0048 (Subcontracting).

Project Managers/Sales Representatives inform the client of the results of the review and if it indicates any potential conflict, deficiency, lack of accreditation, or inability of the lab to the complete the work satisfactorily.

The client is informed of any deviation from the contract including the test method or sample handling processes. All differences between the request and the final contract are resolved and recorded before any work begins. It is necessary that the contract be acceptable to both the laboratory and the client. Documentation of this process is described in SOP 80_0051.

The review process is repeated when there are amendments to the original contract by the client. The participating personnel are given copies of the amendments. The amendments are maintained per SOP 80_0051.

Note: For repetitive routine projects, the review might be made only at the initial inquiry stage, or on granting of a contract for on-going routine work performed under a general agreement with the client, provided the client's requirements don't change.

7.2 Documentation of Review

Records are maintained for every contract or work request, when appropriate. This includes pertinent discussions with a client relating to the client's requirements or the results of the work during the period of execution of the contract. Documentation of this process is outlined in SOPs 80_0051 and 70_0004 (Work Order Management). Records of all project-related communication with the client (including e-mails, fax, telephone conversation etc.) are kept per SOPs 80_0051, 70_0004 and 70_0008 (Sample Log-in).

Section 8

SUBCONTRACTING OF ENVIRONMENTAL TESTS
(TNI V1:M2 – Section 4.5; ISO/IEC 17025/2005(E) - Clause 4.5

When ESS Laboratory subcontracts work, whether because of unforeseen reasons (e.g. workload, need for further expertise, or temporary incapacity) or on a continuing basis (e.g. through permanent subcontracting, agency or franchising arrangements), this work is placed with a competent subcontractor. A competent subcontractor is one that complies with the appropriate standard for the work in question.

A subcontract laboratory is defined as a laboratory external to this laboratory, or at a different location than the address indicated on the front cover of this manual, that performs analyses for this laboratory. This also includes a laboratory under the same corporate umbrella.

When subcontracting analytical services, the laboratory assures work requiring accreditation is placed with an appropriately accredited laboratory or one that meets applicable statutory and regulatory requirements for performing the tests.

8.1 Procedure

ESS Laboratory maintains a list of subcontractors.

A copy of any required certificate and certified analyte list(s) from subcontractors is maintained as evidence of compliance. This information is maintained by the Quality Assurance Dept. and is kept in a network directory folder.

The certificate and analyte list are checked by the project manager(s) in conjunction with the Quality Manager/Officer, as needed, to ensure the subcontracting laboratory has the appropriate accreditation to do the work.

ESS Laboratory notifies the client of the intent to subcontract the work, in writing, gaining the approval of the client to subcontract their work prior to implementation, preferably in writing. Any verbal instructions are documented.

The laboratory performing the subcontracted work is identified in the final report. The laboratory assumes responsibility to the client for the subcontractor's work, except in the case where a client or a regulating authority specified which subcontractor is to be used. Procedure is detailed in SOP 80_0048.

The Quality Manager/Officer reviews the certification and supporting documentation on file prior to initiation of any work. A listing of all approved subcontracting laboratories and supporting documentation is filed in a network directory. A letter or e-mail is sent to the subcontracting laboratory, which will be NELAC-Accredited, if required, requesting the following information;

1. A copy of the quality manual (optional)
2. A copy of necessary certifications, if not available on company website.

Section 9

PURCHASING SERVICES AND SUPPLIES
(TNI V1:M2 – Section 4.6; ISO/IEC 17025/2005(E) - Clause 4.6)

The laboratory ensures that purchased supplies and services that affect the quality of environmental tests are of the required or specified quality, by using approved suppliers and products.

The laboratory has procedures for purchasing, receiving, and storage of supplies that affect the quality of environmental tests.

9.1 Procedure

Management reviews and approves the supplier of services and supplies and approves technical content of purchasing documents prior to ordering, in accordance with SOPs 80_0020 (Vendor Qualification) and 70_0003 (Purchasing).

Evaluation and selection of suppliers and vendors is performed, in part, on the basis of the quality of their products, their ability to meet the demand for their products, the overall quality of their services, their past history and competitive pricing. This is achieved through evaluation of objective evidence of quality furnished by the supplier, which can include certificates of analysis, recommendations, and proof of historical compliance with similar programs for other clients. To ensure that quality critical consumables and equipment conform to specified requirements, all purchases from specific vendors are approved by a member of the management staff (*standards and reagents must be of the appropriate analytical grade)*. No changes to brands or specifications is allowed without full review and approval by Management. Ongoing evaluation of suppliers is accomplished by ensuring the supplier ships the product or material ordered and that the material is of the appropriate quality, by signing packing slips or other supply receipt documents, after inspection. The purchasing documents contain the data that adequately describes the services and supplies ordered. The description may include type, class, grade, identification, specifications or other technical information.

The supplies received are inspected for breakage, leaks or any other damage. The supplies and chemicals are checked for description, vendor/source, quantity, receipt and expiration dates, concentration, lot/serial number certificate of analysis, calibration/verification records etc. per SOP 80_0013 (Supplies Review and Tracking). The supplies received are stored according to manufacturer's recommendations, laboratory SOPs or test method specifications.

Any documents received with the supplies and services, including specifications, certificates of analysis, warranties, maintenance records, calibration records etc., are kept on file, preferably electronically in the LIMS. Any such hard copy documents are filed by personnel in the department which ordered and received the supplies.

The purchased supplies and reagents that affect the quality of the tests are not used until they are inspected or otherwise verified as complying with requirements defined

in the test method, in accordance with SOP 80_0013 and related departmental SOPs 20_0001, 30_0003, 40_0039, 50_0006 and 60_0001; however, see following note.

NOTE: EPA Method 8270D, Section 9.6.7 states "When new reagents or chemicals are received, the lab should monitor the blanks associated with samples for any signs of contamination. It is not necessary to test every new batch of reagents or chemicals *prior to sample preparation* if the source shows no prior problems."

This ruling may also be considered for application to other methods.

9.2 Approval of Suppliers

The Purchasing Agent maintains a list of approved suppliers. The list is also included in 80_0020 (Vendor Qualification), a copy of which is available to all departments.

Section 10

SERVICE TO THE CLIENT
(TNI V1:M2 – Section 4.7; ISO/IEC 17025/2005(E) - Clause 4.7)

The laboratory collaborates with clients and/or their representatives in clarifying their requests and in monitoring laboratory performance related to their work. Each request is reviewed to determine the nature of the request and the laboratory's ability to comply with the request within the confines of prevailing statutes and/or regulations, without risk to the confidentiality of other clients.

10.1 Client Confidentiality

The laboratory confidentiality policy is to not divulge or release any information to a third party without proper authorization. Third party requests for data and information are referred to the client. Data and records identified as proprietary, privileged, confidential, or affecting national security are exempt from disclosure.

All electronic data (storage or transmissions) are kept confidential, based on technology and laboratory limitations, as required by client or regulation. Confidential client data and correspondence are stored electronically in the laboratory information management system, user e-mail records, internal network directories and secure online websites, which are password-protected and may only be accessed by authorized employees or clients.

Procedures are outlined in various administrative SOPs (70_0004, 70_0005 and 70_0008).

10.2 Client Support

Communication with clients, or their representative(s), is maintained in a timely manner, to provide proper instruction and modification for testing. Technical staff is available to discuss any technical questions or concerns the client may have.

The client, or their representative, may be provided reasonable access to laboratory areas for witnessing testing or substantiating qualifications.

Delays or major deviations to the testing are communicated to the client immediately (preferably within one hour, or at latest by close of business that day), in writing or by telephone, by the project manager.

The laboratory will provide the client with all requested information pertaining to the analysis of their samples. An additional charge may apply for additional data/information that was not requested prior to the time of sample analysis or previously agreed upon.

Value-added services include supplying data confidentially to clients as it is being generated, via the Element Data System *Client Connect* customer interface program.

The client will be notified by project management prior to changes in LIMS software or hardware configuration that will adversely affect customer electronic data.

10.3 Client Feedback

The laboratory seeks both negative and positive feedback following the completion of projects, and periodically for ongoing projects. Feedback provides acknowledgement, corrective actions where necessary, and opportunities for continuous improvement.

Negative customer feedback is documented as a customer concern (see Section 11 – "Complaints") in the ESS Incident Reporting system.

Feedback from clients is sought via a survey request on the ESS Laboratory website and by management/project managers/sales personnel during routine communications with clients, and is documented and circulated to staff members, normally by e-mail or verbally.

Section 11

COMPLAINTS
(TNI V1:M2 – Section 4.8; ISO/IEC 17025/2005(E) - Clause 4.8)

The purpose of this Section is to assure that customer complaints are addressed and corrected. This includes requests to verify results or analytical data. Complaints provide the laboratory an opportunity to improve laboratory operation and client satisfaction.

Complaints by customers or other parties are reviewed by management and an appropriate action is determined and implemented in a timely manner. All customer complaints are documented by the person receiving the complaint and addressed to the responsible manager.

If it is determined that the complaint has merit, the procedures outlined in Section 14 – Corrective Action are followed. If it is determined that a complaint is without merit, it is documented, and the client is contacted by project manager or sales executive.

A complaint, such as a concern that data is repeatedly late, should be reviewed for preventive action (see Section 15 – "Preventive Action") to minimize a future occurrence.

Section 12

CONTROL OF NON-CONFORMING ENVIRONMENTAL TESTING WORK
(TNI V1:M2 – Section 4.9; ISO/IEC 17025/2005(E) - Clause 4.9)

Non-conforming work is work that does not meet acceptance criteria or requirements. Non-conforming work can include departures from standard operating procedures or test methods or unacceptable quality control results (see Section 27 – "Quality Assurance for Environmental Testing"). Identification of non-conforming work can come through customer complaints, quality control, instrument calibration, evaluating consumable materials, staff observation, final report review, management reviews and internal and external audits.

12.1 Exceptionally Permitting Departures from Documented Policies and Procedures

Requests for departures from laboratory procedures are approved by top management and documented, and are only permitted after appropriate precision, accuracy and detection limit data have been generated and shown to satisfy client's criteria. The client must approve major modifications of any methods. Approved method variances are documented in the case narrative to the client. When SOPs representing different versions of the same method are available for use, the SOP title and method summary (which is found in the body of the SOP) describe the particular conditions of use for that method; such SOPs may only be used at client's direction or with client's approval, in writing.

Planned departures from procedures or policies do not require audits or investigations.

12.2 Non-Conforming Work

The lab policy for control of non-conforming work is to identify the nonconformance, determine if it will be permitted, and take timely and appropriate action commensurate with the risk to data quality. All employees have the authority to stop work on samples when any aspect of the process does not conform to laboratory requirements.

The responsibilities and authorities for the management of non-conforming work are detailed in SOP 80_0009 (Incident/Corrective Action). The procedure for investigating and taking appropriate corrective actions of non-conforming work are described in Section 14 – "Corrective Actions". Section 14.3 describes procedures for Technical Corrective Actions. Formal corrective action procedures must be followed for non-conforming work that could reoccur (beyond expected random QC failures) or where there is doubt about the laboratory's compliance to its own policies and procedures.

The investigation and associated corrective action of non-conforming work involving alleged violations of the company's Ethics and Data Integrity policies must follow the procedures outlined in Section 19 – "Data Integrity Investigations".

The laboratory evaluates the significance of the non-conforming work, and takes corrective action immediately. The customer is notified if their data has been impacted and work recalled, where necessary. The laboratory allows the release of non-conforming data only with approval by the Director or Operations Manager, on a case-by-case basis. Non-conforming data is clearly identified in the final report (see Section 28 – "Reporting the Results").

The discovery of a nonconformance for results that have already been reported to the customer must be immediately evaluated for significance of the nonconformance, its acceptability to the customer, and determination of the appropriate corrective action.

As stated above, the management of non-conforming work is detailed in SOP 80_0009 (Incident/ Corrective Action), which is a Quality Assurance Dept. SOP and copies of which are available to all departments; SOP 80_0009 is applicable to situations where non-conforming work could reoccur or where there is doubt that the laboratory is in compliance with its own policies and procedures. Corrective action for routine, non- recurring exceedances can be documented on raw data worksheets, logbooks, e-mail or other documents (e.g. temperature logs).

12.3 Stop Work Procedures

Halting work, or subsequent resumption of work, is authorized by top management, the LIMS administrator, departmental supervisors or analysts in accordance with SOP 80_0009 (Incident/Corrective Action) or pertinent SOPs.

Personnel will notify top management of any nonconformance, per SOP 80_0009 or pertinent SOPs. Management will review the significance of the nonconformance and develop a course of action. If data are questionable, client(s) will be notified, preferably within the hour, but definitely by close of business that day.

Should an investigation of a nonconformance indicate that its cause requires that use of method be limited until any necessary modifications are implemented, management will immediately notify affected personnel of the decision. The laboratory will hold relevant reports to clients pending the outcome of the review. The Quality Assurance Dept. will verify that the issue is resolved before work is allowed to resume; personnel will be notified by management accordingly. Management will document the incident, root cause and resolution using the corrective action procedures described in Section 14 – "Corrective Action".

The reporting of nonconformances involving alleged violations of the laboratory's Ethics and Data Integrity policies must be reported to the Quality Manager. Procedures described in Section 19– "Data Integrity Investigations" are followed.

Section 13

IMPROVEMENT
(TNI V1:M2 – Section 4.10; ISO/IEC 17025/2005(E) - Clause 4.10)

It is the policy of the laboratory to improve the overall effectiveness of the laboratory's management system and this is accomplished by the implementation of the various aspects of the management system: Quality policy and objectives (Section 5 – "Management"); internal auditing practices (Section 17 – "Internal Audits"); the review and analysis of data (Section 27 – "Quality Assurance for Environmental Testing"); the corrective action (Section 14 – "Corrective Action") and preventive action (Section 15 – "Preventive Action") processes; and the annual management review of the quality management system (Section 18 – "Management Reviews") where the various aspects of the management/quality system are summarized and evaluated, and plans for improvement are developed. Employees are encouraged to start discussions for improvements by initiating "Improvement Items" through the Incident Reporting system.

Section 14

CORRECTIVE ACTION
(TNI V1:M2 – Section 4.11; ISO/IEC 17025/2005(E) - Clause 4.11)

Corrective action is the action taken to eliminate the causes of an existing non-conformity, defect, or other undesirable situation, in order to prevent recurrence.

Deficiencies cited in incident reports, external assessments, internal quality audits, data reviews, customer feedback/complaints, control of nonconforming work or managerial reviews are documented and require corrective action. Corrective actions taken are commensurate with the magnitude of the problem and the degree of risk. All actions are documented.

14.1 General Procedure

The laboratory uses a database software program to document and track corrective actions (incident reports) in accordance with SOP 80_0009 (Incident/Corrective Action). This program is used to generate audit/code reports, which help management plan and assign priorities to corrective actions.

Employees are responsible for initiating incident reports, related corrective action (and also suggesting preventive action – see Section 15) on routine data reviews/activities where a nonconformance is found that could reoccur (beyond expected random QC failures) or where there is doubt about the compliance of the laboratory with its own policies and procedures, in accordance with SOP 80_0009. The Quality Assurance Dept. is responsible for monitoring and recording closure of the corrective action, per this SOP.

All deficiencies are investigated and a corrective action plan is developed and implemented if determined necessary. The implementation is monitored for effectiveness.

14.1.1 Cause Analysis

When failures due to systematic errors have been identified, the first step of the corrective action process starts with the initial investigation and determination of root cause(s) of the problem. A root cause investigation, which is a major tool for continuous process improvement, begins and ends with the question "Why did this deficiency occur". When a reason can no longer be identified then there is reasonable assurance that the cause has been isolated. Records are maintained in the database of nonconformances requiring corrective action to show that the root cause(s) was investigated, and include the results of the investigation.

Where there may be non-systematic errors and as such the initial cause is readily identifiable, or there are expected random failures (e.g. failed quality control), a formal root cause analysis is not performed and the process begins with selection and implementation of corrective action (also see Section 14.3 "Technical Corrective Actions").

14.1.2 Selection and Implementation of Corrective Actions

Where uncertainty arises regarding the best approach for analysis of the cause of a nonconformance that require corrective action, appropriate personnel will recommend corrective actions that are commensurate with the magnitude and risk of the problem and that will most likely eliminate the problem and prevent recurrence.

Management ensures that corrective actions are discharged by assigned personnel within the agreed upon time frame. The Quality Assurance Manager provides the necessary oversight by tracking progress.

14.1.3 Monitoring of Corrective Action

The Quality Assurance Manager will monitor implementation and documentation of the corrective action to assure that the corrective actions were effective. The Quality Assurance Manager will publish periodic status reports to top management, project managers and affected departmental managers, as well as Quality Assurance Dept. personnel, per SOP 80_0009. Normal expectation is to complete non-critical corrective action within thirty days. Critical corrective action is to be completed as soon as possible.

14.1.4 Improvement Items

The database software program is also used to compile employees' ideas for improvement. These ideas are ones that would increase quality and/or productivity in the laboratory or administrative procedures. There is no current limit to the type of improvement item that can be added to the database.

14.2 Additional Audits

Where the identification of nonconformances or departures from normal lab procedures cast doubt on the laboratory's compliance with its own policies and procedures, or on its compliance with the TNI or other regulatory Standards, the laboratory ensures that the appropriate areas of activity are audited in accordance with Section 17 – "Internal Audits" as soon as possible.

In many cases, the additional audits are follow-ups after the corrective action has been implemented to ensure it is effective. These are especially done when a serious issue or risk to the laboratory, or a repetitive nonconformance, have been identified.

14.3 Technical Corrective Action

Sample data associated with a failed quality control result are evaluated for the need to be reanalyzed or qualified. Unacceptable quality control results are documented, and if the evaluation requires cause analysis, the cause and solution are recorded (also see Section 12 – "Control of Nonconforming Environmental Testing Work").

Analysts routinely implement corrective actions for data with unacceptable QC measures. First level correction may include re-analysis without further assessment. If the test method SOP addresses the specific actions to take, they are followed. Otherwise, corrective actions start with assessment of the cause of the problem. Corrective actions shall be to a degree commensurate with the magnitude and the risk of the problem.

Corrective action for non-systematic errors, or expected random failures not subject to formal incident reporting, are documented in the comments section of respective logbooks, per SOP 80_0040. Corrective actions for any nonconformance that may reoccur (beyond expected random QC failures) or where there is concern that the laboratory is not in compliance with its own policies and procedures require that an incident report be completed (see Section 14.1).

Technical managers review incident reports and suggest improvements, alternative approaches and procedures, where needed.

If the data reported are affected adversely by the nonconformance, the affected data is clearly identified in the report and the customer is notified. If necessary, data will be recalled and a revised report meeting regulatory and client needs issued.

Section 15

PREVENTIVE ACTION
(TNI V1:M2 – Section 4.12; ISO/IEC 17025/2005(E) - Clause 4.12)

Preventive action is a proactive process to identify opportunities for improvement rather than a reaction to the identification of problems or complaints.

Preventive action includes, but is not limited to: review of nonconformance (incident report) database entries; review of QC (control chart) data to identify quality trends; regularly scheduled (daily) staff meetings to ensure client needs are being met; review of client feedback to look for improvement opportunities; review of proficiency testing data to look for borderline issues; annual managerial reviews; and review of scheduled instrument maintenance.

When improvement opportunities are identified or if preventive action is required, action plans are developed, implemented and monitored to reduce the likelihood of the occurrence of nonconformities.

Procedures for preventive actions include the initiation of such actions and subsequent monitoring to ensure that they are effective. The implementation and record maintenance of preventive action activities is outlined in SOPs 80_0009 (Incident/Corrective Action) and 80_0035 (Internal Assessment).

All personnel have the authority to offer suggestions for improvements and to recommend preventive actions, however management is responsible for implementing preventive action.

Section 16

CONTROL OF RECORDS
(TNI V1:M2 – Section 4.13; ISO/IEC 17025/2005(E) - Clause 4.13)

"Records" include all documents, such as this QA Manual and SOPs, data recordings that include annotations, such as daily refrigerator temperatures posted to a laboratory form, lists, spreadsheets, and analyst notes on a chromatogram. Records may be on any form of media, including electronic (a/k/a computer-resident) and hard copy. Records allow for the historical reconstruction of laboratory activities related to sample-handling and analysis. The terms "documents" and "records" are considered to be analogous.

The laboratory maintains a record system appropriate to its needs, records all laboratory activities, and complies with applicable standards or regulations as required. Records of original observations and derived data are retained to establish an audit trail. Records help establish factors affecting the uncertainty of the test and enable test repeatability under conditions as close as possible to the original.

16.1 Records Maintained

Records of all procedures to which a sample is subjected while in the possession of the laboratory are kept. The laboratory retains all original observations, calculations and derived data (with sufficient information to produce an audit trail), calibration records, personnel records and a copy of the test report, for a minimum of ten years from generation of the last entry in the records. At a minimum, the following records are maintained by the laboratory to provide the information needed for historical reconstruction:

i) All raw data, whether hard copy or electronic, for calibrations, samples and quality control measures, including analysts' worksheets and data output records (chromatograms, strip charts, and other instrument response readout records);

ii) A written description or reference to the specific method(s) used, which includes a description of the specific computational steps used to translate parametric observations into a reportable analytical value (all pertinent Standard Operating Procedures);

iii) Laboratory sample ID code;

iv) Date of analysis;

v) Time of analysis is always required if the regulatory holding time is stated in hours, or when time critical steps are included in the analysis (e.g., extractions and incubations);

vi) Instrumentation identification and instrument operating conditions/parameters (or reference to such data);

vii) All manual calculations (including manual integrations);

viii) Analyst's or operator's initials/signature or electronic identification;

ix) Sample preparation, including cleanup, separation protocols, incubation periods or subculture, ID codes, volumes, weights, instrument printouts, meter readings, calculations, reagents;

x) Test results (including a copy of the final report);

xi) Standard and reagent origin, receipt, preparation, and use;

xii) Calibration criteria, frequency and acceptance criteria;

xiii) Data and statistical calculations, review, confirmation, interpretation, assessment and reporting conventions;

xiv) Quality control protocols and assessment;

xv) Electronic data security, software documentation and verification, software and hardware audits, backups, and records of any changes to automated data entries;

xvi) Method performance criteria including expected quality control requirements;

xvii) Proficiency test results;

xviii) Records of demonstration of capability for each analyst;

xix) A record of names, initials, and signatures for all individuals who are responsible for signing or initialing any laboratory record;

xx) Correspondence relating to laboratory activities for a specific project;

xxi) Corrective action reports;

xxii) Preventive action records;

xxiii) Copies of internal and external audits including audit responses;

xxiv) Copies of all current and historical laboratory SOPs, policies and *Quality Manual*s;

xxv) Sample receiving records (including information on any interlaboratory transfers);

xxvi) Sample storage records;

xxvii) Data review and verification records;

xxviii) Personnel qualification, experience and training records;

xxviv) Archive records; and

xxviv) Management reviews.

16.2 Records Management and Storage

The laboratory maintains a record management system for control of laboratory notebooks, instrument logbooks, standards logbooks, and records for data reduction, validation, storage, and reporting, per SOPs 80_0040 (Logbooks), 70_0004 (Work Order Management), 70_0007 (Data Entry & Data Reporting) and 70_0008 (Sample Login). Hard copy data is recorded immediately and legibly in permanent ink while data generated by automated data collections systems are recorded electronically per SOP 80_0040 and various test SOPs. Hard copy corrections are initialed and dated with the reason noted for corrections other than transcription errors. A single line strikeout is used to make corrections so that the original record is not obliterated. In the case of electronic records, software audit tracking features provide an audit trail and notes may be added to electronic document fields, as required by SOP 80_0040 and various test SOPs.

All laboratory data is saved to computer systems which are networked to a Windows 2012 R2 server, which is the destination of all files. Daily backups to disk are done at 3:45 AM. Full backups are performed on Saturday and differential backups Sunday through Friday. 14 disk backups are kept on disk. Full disk backups are copied to tape on Sundays. The weekly tapes are kept for 4 weeks, the monthly tapes for 4 months, the quarterly tapes for 4 quarters, and the yearly tapes for 10 years.

Records, including electronic records, are easy to retrieve, legible, and protected from deterioration, computer viruses or damage; held secure and in confidence; and are available to accrediting bodies for a minimum of ten years or as required by regulation or contract. Records that are stored only on electronic media are supported by the hardware and software necessary for their retrieval. Access to protected records is limited to employees on a need to know basis, as determined by the Laboratory Director, to prevent unauthorized access or amendment. Access is password protected. Individual user names and passwords are required for all LIMS users.

Additional information regarding control of data is included in Section 22.5 – "Control of Data".

Procedures for identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and technical records are found in the SOPs listed above and also in SOPs 80_0012 (Document Control) and 80_0029 (Management of Procedure Documents). Quality records shall include reports from internal audits and management reviews as well as records of corrective and preventive actions. Electronic storage is the primary medium for long-term storage of vital records.

Archived information are protected against fire, theft, loss, environmental deterioration, vermin, and in the case of electronic records, electronic or magnetic sources. Archived records have limited access and are kept in a secured and locked area. Electronic and hard copy records are archived onsite.

In the event that the laboratory transfers ownership or goes out of business, records are maintained or transferred according to client instructions. Appropriate regulatory and state legal requirements concerning laboratory records shall be followed.

16.3 Legal Chain of Custody Records

Evidentiary sample data are used as legal evidence. Procedures for evidentiary samples can be found in SOPs 10_0001, 10_0017 and the Sample Acceptance Policy.

A sample is in someone's custody if;

1. It is in one's actual physical possession;
2. It is in one's view, after being in one's physical possession;
3. It is in one's physical possession and then locked up so that no one can tamper with it;
4. It is kept in a secured area, restricted to authorized personnel only.

Section 17

AUDITS
(TNI V1:M2 – Section 4.14; ISO/IEC 17025/2005(E) - Clause 4.14)

Audits measure laboratory performance and verify compliance with the TNI, ISO 17025 and other regulatory Standards, and accreditation/ certification and project requirements. Audits specifically provide management with an on-going assessment of the management system. They are also instrumental in identifying areas where improvement in the management/quality system will increase the reliability of data. Audits are of four main types: internal, external, performance, and system. Section 17.5 discusses the handling of audit findings.

17.1 Internal Audits

Annually, the laboratory prepares a schedule of internal audits to be performed during the year. These audits verify compliance with the requirements of the management/quality system, including analytical methods, SOPs, the *Quality Manual*, ethics policies, data integrity, other laboratory policies, and the TNI/ISO 17025 Standards. Annual internal audits are carried out per SOP 80_0035.

It is the responsibility of the Quality Manager to plan and organize audits as required by the schedule and requested by management. These audits are carried out by trained and qualified personnel who are independent of the activity to be audited. The Laboratory Director shall determine the training and qualification requirements for audit personnel, including quality managers, and shall establish procedures to ensure that audit personnel have the necessary education or experience required for their assigned positions. These requirements and procedures must be recorded. Personnel conducting independent assessments shall have sufficient authority, access to work areas, and organizational freedom necessary to observe all activities affecting quality and to report the results of such assessments to laboratory management.

In addition to the scheduled internal audits, it may sometimes be necessary to conduct special audits as a follow-up to corrective actions, PT results, complaints, regulatory audits or alleged data integrity issues. These audits address specific issues.

The area audited, the audit findings, and corrective actions are recorded. Audits are reviewed after completion to assure that corrective actions were implemented and effective. If findings are observed that cast doubt on the validity of results, top management shall be informed immediately, the incident documented and timely corrective action implemented per Sections 12, 14 and 17.5, which includes notification of clients, when data is impacted.

17.2 External Audits

It is the laboratory's policy to cooperate and assist with all external audits, whether performed by clients or an accrediting body. Management ensures that all areas of

the laboratory are accessible to auditors as applicable and that appropriate personnel are available to assist in conducting the audit.

17.2.1 Confidential Business Information (CBI) Considerations

During on-site audits, on-site auditors may come into possession of information claimed as business confidential. A business confidentiality claim is defined as "a claim or allegation that business information is entitled to confidential treatment for reasons of business confidentiality or a request for a determination that such information is entitled to such treatment." When information is claimed as business confidential, the laboratory must place on (or attach to) the information at the time it is submitted to the auditor, a cover sheet, stamped or typed legend or other suitable form of notice, employing language such as "trade secret", "proprietary" or "company confidential". Confidential portions of documents otherwise non-confidential must be clearly identified or redacted. CBI may be purged of references to client identity by the responsible laboratory official at the time of removal from the laboratory. However, sample identifiers may not be obscured from the information.

17.3 Performance Audits

Performance audits may be Proficiency Test Samples, internal single-blind samples, double-blind samples through a provider or client, or anything that tests the performance of the analyst and method.

Proficiency Test Samples are discussed in Section 27 – "Quality Assurance for Environmental Testing".

17.4 System Audits

The Laboratory's management system is audited through Quality Dept. annual systems audits and annual management reviews. Refer to Section 18 – "Management Reviews" for further discussion of management reviews.

17.5 Handling Audit Findings

Internal or external audit findings are responded to within the time frame agreed to at the time of the audit. The response may include action plans that could not be completed within the response time frame. A completion date is established by management for each action item and included in the response.

Development and implementation of corrective actions to findings is the responsibility of the Quality Assurance Manager. Corrective actions are documented through the corrective action process described in Section 14 – "Corrective Actions".

Audit findings that cast doubt on the effectiveness of the laboratory operation to produce data of known and documented quality or that question the correctness or validity of sample results must be investigated. Corrective action procedures described in Section 14 – "Corrective Action" must be followed. Clients must be notified in writing if the investigation shows the laboratory results have been

negatively affected and the client's requirements have not been met. The client must be notified by close of business on the day the laboratory discovers the issue. Laboratory management will ensure that this notification is carried out within the specified time frame.

All investigations that result in findings of inappropriate activity are documented and include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of clients. See Section 19 (Data Integrity Investigation) for additional procedures for handling inappropriate activity.

Section 18

MANAGEMENT REVIEWS
(TNI V1:M2 – Section 4.15; ISO/IEC 17025/2005(E) - Clause 4.15)

Top management reviews the management system on an annual basis and maintains records of review findings and actions.

18.1 Management Review Topics

The following are reviewed to ensure their suitability and effectiveness:

- The suitability of policies and procedures;
- Reports from managerial and supervisory personnel;
- The outcome of recent internal audits;
- Corrective and preventive actions;
- Assessments by external bodies;
- The results of interlaboratory comparisons or proficiency tests;
- Changes in the volume and type of the work;
- Customer feedback;
- Complaints;
- Recommendations for improvement;
- Other relevant factors, such as quality control activities, resources, and staff training.

18.2 Procedure

The procedure for management review is included in SOP 80_0035 (Internal Assessment).

Findings and follow-up actions from management reviews are recorded. Management will determine appropriate completion dates for action items and ensures they are completed within the agreed upon time frame.

Section 19

DATA INTEGRITY POLICY & DATA INTEGRITY INVESTIGATIONS
(TNI V1:M2 – Section 4.16; ISO/IEC 17025/2005(E) - Clause 4.16)

ESS Laboratory is committed to ensuring the integrity of its data and providing valid data of known and documented quality to its clients. Top management endorses its support for data integrity by implementing the specific requirements of the laboratory's data integrity program. The elements in ESS Laboratory's Ethics and Data Integrity program include:

- Documented data integrity procedures, signed and dated by top management,
- Documented data integrity training,
- An Ethics and Data Integrity Training Agreement signed by all management and staff, at the time of hire and annually thereafter following annual data integrity training. This Ethics Agreement includes a requirement that all suspected violations of the policy be reported to senior management.
- Procedures for confidential reporting of alleged data integrity issues, handling data integrity investigations and client notifications,
- An audit program that addresses in-depth, periodic monitoring of data integrity (see Section 17 – "Audits"). The Quality Assurance Manager has the responsibility of overseeing the Ethics and Data Integrity program.

19.1 Ethics and Data Integrity Procedures

The Ethics and Data Integrity Policy provides an overview of the program. Written procedures that are considered part of the Ethics and Data Integrity program include:

- Manual integration procedures (SOP 110_0016)
- Corrective action procedures (Section 14 of this QA Manual)
- Procedures for Data Integrity Investigations are detailed below
- Data recall procedures (Section 14 of this QA Manual)
- Data Integrity training procedures are detailed below and in SOP 80_0049

Management reviews data integrity procedures yearly and updates these procedures as needed. These procedures and the associated implementation records are properly maintained and made available for assessor review.

19.2 Training

Data integrity training is provided as a formal part of new employee orientation and a refresher is given annually for all employees; in the latter case, such training may be asynchronous* (see below). Employees are required to understand that

any infractions of the laboratory data integrity procedures shall result in a detailed investigation that could lead to very serious consequences including immediate termination, debarment or civil/criminal prosecution. This is discussed in the Ethics and Data Integrity Policy that every employee is required to sign at the time of hire. Attendance for required training is monitored through a signature attendance sheet demonstrating all staff have participated and understand their obligations related to data integrity.

An agenda is provided to each trainee prior to the training session. The following topics and activities are covered:

- The organizational mission and its relationship to the need for honesty and full disclosure in all analytical reporting;
- An ethics policy must be read and signed by all personnel;
- How and when to report data integrity issues;
- Recordkeeping;
- Analysts must record an explanation and sign off on all manual changes to data; and
- Where available in the instrument software, all electronic tracking and audit functions must be enabled.
- Discussion regarding all data integrity procedures;
- Data integrity training documentation;
- In-depth data monitoring;
- Data integrity procedure documentation;
- Improper data manipulations (detailed in SOP 80_0049);
- Adjustments of instrument time clocks;
- Inappropriate changes in concentrations of standards;
- The importance of proper written narration on the part of the analyst with respect to those cases where analytical data may be useful, but are in one sense or another partially deficient;
- Written ethics agreements;
- Examples of improper practices (detailed in SOP 80_0049);
- Examples of improper chromatographic manipulations (detailed in SOPs 80_0049 and 110_0016);

- Requirements for external ethics program training;
- Any external resources available to employees; and
- Consequences for data integrity infractions.

*Asynchronous online training tools enable communication and collaboration over a period of time through a "different time-different place" mode. These tools allow people to connect together at each person's own convenience and own schedule. Asynchronous tools are useful for sustaining dialogue and collaboration over a period of time and providing people with resources and information that are instantly accessible, day or night.

When contracted technical or support personnel are used, top management is responsible for ensuring that they are trained to the laboratory's management system and data integrity procedures, competent to perform the assigned tasks, and appropriately supervised.

Topics covered are provided in writing and provided to all trainees.

19.3 Confidential Reporting of Ethics and Data Integrity Issues

Confidential reporting of data integrity issues is assured as follows: A data integrity officer/advisor/ombudsman shall be appointed by senior management to determine the need for a detailed investigation when data integrity is in question. This will normally be the Quality Assurance Manager. The data integrity officer shall insure confidentiality and a receptive environment in which to privately discuss personal ethical dilemmas with staff or observed unethical practices by others. Confidential records of such discussions shall be kept by the data integrity advisor, who will keep top management informed of the need for any further detailed investigation.

19.4 Investigations

All investigations resulting from data integrity issues are conducted confidentially. They are documented and notifications are made to clients who received any negatively affected data that did not meet the client's data quality requirements. Procedures for investigation are included in SOP 80_0049.

Section 20

PERSONNEL
(TNI V1:M2–Section 5.2; ISO/IEC 17025/2005(E)-Clause 5.2)

ESS Laboratory employs competent personnel based on education, training, experience and demonstrated skills, as required. The laboratory's organization chart can be found in Appendix B.

20.1 Overview

All personnel are responsible for complying with all quality and data integrity policies and procedures that are relevant to their area of responsibility.

All personnel who are involved in activities related to sample analysis, evaluation of results or who sign test reports, must demonstrate competence in their area of responsibility. Appropriate supervision is given to any personnel in training and the trainer is accountable for the quality of the trainee's work. Personnel are qualified to perform the tasks for which they are responsible based on education, training, experience and demonstrated skills as required for their area of responsibility.

The laboratory management provides goals with respect to education, training and skills of laboratory staff. These goals are outlined in the ESS Policy Manual (Job Descriptions) and SOP 80_0016 (Training). Training needs are identified at the time of employment and when personnel are moved to a new position, or new responsibilities are added to their job responsibilities; appropriate training is provided. Ongoing training, as needed, is also provided to personnel in their current jobs. The effectiveness of the training must be evaluated before the training is considered complete.

Contracted personnel, when used, must meet the same competency standards and follow the same policies and procedures that laboratory employees must meet.

20.2 Job Descriptions

Job descriptions are available for all positions that manage, perform, or verify work affecting data quality, and are located in the ESS Laboratory Policy Manual (Job Descriptions). An overview of top management's responsibilities is included in Section 5 – "Management".

Job descriptions include the specific tasks, minimum education and qualifications, skills, and experience required for each position.

20.3 Training

All personnel are appropriately trained and are competent in their assigned tasks before they contribute to functions that can affect data quality. It is management's responsibility to assure personnel are trained in accordance with SOP 80_0016 (Training). Training records are used to document management's approval of personnel competency. The date on which authorization and/or competence is confirmed is included.

Training records are maintained by the Quality Assurance Manager and include safety training certificates. The latter are also kept track of in an online database by the corporate safety manager.

20.3.1 Training for New Staff

New staff members are given the following training, per SOP 80_0016 (Training Process):

Orientation (General Policies, Ethics and Data Integrity Agreement, Good Documentation and SOP/QA Manual training plan checklist), Initial Demonstrations of Capability, specialized training and formal safety training.

All new staff members are given introductory training and orientation upon arrival. The training is documented on training forms that outline what was covered during the training. The new employee also receives Data Integrity training and must sign-off on the Ethics and Data Integrity Policy.

The initial training for a new task contains the following steps:

- All documentation involved with a new and unfamiliar task is read and understood by the trainee.
- Training is under the direct supervision of a qualified senior analyst. During the time the trainee is in training, he/she may sign laboratory notebooks, logbooks, worksheets, etc., but they must be co-signed by the trainer, who is responsible for the data generated.
- The trainee demonstrates competency in the new task before they can operate independently. The competency for a test method is accomplished by a demonstration of capability as defined in Section 22 – "Environmental Methods and Method Validation". Approval of competency is noted by the date and initials or signature of the Technical Manager and Quality Assurance Manager on a training form.
- Each step of the training process is documented.
- The documentation is maintained in the employees training record.

Part-time, temporary, contracted and administrative personnel are trained, at a minimum, in the basic quality assurance and health and safety programs.

20.3.2 Ongoing Training

Staff members are given the following ongoing training:

- Annual Data Integrity per SOP 80_0049
- Annual QA Manual - current revision
- Annual Continuing Demonstration of Capability per Appendix F.2 of this manual and SOP 80_0016
- Annual Safety (Corporate, online)
- Any pertinent specialized training

Section 21

ACCOMODATIONS AND ENVIRONMENTAL CONDITIONS
(TNI V1:M2 – Section 5.3)

21.1 Environmental

The laboratory facility is designed and organized to facilitate correct testing of environmental samples. Environmental conditions are monitored to ensure that conditions do not invalidate results or adversely affect the required quality of any measurement. Such environmental conditions include lighting, energy sources, humidity, voltage, temperature, atmospheric cross-contaminants (via storage blanks) and vibration levels which could affect balance operation.

If the laboratory environment is required to be controlled by a method or regulation, the adherence is recorded. An example would be the recording of temperature during TCLP extraction.

Environmental tests are stopped when the environmental conditions jeopardize the results.

When conducting external sampling procedures, any mobile equipment such as pH meters or ISCO samplers are only operated under the environmental conditions for which they were designed and in accordance with pertinent SOPs.

21.2 Work Areas

Work areas may include access and entryways to the laboratory, sample receipt area, sample storage area, sample process area, instrumental analysis area, chemicals, gas cylinders and waste storage area, and data handling and storage area.

Access to, and use of, areas affecting the quality of the environmental tests is controlled by restriction of areas to authorized personnel only. See Section 21.4 below.

The laboratory work spaces are adequate for their use, and appropriately clean to support environmental testing and ensure an unencumbered work area.

Laboratory space is arranged to minimize cross-contamination between incompatible areas of the laboratory. Prep labs are isolated from instrumental labs; samples suspected of containing high concentrations of volatile analytes shall be isolated from other samples. Refrigerator storage and trip blanks shall be used to determine if cross-contamination may have occurred. Laboratory temperature/humidity/ ventilation are controlled via separate, dedicated HVAC units.

Testing occurs only within dedicated laboratory departments. Laboratory space is maintained and monitored to the specifications required for laboratory space and the testing performed. Electronic balances are located away from drafts and doorways and mounted on a marble slab in areas where their use is affected by vibrations. Neighboring test areas of incompatible activities are effectively separated. Specific work areas are defined and access is controlled. (Only authorized laboratory personnel and escorted signed-in visitors may enter the work area.)

Good housekeeping measures are employed to avoid the possibility of contamination. The laboratory procedure for good housekeeping includes such measures as:

- Janitorial service (internal) is in operation.
- Each employee is responsible for keeping their work area clean and tidy.
- A kitchen area, isolated from the testing labs, is the only place where eating/drinking is allowed.
- Smoking is prohibited in the laboratory. Employees are not allowed to wear cologne, perfumes or other personal care products that might contaminate the samples for volatile organics. Live plants and animals are prohibited in the laboratory area.

21.3 Building Security

The laboratory is a secure (locked) facility, accessible to authorized personnel only and is kept secure during off hours with an alarm system.

A visitor's logbook is maintained for every visitor to sign in and out. Visitors must be accompanied by laboratory personnel when in secure areas.

Signs are used to designate secure areas.

Security procedure is described in SOP 110_0015 (Lab Security).

Section 22

ENVIRONMENTAL METHODS AND METHOD VALIDATION
(TNI V1:M2 – Section 5.4; TNI V1:M4 - Sections 1.4, 1.5 and 1.6; and ISO/IEC 17025/2005(E)-Clause 5.4)

Methods and/or procedures are available and are used for all activities associated with the sampling, handling, transport, storage and analysis of the sample including preparation and testing. For purposes of this Section, "method" refers to both the sample preparation and determinative methods. A master list of analytical methods is located in Appendix C.

Before being put into use, a test method is confirmed by a demonstration of capability or method validation process.

All methods are published or documented. Deviations from the methods are allowed only if the deviation is documented, technically justified, authorized by management and accepted by the customer

22.1 Method Selection

A reference method is a method issued by an organization generally recognized as competent to do so (when ISO refers to a standard method, that term is equivalent to reference method). When a laboratory is required to analyze a parameter by a specified method due to a regulatory requirement, the parameter/method combination is recognized as a reference method.

The laboratory will use methods that meet the needs of the customer. Such methods will be based on the latest edition of the method unless it does not meet the needs of the customer.

The laboratory selects methods that are appropriate to the customer needs. When the regulatory authority mandates or promulgates methods for a specific purpose, only those methods will be used.

If a method proposed by a customer is considered to be inappropriate or out-of-date, the customer is informed and the issue resolved before proceeding with analysis of any samples (see Section 7 – Review of Requests, Tenders and Contracts).

If a method is not specified by the customer or is inappropriate, a method appropriate to the end use of the data will be selected using the process outlined below.

- If the data are to be submitted to a regulatory authority, the method(s) specified by the regulatory authority will be used.

- For drinking water compliance a method will be selected from those specified in 40 CFR Part 141, or the applicable state regulations.
- For NPDES permits, the method will be selected from those specified in 40 CFR Part 136.
- If the end use of the data is not regulatory or if the regulatory authority does not specify a method, the laboratory will determine the customer needs in terms of reporting level (e.g., LOD, LLOQ), bias (e.g., screening versus quantitative) and the laboratory capabilities and capacity. Based on these criteria, the laboratory will select an appropriate method based on the following hierarchy:
    - Resources published in regional, national or international standards;
    - Methods published by other technical organizations such as ASTM, Standard Methods, NIOSH or AOAC;
    - Methods develop by the instrument manufacturer; or
    - Laboratory–developed methods.

The customer will be informed of the selected method and must approve its use before being used to report data.

All communications between the laboratory and the customer are documented.

22.2 Non-Standard and Laboratory-Developed Methods

If the laboratory develops a method, the process of designing and validating the method is carefully planned and documented. All personnel involved in the method design, development and implementation will be in constant communication during all stages of development.

The procedure for methods development and validation is outlined below and in SOP 80_0024.

22.3 Method Validation

Validation is the confirmation, by examination and objective evidence, that the particular requirements for a specific intended use are fulfilled.

At a minimum, reference methods are validated by performing an initial demonstration of capability. Additional requirements are discussed for each technology.

All methods that are not reference methods are validated before use. The validation is designed so that the laboratory can demonstrate that the method is appropriate for its intended use. All records (e.g., planning, method procedure, raw data and data analysis) shall be retained while the method is in use. Based on the validation process, the laboratory will make a statement of the intended use requirements and whether or not the validated method meets the use requirements, in a specific Process Validation Protocol form per SOP 80_0024. The form will be filed in the QA Dept.

Method validation and Demonstration of Capability procedures can be found in:

- Appendix F.1 – Chemistry
- Appendix F.2 – Demonstration of Capability

22.4 Estimation of Analytical Uncertainty

Analytical Uncertainty: A subset of Measurement Uncertainty that includes all laboratory activities performed as part of the analysis.

When requested, the laboratory will provide an estimate of the analytical uncertainty, using quality control measurement data, as determined by SOP 110_0014:

a) The exact nature of some test methods may preclude rigorous, statistically valid estimation of analytical uncertainty. In these cases the laboratory shall attempt to identify all components of analytical uncertainty and make a reasonable estimation, and shall ensure that the form of data reporting does not give a wrong impression of the uncertainty. A reasonable estimation shall be based on knowledge of method performance and previous experience. When estimating the analytical uncertainty, all uncertainty components which are of importance in the given situation shall be taken into account.

b) In those cases where a well-recognized test method specifies limits to the values of the major source of uncertainty of measurement and specifies the form of presentation of calculated results, the laboratory is considered to have satisfied the requirements on analytical uncertainty by following the test method and reporting instructions.

c) The laboratory is only responsible for estimating the portion of measurement uncertainty that is under its control. Test reports shall include a statement of the estimated analytical uncertainty only when required by the customer. If a project requires analytical uncertainty to be reported, the laboratory shall report the estimated uncertainty based on project-specific procedures or, if not available, any other scientifically valid procedures.

The estimated analytical uncertainty can be expressed as a range (±) around the reported analytical results at a specified confidence level. A laboratory may report the in-house, statistically-derived Laboratory Control Sample (LCS) control limits based on historical LCS recovery data as an estimate of the minimum laboratory contribution to analytical uncertainty at a 99% confidence level. For testing laboratories, the laboratory shall ensure that the equipment used can provide the analytical portion of measurement uncertainty needed by the customer.

22.5 Control of Data

To ensure that data are protected from inadvertent changes or unintentional destruction, the laboratory establishes and uses procedures to check calculations and data transfers (both manual and automated).

22.5.1 Computer and Electronic Data Requirements

The laboratory assures that computers, user-developed computer software, automated equipment, or microprocessors used for the acquisition, processing, recording, reporting, storage, or retrieval of environmental test data are:

- Documented in sufficient detail and validated as being adequate for use;
- Protected for integrity and confidentiality of data entry or collection, data storage, data transmission and data processing;
- Maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of environmental test data; and
- Held secure including the prevention of unauthorized access to, and the unauthorized amendment of, computer records. Data archive security is addressed in Section 16 – "Control of Records" and building security is addressed in Section 21- "Accommodations and Environmental Conditions".

The Laboratory Director controls access to all programs that are used to acquire, process, record or report data. All programs have limited access and capabilities. All programs are password-protected or are protected by electronic ID. Each employee is granted access only to those programs that he or she uses, depending on his/her responsibilities and job description. Each employee is provided with an ID with electronic information unique to that individual. The ID must be read by the card reader before any employee can input bar-coding data. Passwords are unique to the individual, and cannot be shared. A programmer is given access to change the underlying code, but may not access or modify any data entry. A reviewer may review the data input, and may change entries only when a second reviewer concurs with the modification. Analysts input data, and have an opportunity to check data entries before permanently saving them. After the data has been saved,

modifications may be made only with the authorization of the supervisor. Validators may only review data and assign any validation codes necessary to help interpret the data. Once the data have been reviewed, the technical manager authorizes the data for release to the client. The technical manager may not change data, but may alert the applicable supervisor and analyst of any errors.

The laboratory uses spreadsheets to calculate final results from the raw data, per the test methods. Before reporting any results derived from these programs, the laboratory validates the underlying calculations per SOP 80_0047 (Computer Review & Validation).

After the spreadsheet is validated, the calculations are protected from inadvertent manipulations by access limitation, as described above. If any changes are made to the spreadsheet program, the laboratory revalidates the entire system before reporting results.

Data from all electronic media are backed up and backed up copies are stored as described in Section 16, to ensure that data are not lost.

22.5.2 Data Reduction

The analyst calculates final results from raw data, or appropriate computer programs provide the results in a reportable format. The test methods provide required concentration units, calculation formulas and any other information required to obtain final analytical results. As a part of the management system, the laboratory ensures that all manual calculations are checked by another individual (when possible) at a rate of one per project of all calculations. In addition all data transfers (data entry, transcribing raw or calculated data, etc.) will be similarly spot-checked for checked for accuracy. If checked values are found to be incorrect, the laboratory will recheck all entries. In addition, if the errors are attributed to one individual, 100% of the work done by the individual will be checked until the work is error-free.

The laboratory has a manual integration procedure, SOP 110_0016 (Manual Integration Policy & Procedure) that must be followed when integrating peaks during data reduction. This SOP is available to analysts in all departments where manual integration may be necessary.

The laboratory will report numerical data to three significant figures unless required to do otherwise by regulations.

All raw data must be retained electronically and it is maintained as described in Section 16 – "Control of Records".

22.5.3 Data Review Procedures

Data review procedures are located in Section 27.4 – "Data Review".

Section 23

CALIBRATION REQUIREMENTS
(TNI V1:M2 – Section 5.5; TNI V1:M4 - Section 1.7; ISO/IEC 17025/2005(E) - Clause 5.5)

23.1 General Equipment Requirements

The laboratory provides all the necessary equipment required for the correct performance of the scope of environmental testing performed by the laboratory.

All equipment and software used for testing and sampling are capable of achieving the accuracy required for complying with the specifications of the environmental test methods as specified in the laboratory SOPs.

Equipment is operated only by authorized and trained personnel (see Section 20 – "Personnel").

The laboratory has procedures for the use, maintenance, handling, transportation and storage of equipment and they are readily available to laboratory personnel. Manuals provided by the manufacturer of the equipment provide information on use, maintenance, handling and storage of the equipment. The laboratory maintains an inventory of equipment that includes additional information on storage location. Table 23-5 (below) summarizes planned equipment maintenance. These procedures ensure proper functioning of the equipment and prevent contamination or deterioration.

All equipment is calibrated or verified before being placed in use to ensure that laboratory specifications and relevant standard specifications are met, per SOP 110_0018 (Balance Calibration), 110_0005 (Volumetric Ware Calibration) and 110_0010 (Thermometer Calibration). Completed forms and related raw data are kept in the laboratory department electronic files, except for SOP 110_0010 which is maintained in the QA Department files.

Test equipment, including hardware and software, are safeguarded from adjustments that would invalidate the test result measurements by limiting access to the equipment (see Section 21-3 – "Building Security") and using password protection where possible (see Section 22-5 – "Control of Data").

Equipment that has been subject to overloading, mishandling, that has given suspect results, or shown to be defective or outside specifications is taken out of service. The equipment is isolated to prevent its use or clearly labeled as being out of service until it has been shown to function properly. If it is shown that previous tests are affected, then procedures for nonconforming work are followed and results are documented (see Section 12 – "Control of Nonconforming Environmental Testing Work" and Section 14 – "Corrective Action").

Should equipment be needed for a test that is outside of permanent control of the laboratory, the lab ensures the equipment meets the requirements of this manual by inspecting or otherwise testing prior to use.

When using external calibration services, traceability of measurement shall be assured by the use of calibration services from laboratories that can demonstrate competence, measurement capability and traceability. The calibration certificates issued by these laboratories shall contain:

1. The measurement results, including the conditions (e.g. Environmental) under which the calibrations were made that have an influence on the measurement results;

2. The measurement uncertainty and/or a statement of compliance with an identified metrological specification (when a statement of compliance with a specification is made omitting the measurement results and associated uncertainties, the laboratory shall record those results and maintain them for possible future reference);

3. When an instrument for calibration has been adjusted or repaired, the calibration results before and after adjustment or repair, if available, shall be reported;

4. A calibration certificate (or calibration label) shall not contain any recommendation on the calibration interval except where this has been agreed with the customer;

5. The calibration certificate shall relate only to quantities and the results of functional tests. If a statement of compliance with a specification is made, this shall identify which clauses of the specification are met or not met; this requirement may be superseded by legal regulations;

6. When opinions and interpretations are included, the laboratory shall document the basis upon which the opinions and interpretations have been made. Opinions and interpretations shall be clearly marked as such in a test report;

7. When a calibration has been subcontracted, the laboratory performing the work shall issue the calibration certificate to the contracting laboratory.

Each item of equipment and software used for testing and significant to the results is uniquely identified. Records of equipment and software are maintained in the ESS Inventory (a limited access computer database), equipment validation records, and maintenance records as well as various testing SOPs. This information includes the following:

a) identity of the equipment and its software;

b) manufacturer's name, type identification, serial number or other unique identifier;

c) checks that equipment complies with specifications of applicable tests;

d) current location;

e) methods performed on the specific instrument;

f) manufacturer's instructions, if available, or a reference to their location;

g) dates, results and copies of reports and certificates of all calibrations, adjustments, acceptance criteria, and the due date of next calibration;

h) maintenance plan where appropriate, and maintenance carried out to date; documentation on all routine and non-routine maintenance activities and reference material verifications;

i) any damage, malfunction, modification or repair to the equipment;

j) date received and placed into service

k) condition when received (new, used, reconditioned)

l) operational status

23.2 Support Equipment

Support Equipment includes, but is not limited to: balances, weights, ovens, refrigerators, freezers, incubators, water baths, temperature measuring devices, volumetric/non-volumetric dispensing devices, water purification system, radiation monitors and thermal/pressure sample preparation devices.

All support equipment is maintained in proper working order. Electronic or hard copy records are kept for all repair and maintenance activities, including service calls, per SOP 40_0040 (Logbook Use and Control).

All raw data records are retained to document equipment performance. These records include logbooks, data sheets, or equipment computer files.

Regular maintenance of support equipment, such as balances and fume hoods is conducted at least annually. Fume hood air flow is checked at least monthly.

Maintenance on other support equipment, such as ovens, refrigerators, and thermometers is conducted on an "as needed" basis.

Records of maintenance to support equipment are documented in Instrument Maintenance Logs. Each piece of support equipment does not necessarily have its *own* logbook but is documented. Maintenance logbooks may be shared with equipment that is housed in the same laboratory area. See also Tables 23-2 below.

Table 23-2 Summary of Support Equipment Calibration And Maintenance

Instrument	Activity	Frequency	Documentation
Balance	1. Clean (check before use) 2. Check alignment 3. Service Contract	1. After use 2. Before use 3. Annually	Worksheet/log book Post annual service date on balance
ASTM Class 1 Weights	1. Only use for the intended purpose 2. Use plastic forceps to handle 3. Keep in case	Re-calibrate every 5 years	Certificate of Calibration from ISO/IEC 17025 accredited calibration laboratory

Table 23-2 Summary of Support Equipment Calibration And Maintenance			
Instrument	**Activity**	**Frequency**	**Documentation**
	4. Re-calibrate		
NIST Traceable Thermometer	Accuracy determined by established calibration laboratory using NIST traceable equipment and procedures	At purchase and then annually	Certificate of Calibration
Thermometers: 1. Glass and electronic 2. Dial thermometers 3. IR thermometer	Check at the temperature used, against a reference NIST certified thermometer	1. Annually for glass 2. Quarterly for electronic and IR thermometers	ID, Calibration factor and date of calibration on worksheet/log book Thermometer stickered with initials/ date of calibration
pH electrometers	Calibration: 1. pH buffer aliquots are used only once 2. Buffers used for calibration will bracket the pH of the media, reagent, or sample tested	Before use	Log book
pH probe	Maintenance: Per manufacturer's recommendations	As needed	Log book
Photometer	1. Keep cells clean 2. Service contract, Check wavelength settings with color standards	Annually	Certificate of Calibration Post service date on instrument
Automatic or digital type pipettes	Calibrate for accuracy and precision per SOP 110_0005	Weekly (or daily, if convenient)	Log book
Refrigerators, Freezers, and BOD incubator.	1. Thermometers are immersed in liquid. 2. The thermometers are graduated in increments of 1°C or less	Temperatures are recorded twice each day in use Digital Min/Max temp record for weekend/holidays	Worksheet/log book Refrigerators: 0°C to 6°C Freezers: ≤-10°C
DO electrometer	Calibrate as specified in SOP	Before use	Log book
DO probe	Maintenance as specified by manufacturer	As needed	Log book
Conductivity Meter	Maintenance as specified by manufacturer	When more than 5% drift	Log book

The water purification system and radiation monitoring devices are checked daily prior to use, per SOPs 110_0003 (Water System Testing) and 10_0010 (Radiation Monitor Operation).

23.2.2 Support Equipment Calibration

All support equipment (except for weights) is calibrated or verified at least annually over the entire range of use using NIST traceable references where available. The results obtained from the calibration of support equipment needs to meet requirements found in Tables 23-3, or (1) the equipment is removed from service until repaired, or (2) records are maintained of correction factors to correct all measurements. If correction factors are used this information is clearly marked on or near the equipment.

Support equipment such as balances, ovens, refrigerators, freezers, and water baths are verified with a NIST traceable reference, if available, each day prior to use, to ensure operation is within the expected range for the application for which the equipment is to be used.

Volumetric dispensing devices are checked for accuracy per SOP 110_0005 (Volumetric Ware Calibration) to meet TNI & ISO 17025 Standards criteria. See also Table 23-3 below.

Table 23-3 Calibration Verification Acceptance Criteria for Support Equipment				
Equipment	**Type of Calibration/ Number of Standards**	**Frequency**	**Acceptance Limits**	**Corrective Action**
Balances	Accuracy determined using A2LA-accredited NIST weights, which are verified every 5 years. Minimum of 2 weights bracketing the range of interest. Inspected and adjusted annually by a qualified service person.	Daily accuracy verification, prior to use Annual service	± 0.2% (TNI) Top-loading balance: ±2% or ±0.02g, whichever is greater Analytical balance: ±0.1% or ±0.5 mg, whichever is greater.	Clean, check level, insure lack of drafts, and that unit is warmed up, recheck. If fails, call service
Thermometer	Against NIST-traceable thermometer [Using a thermometer traceable to the SI through an NMI] [Performed at two temperatures that bracket the target temperatures when the spread exceeds 10°. Assume linearity between the two bracketing temperatures] [If only a single temperature is used, perform at the temperature of use]	Liquid in glass: Before first use and annually	± 1.2°C	Apply correction factors or replace thermometer
Minimum-Maximum Thermometers	Against NIST-traceable thermometer [if only a single temperature is used, at the temperature of use]	Electronic: Before first use and quarterly	± 2.0°C	Apply correction factors or replace thermometer
Infrared Temperature Guns	Against NIST-traceable thermometer [if only a single temperature is used, at the temperature of use]	Quarterly at appropriate temperature range for intended use	± 1.5°C	Repair/replace

Table 23-3 Calibration Verification Acceptance Criteria for Support Equipment				
Equipment	**Type of Calibration/ Number of Standards**	**Frequency**	**Acceptance Limits**	**Corrective Action**
Volumetric Dispensing Devices (Eppendorf ® pipette, automatic dilutor or dispensing devices)	One delivery by weight. Using DI water, dispense into tared vessel. Record weight with device ID number.	Weekly (or daily, if needed for convenience)	± 1% Per SOP 110_0005	Adjust/ Replace
Volumetric labware	Per SOP 110_0005	Class B: By lot before first use. Class A and B: Upon evidence of deterioration	Bias: Mean within ± 2% of nominal volume Precision: RSD ≤1% of nominal volume (based on 10 replicate measurements)	Replace
Non-volumetric labware [Applicable only when used for measuring initial sample volume and final extract/ digestates volume]	Per SOP 110_0005	By lot before first use or upon evidence of deterioration	Bias: Mean within ±3% of nominal volume Precision: RSD ≤3% of nominal volume (based on 10 replicate measurements)	Replace
Glass microliter syringe	Per SOP 110_0005	Upon receipt and upon evidence of deterioration	General Certificate of Bias & Precision upon receipt	Replace if deterioration is evident
Drying oven temperature check		Daily prior to and after use	Within ±5% of set temperature	Adjust

23.3 Analytical Equipment

23.3.1 Maintenance for Analytical Equipment

All equipment is properly maintained, inspected, and cleaned.

Maintenance of analytical instruments and other equipment may include regularly scheduled preventive maintenance or maintenance on an as-needed basis. See

Table 23-5 below. Instrument malfunction is documented in Maintenance logs, which become part of the laboratory's permanent records. A description of what was done to repair the malfunction and proof of return to control are also documented in the log. If repair was done by an outside source, invoice record is filed and reference to it made in the maintenance log; indicate proof of return to control by recording that a QC sample met criteria. Instruments and related maintenance procedures (which may be routine) are documented per the test SOPs.

Table 23-5 Analytical Equipment Maintenance

Instrument	Procedure	Frequency
AA (Graphite Furnace)	Clean lens and furnace head Replace windows Clean atomizer cell/furnace hood Nebulizer cleaned/dried Clean filters Change graphite tube/platform Empty waste container Check sample introduction probe	Daily As required Daily Weekly or as required Weekly As required Daily Daily
Mercury Analyzer	Check tubing for wear Fill rinse tank with 3% HCl Fill reductant bottle with Stannous Chloride	Daily Daily Daily
ICP	Check pump tubing Check liquid argon supply Check fluid level in waste container Check filters Clean or replace filters Check torch Check sample spray chamber for debris Clean and align nebulizer Replace pump tubing	Daily Daily Daily Weekly As required Daily As required As required Daily
ICPMS1	Replace tubing TUNE Clean cones	Daily Daily As required
ICPMS2	Replace tubing Check torch alignment TUNE Clean cones	Daily Daily Daily As required
UV-Vis Spectrophotometer	Clean ambient flow cell Precision check/alignment of flow cell Wavelength verification check	As required As required Annually (daily auto-check)
Auto Analyzers	Clean sampler Check all tubing Oil rollers/chains/side rails Clean optics and cells	As required As required As required As required

Table 23-5 Analytical Equipment Maintenance		
Instrument	**Procedure**	**Frequency**
Hewlett Packard GC/MS	Pump oil-level check Pump oil changing Analyzer bake-out Analyzer cleaning Resolution adjustment	Monthly Annually or as required As required As required As required
Gas Chromatograph	Compare standard response to previous day or since last initial calibration Check carrier gas flow rate in column Check temp. of detector, inlet, column oven Septum replacement Glass wool replacement Check system for gas leaks with SNOOP Check for loose/fray wires and insulation Bake injector/column Change/remove sections of guard column Replace connectors/liners Change/replace column(s)	Daily Daily via use of known compound retention Daily As required As required Each cylinder change as req'd Monthly As required As required As required As required
Electron Capture Detector (ECD)	Detector wipe test (Ni-63) Detector cleaning	Semi-annually As required
Flame Ionization Detector (FID)	Detector cleaning	As required
Hall 700A Detector Hall 1000 Detector	Electrolyte change Reactor tube/teflon connecting tube change Clean detector cell	As required by noise As required As required
Photoionization Detector (PID)	Change O-rings Clean lamp window	As required As required
HPLC	Change guard columns Change lamps Change pump seals Replace tubing Change fuses in power supply Filter all samples and eluents (auto-filtered) Change autosampler rotor/stator	As required As required As required As required As required Daily As required
Computers/Printers	Keyboard cleaning (air) Printer nozzle/head cleaning Platen cleaning	As required As required As required
Balances	Class "1" or "3" traceable weight check Clean pan and check if level External service	Daily, when used Daily Annually
Conductivity Meter	0.01 M KCl calibration Conductivity cell cleaning	As required As required
Turbidimeter	Check light bulb	Daily, when used

Table 23-5 Analytical Equipment Maintenance		
Instrument	**Procedure**	**Frequency**
	Service by qualified technician	Annual
Deionized/Distilled Water	Check conductivity System cleaning Replace cartridge & large mixed bed resins	Daily As required As required
Drying Ovens	Temperature monitoring Temperature adjustments	Daily As required
Refrigerator/Freezer	Temperature monitoring Temperature adjustment Defrosting/cleaning	Daily As required As required
Vacuum Pumps/ Air Compressor	Drained Belts checked Lubricated	Weekly Monthly Semi-annually
pH/Specific Ion Meter	Calibration/check slope Clean electrode	Daily As required
BOD Incubator	Temperature monitoring	Daily
Centrifuge	Check brushes and bearings	Every 6 months or as needed
Water Baths	Temperature monitoring Water replaced	Daily when used As needed
Other	Per SOP	Per SOP

23.3.2 Instrument Calibration

Information on instrument calibration can be found in Appendix F (Chemistry)

Initial instrument calibration and continuing instrument calibration verification are an important part of ensuring data of known and documented quality. If more stringent calibration requirements are included in a mandated method or by regulation, those calibration requirements override any requirements outlined here or in laboratory SOPs (although SOPs should reflect method stipulations). Generally, procedures and criteria regarding instrument calibrations are provided in test methods.

Section 24

MEASUREMENT TRACEABILITY
(TNI V1:M2 – Section 5.6; ISO/IEC 17025/2005(E) - Clause 5.6)

Measurement quality assurance comes in part from traceability of standards to certified materials.

All equipment used affecting the quality of test results is calibrated prior to being put into service and on a continuing basis. These calibrations are traceable to national standards of measurement where available. When using external calibration services, traceability of measurement shall be assured by the use of calibration services from organizations that can demonstrate competence, measurement capability and traceability to the International System of Units (see Section 23 – "Calibration Requirements").

If traceability of measurements to SI units is not possible or not relevant, evidence for correlation of results through interlaboratory comparisons, proficiency testing, or independent analysis is provided.

24.1 Reference Standards

Reference standards are standards of the highest quality available at a given location, from which measurements are derived. Reference standards shall be calibrated before and after any adjustment.

The laboratory uses ASTM Class 1 or 3 weights for daily checks and the lab sends out their ASTM Class 1 weights for a calibration check every five years. It has been established historically (no change between indicated periodic calibrations) that their performance as reference standards has not been invalidated by daily use.

Reference standards, such as ASTM Class 1 or 3 weights, are calibrated by an entity that can provide traceability to national or international standards. The following reference standards are sent out to be calibrated to a national standard as indicated in Section 23 – "Calibration Requirements"

- Class 1 weights
- Class 3 weights
- NIST traceable reference thermometers

24.2 Reference Materials

Reference materials are substances that have concentrations that are sufficiently well established to be used for calibration or as a frame of reference.

Reference materials, where commercially available, are traceable to SI/ national standards of measurement, or to Certified Reference Materials, usually by a Certificate of Analysis.

Purchased reference materials require a Certificate of Analysis meeting ISO Guide 34 requirements, where available. If a reference material cannot be purchased with a valid Certificate of Analysis, it is verified by analysis and comparison to a certified reference material and/or demonstration of capability for characterization. Records for standards, reagents, and reference materials shall include lot numbers. Documentation for reagents and solvents shall be checked to ensure that the stated purity will meet the intended use, and the supporting records of the checks shall be filed electronically.

Internal reference materials, such as working standards or intermediate stock solutions, are checked as far as is technically and economically practical, in accordance with SOPs 20_0001 (Standards Tracking – VOA Dept.), 30_0003 (Standards Tracking – Metals Dept.), 40_0039 (Reagent & Standards Tracking – Wet Chem. Dept.), 50_0006 (Reagent & Standards Tracking – Org. Prep. Dept.), 60_0001 (Reagent & Standards Tracking – SVOA Dept.), 80_0013 (Reagent Review and Tracking) and 110_0003 (Deionized Water System Testing)

Additional working standards such as internal thermometers, etc. are checked using the frequency summarized in Table 23-3 in Section 23 – "Calibration Requirements" or in the test SOPs.

24.3 Transport and Storage of Reference Standards and Materials

The laboratory handles and transports reference standards and materials in a manner that protects the integrity of the materials. Reference standard and material integrity is protected by separation from incompatible materials and/or minimizing exposure to degrading environments or materials.

Reference standards and materials are stored according to manufacturer's recommendations, method SOP requirements and separately from samples, extracts and digestates, per SOPs listed above.

24.4 Labeling of Reference Standards, Reagents, and Reference Materials

The laboratory has procedures for purchase, receipt and storage of standards, reagents and reference materials. Purchase procedures are described in Section 9 – "Purchasing Services and Supplies".

Reagent quality is verified per SOPs listed above. The quality of water sources is monitored and documented per SOP 110_0003 and shall meet method specified requirements.

24.4.1 Stock Standards, Reagents, Reference Materials and Media

Records for all standards, reagents, reference materials, and media include:

- the manufacturer/vendor name (or traceability to purchased stocks or neat compounds)

- the manufacturer's Certificate of Analysis or purity (if supplied)
- the date of receipt
- recommended storage conditions

If the original container does not have an expiration date provided by the manufacturer or vendor it is not required to be labeled with an expiration date. If an expiration date is provided, it must be labeled with the expiration date.

In methods where the purity of reagents is not specified, analytical reagent grade is used. If the purity is specified, that is the minimum acceptable grade. Purity is verified and documented according to Section 9 – "Purchasing Services and Supplies".

24.4.2 Prepared Standards, Reagents, Reference Materials and Media

Records for standards, reagents, reference materials, and media preparation include:

- traceability to purchased stock or neat compounds
- reference to the method of preparation
- date of preparation
- an expiration date after which the material shall not be used
- preparer's initials (if prepared)

Refer to SOPs listed above.

All containers of prepared standards, reagents, or materials are labeled with a unique ID and an expiration date per SOPs listed above. The expiration date of the prepared standard shall not exceed the expiration date of the primary standard.

Prepared reagents are verified to meet the requirements of the test method per SOPs listed above. Verification can usually be achieved through the use of laboratory control standards.

Section 25

COLLECTION OF SAMPLES
(TNI V1:M2 – Section 5.7; ISO/IEC 17025/2005(E) - Clause 5.7)

When ESS Laboratory is not required to provide sampling services, the laboratory's responsibility in the sample collection process lies in supplying the sampler with the necessary coolers, reagent water, sample containers, preservatives, sample labels, custody seals, COC forms and packing materials required to properly preserve, pack, and ship samples to the laboratory.

When ESS Laboratory provides sampling and courier services, these procedures are described in the following SOPs:

10_0006	PCB Wipe Field Sampling Procedure
10_0007	Industrial Wastewater Sampling
10_0011	ISCO Maintenance
10_0012	Field Soil Sampling
10_0013	Groundwater Well Sampling
10_0016	Field pH Testing
10_0017	Sample Courier Service
10_0021	Drinking Water Sample Collection
10_0022	General Field Wipe Sampling Procedure

These SOPs include procedures for recording relevant data and operations relating to sampling that form part of the testing that is undertaken. These records include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant) and diagrams or other equivalent means to identify the sampling location as necessary and, if appropriate, the statistics upon which the sampling procedures are based. These SOPs are available for use by the sampler at the location where sampling is undertaken.

Where the customer requires deviations, additions or exclusions from the documented sampling procedure, these shall be recorded in detail with the appropriate sampling data and shall be included in all documents containing test results, and shall be communicated to the appropriate personnel.

25.1 Sampling Containers

The laboratory offers clean sampling containers for use by clients. These containers, which may or may not contain preservative, are frequently purchased as such. Lots of pre-cleaned containers are only obtained from vendors who can supply certificates of compliance to USEPA OSWER directive #9240.0-05A (Specs/Guidance for Contaminant-free Sample Containers). In the event that ESS has to purchase containers without certificates of compliance, these containers are lot-checked for contamination and the check results are tracked per SOP 80_0013 (Supplies Tracking).

25.1.1 Preparing Container Orders

Containers (containing any required preservatives) are provided to the client upon request per SOP 10_0017 (Courier Service). Bottle orders are made by telephone, e-mail or via the ESS Lab website; in all cases a bottle order request form is completed per SOP 10_0017.

25.1.2 Sampling Containers, Preservation Requirements, Holding Times

Sampling container, preservation and holding time requirements can be found in SOP 10_0001, Attachment A, which is also available to clients on the ESS website as a pdf document.

If preservation or holding time requirements are not met, the procedures in Section 12 – "Control of Nonconforming Environmental Testing Work" are followed.

25.2 Sampling Plan

The laboratory uses sampling plans provided by clients or prepared in consultation with the client. The plan must include any factors that must be controlled to ensure the validity of the test. Sampling plans and written sampling procedures are used for sampling substances, materials or products for testing. The plan and procedures are made available at the sampling location.

The laboratory's procedures for dealing with nonconformances are used when the client requests any deviations from the sampling plan or sampling procedures. The requests are documented and included in the final test report.

25.3 Sampling Records

The following relevant sampling data are recorded: sampling procedure used, the date and time of sampling, the identification of the sampler, environmental conditions (if relevant), the sampling location, and any other pertinent information which may be necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the customer.

Section 26

HANDLING SAMPLES AND TEST ITEMS
(TNI V1:M2 – Section 5.8 and Section 1.7 of Technical Modules TNI V1:M4; ISO/IEC 17025/2005(E)-Clause 5.8)

26.1 Sample Receipt

When samples are received at the laboratory, chain-of-custody is reviewed, condition is documented, samples (and bottles/vials) are given unique identifiers, and they are logged into the sample tracking system, in accordance with SOPs 10_0001 (Sample Receiving), 70_0006 (Bar Coding) and 70_0008 (Sample Login).

26.1.1 Chain of Custody

The chain of custody or sample submission sheets from the field are reviewed. This documentation is completed in the field and provides a written record of the handling of the samples from the time of collection until they are received at the laboratory. Section 25 – "Collection of Samples" outlines what information is needed on this record. The chain of custody form also provides information on what type of testing is being requested and can act as an order for laboratory services in the absence of a formal contract. A typical chain of custody form can be found in Figure 26-1 below and in SOP 10_0001. Chain of custody and any additional records (which may include special instructions, reporting limit requirements etc.) received at the time of sample submission are maintained by the laboratory. These are scanned by the sample receiver, filed as PDFs in an appropriate network directory and are available for use by analysts should testing need to begin before work has been formally logged into the LIMS. These scanned chains are also available for use in subcontracted record keeping.

26.1.1.1 Legal Chain of Custody

The laboratory has procedures (see above) for legal chain of custody services. If samples are noted as being used for legal/evidentiary purposes, the chain of custody followed by the laboratory ensures that pertinent regulatory requirements are met.

The legal COC protocol records shall establish an intact, continuous record of the physical possession, storage and disposal of used sample containers, collected samples, sample aliquots, and sample extracts or digestates, collectively referred to below as "samples". The COC records shall account for all time periods associated with the samples. For ease of discussion, the above-mentioned items shall be referred to as samples:

a) A sample is in someone's custody if:

i) It is in one's actual physical possession;
ii) It is in one's view, after being in one's physical possession;

iii) It has been in one's physical possession and then locked or sealed so that no one can tamper with it; and/or
iv) It is kept in a secure area, restricted to authorized personnel only.

b) The COC records shall identify all individuals who physically handled individual samples. Proof of custody is accomplished via the laboratory's bar-coding and LIMS.

c) Should it become necessary to subcontract any testing to an off-site facility (refer to Section 8), custody must continue to be maintained.

d) Normal practice is for a laboratory courier to deliver sampling containers in accordance with SOP 10_0017 (Sample Courier Service).

26.2 Sample Acceptance

Procedures for opening shipping containers and examining samples are provided in SOP 10_0001 (Sample Receiving).

When samples are received outside of normal business hours, the second shift sample receiver takes care of all samples that still need to be received; bar coding samples, scanning the COCs as PDFs, logging COCs into the LIMS (except where projects need to be set up) and placing the bar coded samples onto carts (in order) to be 2nd level reviewed by the end of the second shift. If necessary, the carts with non-volatile samples are stored in a "Walk-in" refrigerator and samples for volatiles analysis are stored in their appropriate fridges/freezers.

The laboratory has a sample acceptance policy that is followed by sample collection personnel and is posted in the sample receiving area and on the company website. It emphasizes the need for use of water-resistant ink, providing proper documentation (to include sample ID, location, date and time of collection, collector's name, preservation type, sample type and any special remarks about the sample), labeling of sample containers to include a unique sample ID, use of appropriate containers, adherence to holding times, and sample volume requirements. ESS has strict policies in effect that limit the acceptance of hazardous chemical samples without an accompanying Safety Data Sheet (SDS). No radioactive samples are accepted. In addition the laboratory has nonconformance/corrective action procedures to handle samples that don't meet the requirements above or show signs of damage, contamination or inadequate preservation. Data will be appropriately narrated where samples are reported that do not meet sample acceptance requirements.

The laboratory checks samples for the conditions above per SOP 10_0001, where appropriate, to evaluate sample acceptance. Criteria regarding preservation, holding time and sample volume requirements can be found in SOP 10_0001, Attachment A. If these conditions are not met, the client is contacted by the project manager prior to any further processing, then 1) the sample is rejected as agreed with the client, 2) the decision to proceed is documented and agreed upon

with the client, 3) the condition is noted on the Chain of Custody form and/or lab receipt documents, and 4) the data are qualified in the report.

26.2.1 Preservation Checks

The following preservation checks are performed and documented upon receipt:

26.2.1.1 *Thermal preservation:*

a) For temperature preservation of samples at 4°C, the acceptable range is from just above freezing to ≤6°C. Samples which need to be kept frozen are stored at ≤-10°C.

b) Samples that are delivered to the lab the same day as they are collected are likely not to have reached a fully chilled temperature. This is acceptable if the samples are received on ice and the chilling process has begun.

c) Record on the receipt form if ice is present and the temperature.

26.2.1.2 *Chlorine checks:*

d) Laboratories that receive samples from potable water supplies (including source water) that have a demonstrated history of acceptable preservation may check a sample from each client at a frequency of once per month if:

i) the laboratory can show that the received sample containers are from their laboratory;

ii) sufficient sodium thiosulfate was in each container before sample collection to neutralize at minimum 5 mg/l of chlorine for drinking water and 15 mg/l of chlorine for wastewater samples;

iii) one container from each batch of laboratory prepared containers or lot of purchased ready-to-use containers is checked to ensure efficacy of the sodium thiosulfate to 5 mg/l chlorine or 15 mg/l chlorine as appropriate and the check is documented;

iv) chlorine residual is checked in the field and actual concentration is documented with sample submission.

26.2.1.3 *Chemical Preservation:*

e) Chemical preservation should be checked at the time of sample receipt unless it is not technically acceptable to do so (e.g., VOC analyses; samples received after hours when sample receiver might be working alone) and this requirement will normally be followed. When other programs (e.g. TNI, MCP, RCP) permit, then procedures for checking sample preservation using readily available techniques (such as pH or chlorine) at the time of sample preparation or analysis, shall be implemented. Chemical preservation of samples for volatile organic compound analysis may be checked after

analysis. The sample receiving procedure is detailed in SOP 10_0001.

If any of the following conditions exist, chemical preservation must be rechecked in the laboratory:

i) Continued preservation of the sample is in question (e.g., the sample may not be compatible with the preservation); or

ii) Deterioration of the preservation is suspected.

26.2.2 Rush/Short Hold Time Samples

The laboratory ensures that the appropriate laboratory personnel are notified when samples are received with a quick turn-around time request, short hold times, or a short amount of hold time is remaining, per SOPs 10_0001 and 10_0002.

26.2.3 Radioactive Samples

The laboratory does not accept radioactive samples. The laboratory routinely tests samples for radioactivity per SOP 10_0001. Samples found to be radioactive samples will be isolated and arrangements made to return them to sender.

26.2.4 Non-routine Samples

Samples that require non-routine or additional sample preparation steps are accepted by pre-arrangement with the client.

26.2.5 On-Hold Samples

Samples may be stored in the Sample Receiving area refrigerator, pending client's instructions on when and how to proceed with testing.

26.3 Sample Identification

Samples, including subsamples, extracts and digestates, are uniquely identified in a permanent chronological record in the LIMS, per the aforementioned SOPs, to prevent mix-up and to document receipt of all sample containers.

Samples are assigned sequential numbers that reference more detailed information kept in the Project Number Login, per SOP 10_0001.

The following information is included in this log:

- Client or project name
- Container type
- Unique laboratory identification number
- Signature or initials of person making the entries
- Subcontracting information
- Turn Around Time

In addition, the following information is maintained and linked to the log-in record:

- Date and time of sampling linked to the date and time of laboratory receipt.
- Unique field identification number linked to the laboratory sample ID.
- Analyses requested (including applicable approved method numbers) linked to the laboratory sample ID, per COC.
- Cooler receipt information.
- Comments regarding rejection (if any).

All documentation received regarding the sample, such as memos or chain of custody, are scanned into an electronic project folder for permanent retention.

26.4 Sample Aliquots / Subsampling

In order for analysis results to be representative of the sample collected in the field, the laboratory has subsampling procedures. See SOP 10_0001 Attachment G.

26.5 Sample Storage

Storage conditions are monitored for any required criteria, verified, and the verification recorded in logbooks.

Samples that require thermal preservation are stored under refrigeration that is ±2°C of the specified preservation temperature unless regulatory or method specific criteria require something different. For samples with a specified storage temperature of 4°C, storage at a temperature above the freezing point of water to ≤6°C is acceptable.

Samples are held secure, as required. Samples are accessible only to laboratory personnel.

Samples are stored apart from standards, reagents, food or potentially contaminating sources and such, so that cross-contamination is minimized/eliminated. All portions of samples, including extracts, digestates, leachates, or any product of the sample is maintained according to the required conditions.

Samples with potentially high levels of volatile organics, cyanide or restricted (foreign) soil are stored in refrigerators/freezers designated for these purposes.

Refrigerator blanks are stored with samples in volatile sample refrigerators, and are analyzed weekly to check for possible cross-contamination.

26.6 Sample Disposal

Samples are retained a minimum of 30 days after completion of testing unless other arrangements have been made with the client; samples are then disposed of appropriately or returned to client (if requested).

Samples are disposed of according to Federal, State and local regulations. Procedures are described in SOP 10_0002 (Sample Storage) and 90_0002 (Hazardous Waste Contingency), for the disposal of samples, digestates, leachates, and extracts.

26.7 Sample Transport

Samples that are transported under the responsibility of the laboratory, where necessary, are done so safely and according to storage conditions. This includes moving bottles within the laboratory. Specific safety operations are addressed outside of this document.

Sample shipping procedures are described in SOP 10_0017 (Courier Service).

Figure 26-1 Example Chain of Custody

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #

Turn Time 5-Day **Rush**

Regulatory State

Is this project for any of the following?:
◯CT RCP ◯MA MCP ◯RGP

Reporting Limits

Electonic Deliverables ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →)

Company Name	**Project #**	**Project Name**	
Contact Person	**Address**		
City	**State**	**Zip Code**	**PO #**
Telephone Number	**FAX Number**	**Email Address**	

Analysis

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Number of Containers per Sample:

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: °C

Sampled by :

Comments: **Please specify "Other" preservative and containers types in this space**

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

Figure 26-2 Sample Acceptance Policy

ESS Laboratory Sample Acceptance Policy

The following criteria are used by ESS Laboratory to define its sample acceptance policy for regulatory samples:

ESS Laboratory is an environmental analytical laboratory and as such is prepared to handle environmental samples. These include soils, sediments, ground waters, surface waters, and drinking waters. All other samples require notification prior to sending to the laboratory. ESS Laboratory will make provisions to accept caulk, oil, tissue, concrete and other types of matrices. ESS Laboratory will not receive radioactive samples, untreated sewage, samples containing body fluids, or acutely hazardous materials. If client is sending any type of chemical, it must be accompanied by a material safety data sheet.

Samples should be received in coolers on ice and clearly labeled. Tissue samples must be shipped and stored frozen at less than -10°C.

Samples must be received with paperwork (Chain of Custody – available in .pdf or .xls formats) detailing name of sample, date collected, time collected, number of bottles, and analyses required. Chain of Custody (COC) should also include client contact information and any special handling requirements. All samples must be relinquished to the laboratory and received by the laboratory and this information must be documented clearly and legibly on the COC in indelible ink.

Samples should be taken in appropriate containers with appropriate preservation. Refer to the ESS Guide to Sample Handling and Preparation table. Bottles will be furnished upon request.

Upon arrival at the laboratory, ESS will take the temperature of the cooler and record it on the COC and the cooler receipt form. The sample receiver will ensure that the samples are not radioactive and are in good condition (no leaks, air bubbles, broken caps, etc). Samples will be lined up and compared to chain of custody. The COC is signed, formally indicating receipt.

Samples will be assigned a unique barcode ID. A cooler receipt form will be generated and reviewed by the Customer Services Department. All deviations such as temperature, inadequate preservation, insufficient volumes and hold time issues will be recorded. The client will be notified and required to address all deviations before work is initiated on the samples. If the laboratory is required to preserve unpreserved samples, a notation will be made on the cooler receipt form. If the preservation is outside of regulations, the report will contain a statement recording this issue. All deviations outside of regulatory controls will be qualified in the report narrative.

Section 27

QUALITY ASSURANCE FOR ENVIRONMENTAL TESTING *(TNI V1:M1, V1:M2 - Section 5.9, V1:M4 - Section 1.7; ISO/IEC 17025/ 2005(E)-Clause 5.9)*

ESS Laboratory has procedures for monitoring the validity of the testing it performs. The qualities of test results are recorded in such a way that trends are detectable, and where practicable, are statistically evaluated. To evaluate the quality of test results, the laboratory uses certified reference materials, control charting, replicate or confirmational analyses, retesting of retained sample(s) (which may be at a dilution) and correlation of results for different characteristics of a sample.

In addition to procedures for calibration (Section 23 & Appendix F), the laboratory monitors quality control measurements such as blanks, laboratory control samples or blank spikes (LCS/BS), matrix spikes (MS), duplicates, surrogates and internal standards to assess precision and accuracy. Proficiency Testing samples are also analyzed to assess laboratory performance.

Quality control data are analyzed and, when found to be outside pre-defined criteria, action is taken to correct the problem and to prevent incorrect results from being reported. Data associated with quality control data outside of criteria and still deemed reportable will be qualified so the end user of the data may make a determination of the usability of the data - see Section 28 – "Reporting of Results".

27.1 Essential Quality Control Procedures

The quality control procedures specified in test methods are followed by laboratory personnel. The most stringent of control procedures is used in cases where multiple controls are offered. If it is not clear which are the most stringent, those mandated by test method or regulation are followed.

Acceptance criteria are commonly defined in the QC sections of the test method SOPs. For test methods that do not provide acceptance criteria for an essential quality control element or where no regulatory criteria exist, acceptance criteria are developed per SOP 110_0014 (Control Charts). In some instances, the client may set criteria. In any event, acceptance criteria are entered in the Element LIMS under the pertinent test code.

Written procedures to monitor routine quality controls including acceptance criteria are located in the test method SOPs, except where noted, and include such procedures as:

- Use of laboratory control samples and blanks to serve as positive and negative controls for chemistry methods.
- Use of laboratory control samples to monitor test variability of laboratory results;

- Use of calibrations, continuing calibrations, certified reference materials and/or PT samples to monitor accuracy of the test method;
- Measures to monitor test method capability, such as limit of detection, limit of quantitation, and/or range of test applicability, such as linearity;
- Use of regression analysis, internal/external standards, or statistical analysis to reduce raw data to final results;
- Use of reagents and standards of appropriate quality and use of second source materials as appropriate;
- Procedures to ensure the selectivity of the test method for its intended use; &
- Measures to assure constant and consistent test conditions, such as temperature, humidity, rotation speed, etc., when required by test method.

27.2 Internal Quality Control Practices

Analytical data generated with QC samples that fall within all prescribed acceptance limits indicate the test method is deemed to be in control.

QC samples that fall outside QC limits indicate the test method are deemed to be out of control (nonconforming) and that corrective action is required and/or that the data are qualified (see Section 12 – "Control of Nonconforming Environmental Testing Work" and Section 14 - "Corrective Actions").

Detailed QC procedures and QC limits are included in test method standard operating procedures (SOPs), or where unspecified in the SOPs, are detailed in e-mail directives pending formal addition to SOPs.

All QC measures are assessed and evaluated on an on-going basis, so that trends are detected and prompt corrective action may be scheduled, if needed.

27.2.1 General Controls

The following general controls are used:

27.2.1.1 Positive and Negative Controls such as:

a) Blanks (negative)
b) Laboratory control sample (positive)

27.2.1.2 Selectivity is assured through:

a) Absolute and relative retention times in chromatographic analyses (referenced in sops);
b) GC/MS (full scan or SIM) or two-column (dissimilar stationary phases) confirmation if composition of samples is not well characterized, as is the case when using non-specific detectors;

c) Use of acceptance criteria for mass-spectral tuning (found in test method SOPs); and

d) Use of the correct method according to its scope, assessed during method validation.

27.2.1.3 Consistency, Variability, Repeatability, and Accuracy are assured through:

a) Proper installation and operation of instruments according to manufacturer's recommendations or according to the processes used during method validation;

b) Monitoring and controlling environmental conditions (temperature, access, proximity to potential contaminants);

c) Selection and use of reagents and standards of appropriate quality (referenced in SOPs); and

d) Cleaning glassware appropriate to the level required by the analysis as demonstrated with method blanks, per glassware cleaning SOPs 30_0001 (metals) and 50_0001 (organic prep).

e) following sops and documenting any deviation, assessing for impact, and treating data appropriately;

f) Testing to define the variability and/or repeatability of the laboratory results, such as via replicates;

g) Use of measures to assure the accuracy of the test method, including calibration and/or continuing calibrations (detailed in Appendix F), use of certified reference materials, proficiency test samples, or other measures.

27.2.1.4 Test Method Capability (also see Section 22 – "Environmental Methods and Method Validation") is assured through:

a) Establishment of the limit of detection, where appropriate;

b) Establishment of the limit of quantitation or reporting level; and/or

c) Establishment of the range of applicability such as linearity.

27.2.1.5 Data reduction is assured to be accurate by:

a) Selection of appropriate formulae to reduce raw data to final results such as regression;

b) Following specific procedures for data reduction such as manual integration procedures; and

c) Periodic review of data reduction processes to assure applicability;

27.2.1.6 Sample Specific controls are used to evaluate the effect of sample matrix on the performance of the selected analytical method (not a measure of laboratory performance):

Examples:

- Matrix Spike and Matrix Spike Duplicate (MS/MSD)
- Surrogate Spikes
- Sample Duplicates

27.2.1.7 Tables summarizing the required elements of a quality control system (data quality objectives) by various regulatory bodies may be found in the pertinent test SOPs.

27.2.2 Specific Controls

27.2.2.1 Method Blanks

Method blanks are processed along with and under the same conditions as the associated samples to include all steps in the method. A method blank must be analyzed at a minimum of one per preparation batch. When no separate preparation method is used the batch is defined as the environmental samples that are analyzed with the same method and personnel, using the same lots of reagents, not to exceed the analysis of twenty environmental samples, not including method blanks, LCS, BS, matrix spikes and matrix duplicates. The matrix of the method blank must be similar to the associated samples and be free from any analytes of interest. Method blanks are not required for some analyses such as pH, conductivity, flashpoint, temperature.

Contaminated blanks are identified according to the acceptance limits in the test method SOPs or laboratory documentation.

The laboratory identifies a blank as contaminated when analyte results are greater than the reporting limit and greater than 1/10th the amount measured in any associated sample, or 1/10th the regulatory limit, whichever is greater; or where the contaminant affects the sample results, per test method requirements or client data quality objectives.

When a blank is determined to be contaminated, the cause must be investigated and measures taken to minimize or eliminate the problem.

Data that are unaffected by the blank contamination (non-detects or other analytes) are reported unqualified.

Sample data that are suspect due to the presence of a contaminated blank are reanalyzed, qualified, or voided.

27.2.2.2 Laboratory Control Samples (Blank Spikes)

Laboratory Control Samples (LCS; BS) are prepared from analyte free water or other clean matrix, and spiked with verified and known amounts of analytes for the purpose of establishing precision or bias measurements.

The matrix spike (Section 27.2.2.3 below) may be used in place of this control as long as the acceptance criteria are as stringent as for the LCS.

Alternatively, the LCS may consist of a media containing known and verified concentrations of analytes or as Certified Reference Material (CRM). All analyte concentrations shall be within the calibration range of the methods. The following shall be used in choosing components for the spike mixtures:

The components to be spiked shall be as specified by the mandated method or regulation or as requested by the client. In the absence of specified spiking components, the laboratory shall spike per the following:

a) for those components that interfere with an accurate assessment, such as spiking simultaneously with technical chlordane, toxaphene and PCBs, the spike shall be chosen that represents the chemistries and elution patterns of the components to be reported; and

b) for those methods that have extremely long lists of analytes, a representative number may be chosen. The analytes selected shall be representative of all analytes reported.

The following criteria shall be used for determining the minimum number of analytes to be spiked. However, the laboratory shall insure that all targeted components are included in the spike mixture over a two (2) year period:

Laboratory control samples are analyzed at a frequency mandated by method, regulation, or client request, whichever is more stringent. The standard frequency of LCS preparation and analysis is at least one per analytical batch or as otherwise stated in a laboratory SOP. Exceptions would be for those analytes where no spiking solution is available, such as pH, color, odor, temperature. When no separate preparation method is used, the batch is defined as the environmental samples that are analyzed with the same method and personnel, using the same lots of reagents, not to exceed the analysis of twenty environmental samples, not including method blanks, LCS, matrix spikes and matrix duplicates.

The analytes to be spiked in the LCS are specified in the test method SOP. In some cases a client may specify a list of analytes for spiking and the request is handled using the laboratory’s nonconformance procedures.

The results of laboratory control samples (LCS) are calculated in percent recovery or other appropriate statistical technique that allows comparison to established acceptance criteria. The laboratory documents the calculation in the pertinent test method SOP.

The individual LCS is compared to the acceptance criteria as published in the mandated test method, or where there are no established criteria,

the laboratory uses in-house established limits as described in SOP 110_0014.

The TNI Standard allows certain marginal exceedances for target analytes, as follows (these are also specified in the test SOPs):

Number of analytes in LCS	Number of allowed exceedances
> 90	5
71 – 90	4
51 – 70	3
31 – 50	2
11 – 30	1
< 11	0

When the acceptance criteria for the positive control are exceeded high (i.e., high bias) and there are associated samples that are non-detects, then those non-detects may be reported with data qualification; or when the acceptance criteria for the positive control are exceeded low (i.e., low bias), those sample results may be reported if they exceed a maximum regulatory limit/decision level, with data qualifying codes.

27.2.2.3 Matrix Spikes and Matrix Spike Duplicates

Matrix Spikes and Matrix Spike Duplicates (MS/MSD) are environmental samples fortified with a known amount of analyte to help assess the effect of the matrix on method performance.

The laboratory procedure for MS/MSD includes spiking appropriate analytes at appropriate concentrations, calculating percent recoveries and relative percent difference (RPD), and evaluating and reporting the results. The procedure can be found in the pertinent method SOP.

Where there are no established criteria, MS/MSD criteria are established in the same manner as that described above for LCS.

For MS/MSD results outside established criteria, corrective action is documented or the data are reported with appropriate data qualification; an inability to meet QC criteria may result from matrix interference and if this is the case, then it will be so narrated in the final report. Only data from the parent spiked sample is qualified.

27.2.2.4 Surrogate Spikes

Surrogate spikes are substances with chemical properties and behavior similar to the analytes of interest and are used to assess method performance in individual samples. Surrogates are added to all samples (in test methods where surrogate use is appropriate) prior to sample preparation or extraction.

Surrogate recovery results are compared to the acceptance criteria as published in the mandated test method. Where there are no established criteria, the laboratory follows the procedures described above in Section 27.2.2.2 to derive surrogate control limits.

For surrogate results outside established criteria, data are evaluated to determine the impact. Corrective actions are detailed in the respective SOPs.

27.3 Proficiency Test (PT) Samples or Interlaboratory Comparisons

27.3.1 Compliance to Accreditation Requirements

The laboratory analyzes at least two TNI-compliant PT samples per calendar year for each of the Fields of Proficiency Testing (FoPT) for which the laboratory is NELAC accredited. An exception is made for analytes where there is no PT available from any PTPA approved PT provider at least twice per year. In these cases the lab will run the PTs in the minimum time frame the PTs are available and not at all if they are not available.

The successive PTs are analyzed at least five months apart and no more than 7 months apart unless the PT is being used for corrective action to maintain or reinstate accreditation, in which case the dates of successive PT samples for the same accreditation FoPT is at least fifteen days apart.

27.3.2 PT Sample Handling, Analysis and Reporting

The laboratory does not share PT samples with other laboratories, does not communicate with other laboratories regarding current PT sample results, and does not attempt to obtain the assigned value of any PT sample from the PT provider.

Proficiency Testing samples are treated as typical samples in the normal production process where possible, including the same analysts, preparation, calibration, quality control and acceptance criteria, sequence of analytical steps, number of replicates, and sample log-in. PT samples are not analyzed multiple times unless routine environmental samples are analyzed multiple times. Where PT samples present special problems in the analysis process, they will be treated as laboratory samples where clients have special requests.

The type, composition, concentration and frequency of quality control samples analyzed with the PT samples are the same as with typical samples.

Prior to the closing date of a study, laboratory personnel do not:

- Subcontract analysis of a PT sample to another laboratory being run for accreditation purposes.
- Knowingly receive and analyze a PT for another laboratory being run for accreditation purposes.

- Communicate with an individual from another laboratory concerning the analysis of the PT sample.

- Attempt to find out the assigned value of a PT from the PT Provider.

A result for any PT study parameter which is at a concentration above or equal to the LOQ (defined in Appendix F) shall be reported as the resultant value.

A result for any PT study parameter which is at a concentration less than the LOQ shall be reported as less than the value of the LOQ.

When a PT sample assigned value falls below the range of the routine method, a low level procedure needs to be used. The laboratory's procedures for testing low level samples (including PT samples) are outlined in the pertinent laboratory SOPs. The laboratory reports PT study results to the PT provider, in the provider's specified format, on or before the study closing date. The frequency at which PT study results are reported to a regulatory body is determined by the agency in question. On or before the closing date of a study the laboratory authorizes the PT Provider to release the laboratory's final evaluation report directly to pertinent regulatory bodies.

The laboratory institutes corrective action procedures for failed PT samples following the guidelines in Section 14 – "Corrective Action".

Retention of PT records, including data necessary to reconstruct results, is similar to that maintained for regular environmental samples, as specified in test SOPs. In addition the lab maintains a copy of the online data entry summary when the PT results are submitted online.

27.4 Data Review

The laboratory reviews all data generated in the laboratory for compliance with method, laboratory and, where appropriate, client requirements, in accordance with SOPs 70_0004 (Work Order Management), 70_0005 (Levels III and IV Data Review) and 70_0007 (Data Entry and Data Reporting in Element LIMS):

Electronic preparation bench sheets, instrumental analysis run logs and the Element LIMS are used to record the information required for traceability of the analysis. These records include quality control measurements and acceptance criteria. Data are recorded on the bench sheets/run logs promptly at the time of analysis, per SOP 80_0040 (Logbooks). The reportable values are highlighted in a new XLS workbook by the first reviewer and the preparation bench sheet is added to it to produce a combined document.

Analysts (Level I review) review sample data and QC information at the time of the analysis and indicate necessary information by marking the run log. The analyst signs the run log (dating/time is done automatically by the software program) to indicate that they have performed the steps listed and that the analysis meets acceptance criteria or has exceptions that are noted in the comments column of the run log.

When the analyst has finished the primary analysis review, the combined record is then used by the appropriate personnel to enter the data into the LIMS.

Another person, either in the QA Dept. or in the originating laboratory dept. (Level II review), checks the combined record for the following items:

a) All required information has been recorded in the combined record.
b) QC acceptance criteria or exceptions are documented in the comments column of the run log.
c) Manual calculations are checked for accuracy.

When these checks have been completed, the second reviewer signs the combined record to show that the review has been performed.

When reporting data for methods requiring two column confirmation, project-specific reporting requirements are followed. If not available, method reporting requirements are followed. If these are not specified, report primary column results unless there is a scientifically valid and documented reason for not doing so, as specified in the test SOP and client agrees. These shall also be qualified in the test report and explained in the case narrative. Analyte presence is only indicated when confirmation is positive or cannot be discerned from interference.

The report is printed as a pdf and submitted to the approved signatories, who will normally be a QA Dept. data validator for final technical review (Level III review) and Admin. Dept. personnel for final administrative review (Level IV review). The final technical review includes verifying that the data entered on the worksheet has been appropriately transferred to the LIMS and that the data is coherent, that the QC results are acceptable, QC exceptions are appropriately reflected on the final report and that the results are in line with historical values, if known. Correlation of results for different characteristics of an item may also be considered.

The Level IV review is a final check of the work order to ensure that the three prior levels have been completed, any deviations have been noted in the project narrative, all sample analyses have been performed based on comparison with the COC, the final report was delivered to the client electronically or otherwise, and electronic data deliverables have been generated and submitted to the client as requested.

In addition, the Quality Manager or QA Officer shall review a minimum of 10% of all data packages for technical completeness and accuracy. This review (Level V review) is considered a part of overall data review and does not need to be completed before the data package is issued to the customer.

If electronic audit trail functions are available, they must be in use at all times, and associated data must be accessible. If the instrument does not have an audit trail, the laboratory must have procedures to record the integrity of the data. Refer to SOP 80_0040.

Section 28

REPORTING THE RESULTS
(TNI V1:M2 – Section 5.10; ISO/IEC 17025/2005(E) - Clause 5.10)

The result of each test performed is reported accurately, clearly, unambiguously, and objectively and complies with all specific instructions contained in the test method.

Laboratory results are reported in a test report that includes all the information requested by the client and necessary for the interpretation of the test results and all information required by the method used. Any information listed below in Section 28.1 which is not reported to the customer shall be readily available in the laboratory department/LIMS, which carried out the tests and/or calibrations.

Data are reported without qualification if they are greater than the lowest calibration standard, lower than the highest calibration standard, and without compromised sample or method integrity.

Test reports meeting the TNI/ISO 17025 standards are issued by electronic data transfer in PDF or, if requested, in spreadsheet format.

28.1 Test Reports

The report format has been designed to accommodate each type of test performed and to minimize the potential for misunderstanding or misuse.

Each test report generated contains the following information, unless dictated otherwise by contractual agreement:

a) A title, such as Certificate of Analysis;

b) The name and address of the laboratory, the location of the laboratory if different from the address; phone/fax number and web address;

c) Unique identification of the test report, such as a serial number, on each page and a pagination system that ensures that each page is recognized as part of the test report and a clear identification of the end of the report, such as 3 of 10;

d) The name, address of the client;

e) The project identification and location (if available);

f) The identification of the method used to detect and quantify the analytes of interest. Sample preparation procedures, if not included in the referenced analytical procedures, must also be referenced or described;

g) A description of, the condition of, and unambiguous identification of the sample(s) tested, including the client identification code;

h) The date of sample receipt when it is critical to the validity and application of the results, date and time of sample collection, dates the tests were performed, the time of sample preparation and analysis if the required holding time for either activity is less than or equal to 72 hours;

i) Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;

j) The test results, units of measurement, an indication of when results are reported on any basis other than as received (e.g. dry weight), failures identified by narrative and/or use of qualifiers (see SOP 70_0002 – Data Flagging).

k) The name, function, and signature or an equivalent electronic identification of the person authorizing the test report, and the date of issue;

l) Where relevant, a statement to the effect that the results relate only to the samples;

m) Any non-accredited tests or parameters shall be clearly identified as such to the client when claims of accreditation to regulatory standards are made in the analytical report or in the supporting electronic or hardcopy deliverables;

n) A statement that the report shall not be copied except in full without approval of the laboratory;

o) An Adobe® custom dynamic stamp stating "REVIEWED by ESS Laboratory at '*Time*' '*Date*' ";

p) Table of Contents, which may be generated electronically by the Adobe® software;

q) Date of issuance;

r) The date of sample extraction, if applicable to the analytical method performed, and the date of sample analysis.

28.2 Supplemental Test Report Information

When necessary for interpretation of the results or when requested for regulatory compliance, or when requested by the client, test reports include the following additional information (case narrative):

a) Deviations from, additions to, or exclusions from the test method, information on specific test conditions, such as environmental conditions, and any non-standard conditions that may have affected the quality of the results, and any information on the use and definitions of data qualifiers;

b) A statement of compliance/non-compliance when requirements of the management system are not met, including identification of test results that did

not meet the laboratory and regulatory sample acceptance requirements, such as holding time, preservation, etc.;

c) Where applicable and when requested by the client, a statement on the estimated uncertainty of the measurement; information on uncertainty is needed in test reports when it is relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit.

d) Where appropriate and needed, opinions and interpretations. When opinions and interpretations are included, the basis upon which the opinions and interpretations are documented. Opinions and interpretations are clearly marked as such in the test report case narrative.

e) Additional information which may be required by specific methods, regulatory agency or client (such as dates of extraction for test methods including extraction prodedures); and

f) Qualification of results with values outside the calibration range, as appropriate.

In addition to the items above, for test reports that contain the results of sampling, the following is provided when necessary for the interpretation of the results:

a) The date of sampling;

b) Unambiguous identification of the material sampled;

c) The locations of the sampling, including diagrams, sketches, or photographs;

d) A reference to the sampling plan and procedures used;

e) Details of any environmental conditions during sampling that may affect the interpretations of the test results;

f) Any standard or other specification for the sampling method or procedure, and deviations, additions to or exclusions from the specification concerned.

In addition to the requirements listed above, calibration certificates shall include the following, where necessary for the interpretation of calibration results:

28.3 Environmental Testing Obtained from Subcontractors

Test results obtained from tests performed by subcontractors are clearly identified on the test report by subcontractor name and/or accreditation number.

The subcontractors report their results in writing or electronically. A copy of the subcontractor's report, as received on their letterhead, is included in the test report.

28.4 Electronic Transmission of Results

All test results transmitted by telephone, fax, telex, e-mail, or other electronic means comply with the requirements of the TNI/ISO 17025 Standards and associated procedures protecting the confidentiality and proprietary rights of the client (see Section 22- "Environmental Methods and Method Validation").

28.4.1 Electronic Data Deliverables

The preparation and submission of electronic data deliverables in a prescribed format (e.g. SEDD, AECOM, CLP-Like) created using special software programs (Element LIMS, EDD Writer) is by contractual agreement and is designed to accommodate each type of test or calibration carried out and to minimize the possibility of misunderstanding or misuse.

28.5 Amendments to Test Reports

Material amendments (revisions) to a test report after it has been issued are made only in the form of another document or data transfer and must be approved by management. All supplemental reports meet all the requirements for the initial report and the requirements of this *Quality Manual*.

Amended test reports include the statement, "This report has been revised to……" in bold letters or an equivalent form of wording to assure they can be differentiated from other test reports.

When it is necessary to issue a complete new report, the new report is uniquely identified and contains a reference to the original that it replaces.

Appendix A

Master List of Controlled Documents

SOP#	Rev#	SOP METHOD TITLE
10_0000		**Sample Receiving Department**
10_0001	10	Sample Receiving
10_0002	3	Storage of Samples
10_0003	2	Refrigerator/Freezer Temperature Maintenance
10_0006	4	PCB Wipe Field Sampling Procedure
10_0007	1	Industrial Waste Water Sampling
10_0010	0	Operation of Radalert Radiation Monitor
10_0011	1	ISCO Maintenance
10_0012	1	Field Soil Sampling
10_0013	1	Groundwater Well Sampling
10_0016	2	Field pH testing
10_0017	2	Sample Courier Service
10_0020	3	Restricted Soil
10_0021	0	Drinking Water (SDWA) Sample Collection
10_0022	0	General Field Wipe Sampling Procedure
10_0023	0	Wood Chip Sample Size Reduction Procedure
20_0000		**VOA Department**
20_0001	2	Reagent and Standard Tracking VOC Lab_
20_0002A	4	Measurement of Purgeable Organic Compounds in Water By Capillary Column GC/MS (EPA Method 524.2)
20_0004	9	Gasoline Range Organics(GRO)
20_624_1	0	Volatile Organic Compounds by GC/MS: Capillary Column Technique (EPA Method 624.1)
20_1311	3	TCLP SW846 Method 1311 (VOA)
20_8260B	11	Volatile Organic Compounds by GC/MS: Capillary Column Technique (SW-846 Method 8260B)
20_8260C	1	Volatile Organic Compounds by GC/MS: Capillary Column Technique (SW-846 Method 8260C)

20_5035	10	Volatile Organic Compounds by GC/MS: Capillary Column Technique (SW-846 Method 5035/A)
20_VPH	5	Volatile Petroleum Hydrocarbons
30_0000		**Metals Department**
30_0003	7	Reagent and Standard Tracking Metals Lab
30_0004	1	Acid Volatile Sulfides & Simultaneously Extracted Metals in Sediment
30_1311	6	TCLP SW846 Method 1311
30_2009	9	Determination of Trace Elements by Stabilized Temperature Graphite Furnace Atomic Absorption (Method 200.9/7010)
30_2451	5	Mercury Analysis for Aqueous Samples (Methods 245.1/ SW846 7470A)
30_3005	8	Acid Digestion of Waters for Total Recoverable or Dissolved Metals for analysis by GFAA or ICP Spectroscopy (EPA 200.7 PREP/SW846 3005A)
30_3050B	7	Acid Digestion for Metals in Soil/Sediment Samples for ICP And GFAA (SW-846 Method 3050B)
30_3060	1	Hexavalent Chromium Alkaline Digestion Procedure
30_6010	15	ICP-AES (SW 846 Method 6010C/D, EPA Method 200.7)
30_6020	2	ICP-MS (SW 846 Method 6020A/B, EPA Method 200.8/MCP Method)
30_7196	4	Hexavalent Chromium Method (SM3500-Cr B/SW846 Method 3060A/7196A)
30_7471	4	Mercury Analysis for Soil Samples (SW846 Method 7471A/ B)
40_0000		**Wet Chemistry Department**
40_0001	3	Conductivity (SM2510; EPA 120.1; SW9050A)
40_0003	3	Alkalinity (SM2320B)
40_0005	6	BOD and CBOD (SM5210B)
40_0006	4	COD (EPA 410.4/SM5220D)
40_0007L	3	Chloride (Lachat) (SM4500-Cl-E and EPA 9250)
40_0008	3	Residual Chlorine (SM4500-Cl G)
40_0008Amp	3	Residual Chlorine (SM4500-Cl D)
40_0009	8	Total Cyanide by Distillation (All Methods)
40_0010L	5	Nitrogen, Nitrate (Lachat) (EPA 353.2)
40_0011	4	Nitrogen, Nitrite (Manual) (EPA 353.3; SM4500-NO2 B)
40_0011L	3	Nitrogen, Nitrite (Lachat) (EPA 353.2)
40_0014B	3	Phosphorus (all forms) (EPA 365.3)
40_0014L	6	Phosphorus (all forms) (Lachat) (EPA 365.1)

40_0015	2	Phenols, Total Recoverable (EPA 420.1; SW9065)
40_0016	3	pH (EPA 150.1; SW9040C; SM4500-H^+B)
40_0017	2	Sulfate (SW9038; SM4500-SO4-E)
40_0018	1	Sulfide (SM4500-S^{2-}D)
40_0019B	1	TKN (EPA 351.2)
40_0019-ISE	4	TKN (SM4500- NH_3 D)
40_0020A	5	Total Dissolved Solids(SM2540 C)
40_0021A	3	Total Suspended Solids(SM2540 D)
40_0022A	3	Total Solids (SM2540 B)
40_0023	3	Turbidity (EPA 180.1)
40_0024L	4	Ammonia by Lachat (EPA Method 350.1)
40_0024ISE	3	Ammonia by Ion Selective Electrode (SM4500-NH_3 D)
40_0025W	1	Anions by Ion Chromatography (Method EPA 300.0/SW846-9056A -Waters Instrumentation)
40_0026	1	Reactivity (SW846 Methods 7.3.3.2 & 7.3.4.2)
40_0029	1	Total Volatile Solids(EPA 160.4; SM2540 E)
40_0030	0	Settleable Solids(SM2540 F)
40_0033	0	Color (HACH Method)
40_0039	4	Reagent and Standard Tracking
40_0040	0	Silica, Dissolved (HACH Method; SM4500-SiO_2 D)
40_0041	2	Acidity (SM2310B)
40_0042	1	Salinity (SM2520B)
40_0044	1	Mc Laughlin Oil Testing Procedure
40_0045	0	Sulfite(SM4500-$S0_3$ B)
40_0046	0	ORP/Eh – Electrometric Measurement (SM2580)
40_0047	0	Determination of Formaldehyde by HPLC
40_0048	1	Iron, Ferrous by HACH Method 8146
40_0049	0	% Fasteners, % Plastics, % Non-Wood
40_9060-Aq	2	Total Organic Carbon (Methods 5310B and 9060A)
40_9060-LK	0	Total Organic Carbon (Lloyd-Kahn Method)
40_9041A	0	pH Paper Method (SW846 9041A)
40_9045	1	Soil and Waste pH (SW846 9045C)
40_9071	0	Oil and Grease in Sludge and Sediment (SW846 9071)
40_9095A	2	Paint Filter (SW846 9095A)
50_0000		**Organic Preparation Department**
50_EPH	6	EPH (State of Mass_)

50_NJ-EPH	1	Extractable Petroleum Hydrocarbons per NJDEP Method 10/08 Rev 3
50_0001	2	Glassware Cleaning Organic Prep
50_0006	4	Reagent and Standard Tracking Organic Prep
50_1664	4	Organic Prep for TPH and O&G by Hexane Extraction
50_1010	3	Flashpoint (Closed Cup) and Ignitability
50_3510	12	Sep_ Funnel Liquid-Liquid Extraction
50_3511-mod	0	MSE Aqueous Extraction
50_3520C	5	Continuous Liquid-Liquid Extraction
50_3535_diox	0	Solid Phase Extraction of 1,4-Dioxane
50_3540	4	Soxhlet Extraction
50_3546	1	Microwave Extraction
50_3570-mod	0	MSE Solids Extraction
50_3580A	3	Organic Prep_ Waste Dilution
50_3620B	1	Florisil Cleanup for Pest/PCBs
50_3660B	1	Sulfur Cleanup by Copper Powder
50_3665A	0	Sulfuric Acid/Permanganate Clean-up For PCBs
50_CarboPrep	1	Carbo-Prep Sep-Pak Cartridge Cleanup for Pesticides
60_0000		**Semi-VOA Department**
60_0001	3	Reagent and Standard Tracking SVOC Lab
60_0002	1	PCBs in Transformer Fluid and Waste Oils
60_5041	3	EDB, DBCP & 1,2,3-Trichloropropane (EPA Methods 504.1 and 8011)
60_5522	3	Haloacetic acids
60_8151A	3	Chlorinated Herbicides by GC/ECD (EPA Method 8151A)
60_8081	8	Pesticides by GC/ECD (Methods 608.3 and 8081B)
60_8082	7	PCB Aroclors by GC/ECD (Methods 608.3 and 8082A)
60_8082Cong	2	PCB Congeners by GC/ECD
60_8100-mod	5	TPH (Methods 8100-Mod and CT ETPH)
60_8270	11	Semivolatile Organics by GC/MS (8270D)
60_DRO	8	Diesel Range Organics (Methods 8015 B,C & D)
60_RSK-175	1	Methane, Ethane and Ethene by GC of Sample Headspace (RSK-175)
60_Glycols	2	Glycols by GC/FID
60_8100-MOD-FA	0	Alkane Hydrocarbons-FA
60_8270-MOD	3	MAH/PAH by GC/MS-FA
60_8270-BIO	0	Petroleum Biomarkers by GC-FA

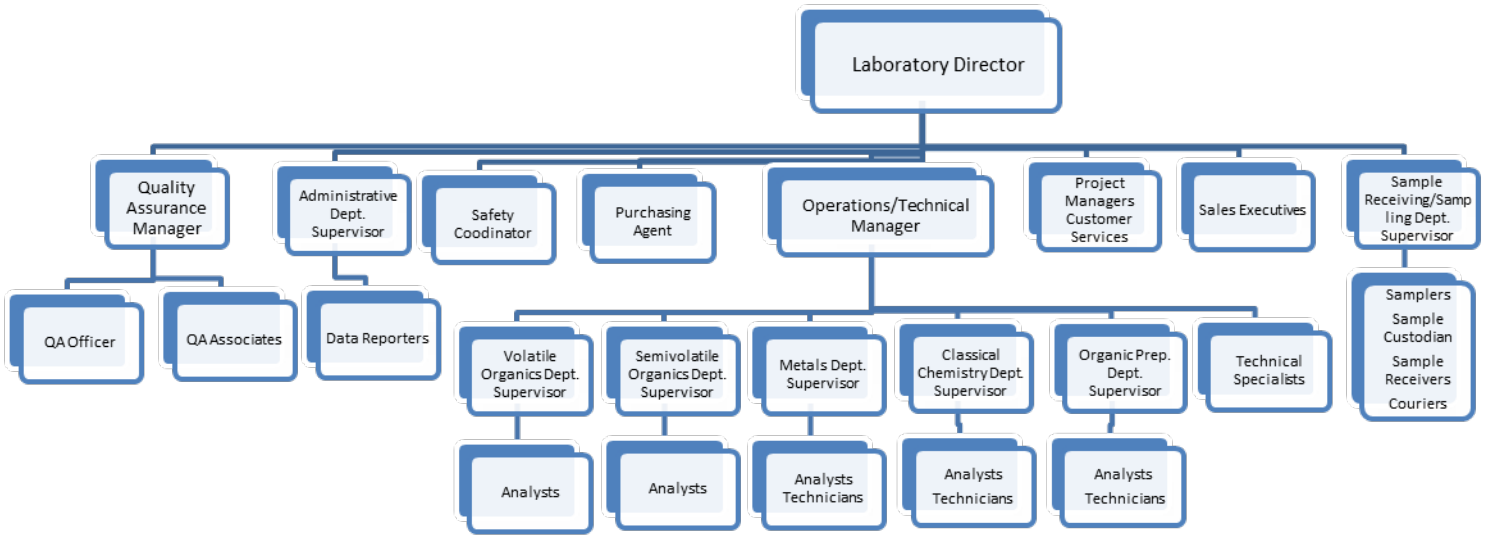
70_0000		**Administration Department**
70_0002	5	Data Flagging
70_0003	4	Purchasing
70_0004	5	Work Order Management Procedure
70_0005	4	Level III and IV Data Review
70_0006	1	Barcoding
70_0007	3	Data Entry and Data Reporting – Element LIMS
70_0008	2	Sample Login
70_0009	0	SDWA Reporting
80_0000		**Quality Assurance**
80_0004	5	QA Data Package Review
80_0009	4	Incident/Corrective Action
80_0012	3	Document Control
80_0013	4	Reagent Review and Tracking
80_0015	1	Review of QA
80_0016	3	Training
80_0018	0	Continuing Education Process
80_0020	0	Vendor Qualification
80_0024	2	Process Validation
80_0026	2	Proficiency Testing
80_0028	0	QC Procedure
80_0029	1	Management of Procedure Documents
80_0035	3	Internal Assessment
80_0040	2	Logbook Use, Review, and Control
80_0044	0	Laboratory Contingency Plan
80_0047	1	Computer Validation
80_0048	2	Sub-contract
80_0049	2	Data Integrity Plan
80_0051	0	Requests, Tenders and Contracts
LQAP	17	Laboratory Quality Assurance Plan
Policy Manual	0	Job Descriptions
GMP/GLP	3	Good Manufacturing Practices/Good Laboratory Practice Training
EQMT INV	2019	Equipment Inventory
SAP	2018	Sample Acceptance Policy
LOGLIST	2019	List of Log Books by Department

SOPMASLIST	2019	Current SOP Master List
INITIALS & SIGNATURES	2019	List of Employee Initials & Signatures
90_0000		**Safety**
90_0001	4	Laboratory Chemical Hygiene Plan
90_0002	4	Pollution Prevention and Haz Waste Cont and Emergency Response Plan
90_0003	3	Hazard Communication Program
90_0004	2	Safety and Hazardous Communication Program Training
90_0005	0	Respiratory Protection Policy
110_0000		**Quality Control**
110_0003	1	De-ionized Water System Testing
110_0005	4	Volumetric Ware Calibration
110_0010	1	In-House Thermometer Calibration and Tracking
110_0013	5	Method Detection Limit
110_0014	3	Control Charts
110_0015	1	Lab Security
110_0016	1	Manual Integration Policy and Procedure
110_0017	0	Tentatively Identified Compounds
110_0018	0	Balance Calibration and Verification
120_0000 (ESS Lab Internal Ref Nos_)	***Rev # or Date***	***ISO/ NELAC/State Documents and Checklists/Audits (ISO/ NELAC/State incorporated by reference)***
120_0007	2	ISO/IEC 17025:2005
120_0012	9/09	The NELAC Institute Standard EL-V1M2_V1M4 - 2009
120_0013		Commonwealth of Massachusetts DEP Regulations 310 CMR 22.0, 42.0 & 40.1600
120_0014		State of Rhode Island Drinking Water, Lab Certification & Remediation Regs
120_0016		Checklist: TNI Standard Module 4 - Quality Systems for Chemical Testing
120_0017		Checklist: TNI Standard Module 2 - Quality Systems for Chemical Testing
120_0018		Annual Systems Audit – TNI Module 2
120_0019		Annual Systems Audit – TNI Module 4
120_0020		Annual Systems Audit – TNI Module 1

Appendix B

Laboratory Organization Chart

(The most current chart can be obtained from the Quality Manager or Lab Director)



Appendix C

Analytical Methods

ANALYTE	POTABLE	NON-POTABLE	SOLIDS/WASTE
Metals			
Aluminum	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Antimony	200.5, 200.9, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Arsenic	200.5, 200.9, 200.8	200.7, SM3113B, 6010C/D, 7010, 7060A, 2008, 6020A/B	6010C/D, 7010, 6020A/B
Barium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Beryllium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D
Boron	200.7	200.7, 6010C/D	6010C/D, 6020A/B
Cadmium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Chromium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Chromium - Hexavalent	SM3500-Cr B	SM3500-Cr B, 7196A	7196A
Cobalt	200.7	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Copper	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Iron	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Lead	200.5, 200.9, 200.8	200.7, 6010C/D, 6020A/B	6010C/D, 6020A/B
Manganese	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Mercury	245.1	245.1/7470A	7471A
Molybdenum	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Nickel	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Selenium	200.5, 200.9, 200.8	200.7, SM3113B, 6010C, 7010, 7740, 200.8, 6020A	6010C/D, 7010, 6020A/B
Silver	200.7, 200.8	200.7, 6010C, 200.8	6010C/D
Strontium	X	200.7, 6010C/D	6010C/D
Thallium	200.9, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Tin	X	200.7, 6010C/D	6010C/D
Titanium	X	200.7, 6010C/D	6010C/D
Vanadium	200.7, 200.8	200.7, 6010C/D	6010C/D, 6020A/B
Zinc	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Minerals			
Calcium	200.7	200.7, 6010C/D	6010C/D
Hardness	200.7	SM2340 B	X
Magnesium	200.7	200.7, 6010C/D	6010C/D
Potassium	200.7	200.7, 6010C/D	6010C/D
Sodium	200.7	200.7, 6010C/D	6010C/D
Volatile Organic Compounds	524.2	624.1, 8260B/C	8260B/C
Haloacetic Acids	552.2	X	X

EDB/DBCP	504.1	8011	X
Methane, Ethane & Ethene, by head- space Analysis	X	RSK-175	X
Pesticides	X	608.3, 8081B	8081B
PCBs	X	608.3, 8082A	8082A
PCBs in Oil	X	8082A EPA 600/4-81-045	EPA 600/4-81-045 8082A
BNA Extractables	X	625.1, 8270D	8270D
Low Level PAHs	X	8270SIM	8270SIM
Oil and Grease (Hexane)	X	1664A/B	9071B
Total Petroleum Hydrocarbons	X	1664A/B/8100M/TPH/CtEPH	8100M/TPH/CtEPH
Volatile Petroleum Hydrocarbon	X	GRO (8015C/D), MADEP VPH	GRO (8015C/D), MADEP VPH
Extractable Petroleum Hydrocarbon, Mass , Maine & New Jersey	X	DRO(8015C/D), MADEP EPH, NJDEP EPH	DRO(8015C/D), MADEP EPH, NJDEP EPH
Herbicides	X	8151A	8151A
Inorganics			
Acidity	SM2310B	SM2310B	X
Alkalinity	SM2320B	SM2320B	SM2320B*
Ammonia	X	350.1, SM4500-NH3 D	350.1
BOD	X	SM5210B	X
COD	X	410.4, SM5220-D, HACH 8000	X
Chloride	300.0	300.0, SM4500-Cl-E, 9056A, 9250	9056A*, 9250*
Cyanide	4500-CN C,E	9014, SM4500-CN C,E	9014
Flashpoint	X	X	1010A
Fluoride	300.0	300.0, 9056A	X
Formaldehyde	X	8315A/1667 Rev. A Mod	X
Hardness	SM2340B	SM2340B, 6010C/D	6010C
Iron, Ferrous	X	HACH 8146	X
MBAS	5540C	5540C	5540C
Nitrate	353.2	353.2,	353.2*
Nitrite	353.2	300.0, 353.2, SM4500-NO2 B, 9056A	353.2*, 9056A*
Orthophosphate	365.1	365.1, 365.3	365.1*, 365.3*
Paint Filter	X	X	9095A
pH	150.1 SM4500-H^+ B	SM4500-H^+ B	9040, 9045C

Reactive Cyanide	X	X	7.3.3.2
Reactive Sulfide	X	X	7.3.4.1
Settleable Solids	X	SM2540F	X
Silica	X	SM4500-SiO_2 D	X
Specific Conductance	SM2510B	120.1, SM2510B	9050A*
Sulfate	300.0, 4500-SO_4-E	300.0, 9038, 9056A	9038*, 9056A*
Sulfide	HACH	HACH, SM4500-S^{2-}D	X
Sulfite	X	SM4500-SO_3^-B	X
Total Dissolved Solids	SM2540C	SM2540C	X
Total Suspended Solids	X	SM2540D	X
Total Kjehdahl Nitrogen	X	351.2, SM4500-NH3 D, SM4500 NORG B	X
Total Phenolics	X	420.1	9065
Total Phosphorous	X	365.1, 365.3	365.1, 365.3
Total Residual Chlorine	SM4500-Cl D, G	SM4500-Cl D, G	X
Total Solids	X	SM2540B	SM2540B
Turbidity	180.1	180.1	X
Volatile Solids	X	160.4, SM2540 E	X
Total Organic Carbon	SM5310B	SM5310B/9060A	9060A
TCLP	X	X	1311
SPLP	X	X	1312

***** Water Leach

Appendix D

Laboratory Accreditation/Certification/Recognition

ESS Laboratory maintains the following certifications and accreditations with numerous state and national entities:

State/Federal Organization	Certificate Number
Connecticut DPH	PH-0750
Maine DEP	RI00002
Massachusetts DEP	M-RI002
New Hampshire DOH (NELAP Primary Accreditation Agency)	2424
New York State DOH	11313
Rhode Island DOH	LAI00179
New Jersey DEP	RI006
Pennsylvania DEP	68-01752
USDA (Foreign Soil Permit)	P330-18-00249

The certificates (with expiration dates) and parameter lists (which may differ) for each organization are filed in the QA Dept. files and may also be found in client reports, on the ESS Laboratory website and on the websites of the organizations identified above. Links to these organization websites are supplied in all clients' certificates of analysis. Certificates are on display in the ESS Laboratory conference room.

If accreditation is terminated or suspended, the laboratory will immediately cease to use the certificate number reference in any way and inform clients impacted by the change.

Appendix E

CONFLICT OF INTEREST AND UNDUE PRESSURE

It is the policy of ESS Laboratory to identify conflicts of interest involving the Laboratory and related parties, as well as to identify situations which may give rise to the appearance of a conflict of interest, and to address such conflicts and situations in a manner that will fully protect the integrity and reputation of the Laboratory, as well as related parties. All employees are expected to use good judgment, to adhere to high ethical standards, and to act in such a manner as to avoid any actual or potential conflict of interest. A conflict of interest occurs when the secondary personal, professional, or business interests of an employee conflict with the primary interests of the Laboratory.

When a secondary interest has inappropriate weight in a decision and distorts the pursuit of a primary interest, it is exerting undue influence.This policy is intended to supplement but not replace any applicable state and federal laws governing conflict of interest which are applicable to commercial organizations.

Such a policy works best when it is preventive and corrective rather than punitive. However, when a professional's judgment is actually distorted by the acceptance of a gift, the violation is no longer principally a conflict of interest but becomes a different kind of offense, one that may involve malpractice, scientific misconduct, or kickbacks.

Procedures:

- Upon or before hire or appointment and subsequently during annual performance review, each employee (manager, supervisor or analyst) shall disclose all direct or indirect financial interests that might benefit their private interest or may give the appearance of undue influence from outside parties thereby potentially resulting in a conflict of interest. This disclosure will be kept on file and will be updated as needed.

- Should there be any dispute as to whether a conflict of interest exists, the Director shall determine whether a conflict of interest exists for an employee, and shall determine the appropriate, fair and reasonable response.

- If the Director has reason to believe an individual has failed to disclose actual or potential conflicts of interest, the Director will inform the member and allow him/her to explain the alleged failure to disclose. If the Director still has reason to believe a conflict of interest exists after the alleged conflict is explained, the Director will take appropriate corrective action.

Principles for Identifying and Assessing Conflicts of Interest

The problem of conflict of interest is more complex than is often appreciated. As a result, both critics and defenders of conflict of interest policies sometimes misunderstand or misapply them.

A conflict of interest is not an actual occurrence of bias or a corrupt decision, but rather a set of circumstances that past experience and other evidence have shown poses a risk that primary interests may be compromised by secondary interests. Examples might be having financial interest in or working during off-hours for customer, competing or other companies, substance abuse etc. The existence of a conflict of interest does not imply that any individual is improperly motivated. To avoid these and similar misunderstandings and to provide guidance for formulating and applying such policies, a framework for assessing conflicts of interest is desirable.

Conflicts should be assessed by considering various factors that determine their likelihood and seriousness. Likelihood depends on the value of the secondary interest, the scope of the relationship between the professional and the secondary interest, and the extent of a professional's discretion. Seriousness depends on the value of the primary interest, the scope of the consequences that affect it, and the extent of accountability of the professionals. Conflict of interest policies should be evaluated by considering their effectiveness, transparency, accountability, and fairness.

Appendix F

Chemistry
(Sections 1.5 and 1.6 of Technical Module TNI V1:M4)

The lab is considered to have satisfied the requirements on analytical uncertainty by following recognized test methods and reporting instructions, in the absence of project specific instructions. Refer to Section 27.

F.1 Method Validation

Reference methods are validated by determining the LOD or LOQ, and precision and bias using the procedures outlined below.

Unless otherwise specified, the procedure for validating chemistry methods must include procedures for determining:

Establishment of SOPs

Limit of Detection (LOD) (must be in each quality system matrix to be used in the laboratory)

Limit of Quantitation/ Lower Limit of Quantitation (LOQ/LLOQ) - must be in each quality system matrix to be used in the laboratory

Evaluation of Precision and Accuracy (Bias)

Evaluation of Selectivity (see Section 27.2.1.2)

Demonstration of Capability

Calibration and calibration verification

Before any non-standard method is used in the laboratory, the laboratory determines the data quality indicators that must be used to ensure that the data are acceptable for the intended use. Based on the intended use, the laboratory establishes quality control acceptance criteria for precision, accuracy, selectivity (if applicable). Quality control procedures and acceptance criteria are consistent with those of similar standard methods or technologies, and must include the following:

i) Scope;

ii) Calibration and calibration verification;

iii) Interferences/Contamination, method/calibration blanks;

iv) Analyte identification;

v) Analyte quantitation;

vi) Selectivity;

vii) Sensitivity;

viii) Precision; and

ix) Bias.

Methods must be validated when modifications cause changes in stoichiometry, technology, mass tuning acceptance criteria, or quantitation ions to occur. Method modifications, as described in the Nov 20, 2007 USEPA Memorandum (incorporated here by reference) on method flexibility, are allowed.

a) Limit of Detection (LOD) (also see SOP 110_0013)

The Limit of Detection (LOD) is the laboratory's estimate of the minimum amount of an analyte in a given matrix that an analytical process can reliably detect in their facility (also known as Method Detection Limit, MDL)

LODs are not required for any component for which spiking solutions or quality control samples are not available. These include tests such as pH, temperature, BOD and specific conductance. If the laboratory is not reporting a value below the Limit of Quantitation, a Limit of Detection study is not required for many methods. The Method Detection Limit study is required for Clean Water Act methods

The laboratory will select methods with LODs that are expected to meet the intended data use.

LODs are determined in samples that represent the quality system matrices to be evaluated. All sample processing/preparation steps and all determinative steps are used to validate the method for all targeted analytes. The representative quality system matrix will be free from the target analytes of interest or interfering analytes that impact the LOD.

When the method or applicable regulation specifies a LOD study, only the specified method will be used. The laboratory documents the process used to derive the LOD and retains all the supporting data.

A Detection Limit (DL) is established based upon historical data or 40CFR Part 136 Appendix B (if required). The DL is used to determine the LOD for each analyte and matrix as well as for all preparatory and cleanup methods routinely used on samples.

After each DL determination, the laboratory establishes the LOD by spiking a quality system matrix at a concentration of at least 2 times but no greater than four times the DL (this procedure is based on the DoD QSM Standard requirement). This spike concentration establishes the LOD and the concentration at which the LOD shall be verified. It is specific to each suite of analyte, matrix, and method (including sample preparation/cleanup).

The "Definition and Procedure for the Determination of Method Detection Limit" revision 2, in 40 CFR part 136, Appendix B is followed for methods that fall under the Clean Water Act, as detailed in SOP 110_0013, Appendix C. For all other methods, as appropriate, the following requirements apply to the initial LOD establishment and to the LOD verifications:

Once the LOD has been determined, the validity of the LOD is verified by detection of each target analyte in a quality control sample of a representative quality system matrix. The concentration of the analytes in the sample will be no more than 3 times the derived LOD unless the test contains multiple analytes. In the latter case, the concentration of the target analytes will be no greater than 4 times the LOD, per the TNI 2009 Standard. This verification will be performed on each instrument that is used for the test.

The LOD, if required, shall be verified for each quality system matrix, technology, and analyte. However, not all possible combinations of preparation and cleanup techniques are required to have LOD/LOQ verifications. If LOD/LOQ verifications are not performed on all combinations, the laboratory must base the LOD/LOQ verifications on the worst case basis (preparation method with all applicable cleanup steps).

i) The apparent signal to noise (S/N) ratio at the LOD must be greater than zero and should normally be at least three; the results must meet all method requirements for analyte identification (e.g., ion abundance, second column confirmation, or pattern recognition). For data systems that do not provide a measure of noise, the signal produced by the verification sample should produce a result that is at least three standard deviations greater than the mean method blank concentration. This is initially estimated based on a minimum of four method blank analyses and later established with a minimum of 20 method blank results.

ii) If the LOD verification fails, then the laboratory must perform and pass two consecutive LOD verifications at a higher spike concentration and set the LOD at the higher concentration.

iii) The laboratory shall maintain documentation for all DL determinations and LOD verifications.

The LOD shall be verified annually. In situations where methods are setup and used on an infrequent basis, the laboratory may choose to perform LOD (and LOQ) verifications on a one per batch basis. All verification data will be in compliance, reported, and available for review.

LODs are performed/repeated:

- before reporting the LOD for a given analyte,
- any time there is a change that affects how the method is performed,
- when there is a change in instrumentation that affects the sensitivity of the analysis.

b) Limit of Quantitation (a/k/a Lower Limit of Quantitation)

The Limit of Quantitation (LOQ, LLOQ) is the minimum amount of a substance that can be reported with a specified degree of confidence.

If an LOD study is not performed, concentration values less than the Limit of Quantitation are not reported.

LOQs are not required for components or properties for which spiking solutions or QC samples are not available. These include tests such as pH, temperature, BOD and specific conductance

An LOQ study includes all sample processing and analysis steps in the analytical method. The study is performed for each analyte in each quality system matrix for which the test will be performed. The procedure is documented and all supporting data are retained.

The laboratory will verify the LOQ by the analysis of a QC sample containing the analytes of concern at a concentration of 1 to 2 times the derived (claimed) LOQ. The LOQ is considered verified if recovery of each analyte is within the laboratory's acceptance limits, or the client's data quality objectives. The LOQ must be greater than the LOD.

The LOQ will be verified annually for each quality system matrix, technology and analyte. However, the annual LOQ verification is not required if the LOD was determined or verified annually on that instrument.

c) Precision and Bias

Precision is the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves. Precision is usually expressed as standard deviation, variance, or range, in either absolute or relative terms.

Bias is the systematic error that contributes to the difference between the mean of a significant number of test results and the accepted reference value.

Precision and bias of a reference method is determined by using the Demonstration of Capability procedure (Section F.2 below).

Precision and bias using non-reference, modified reference or laboratory-developed methods are established using the procedure outlined as follows, and compared to the criteria established by the client (when requested), the method, or the laboratory.

Precision and bias are determined by processing samples through all phases of the method (sample preparation, cleanup, analysis, etc.) and are evaluated across the analytical calibration range of the method. This study is performed for all quality system matrices for which the test is to be used and the typical procedure is as follows:

1. Analyze in triplicate QC samples containing the analytes of concern at or near the limit of quantitation, at the upper-range of the calibration (upper 20%) and at a mid-range concentration.
2. Process these samples on different days as 3 sets of samples through the entire measurement system for each analyte of interest.
3. Each day, one QC sample at each concentration is analyzed.
4. A separate method blank shall be subjected to the analytical method along with the QC samples on each of the three days. (Note that the three samples at the LOQ concentration can demonstrate sensitivity as well).
5. For each analyst, calculate the mean recovery for each day, for each level over each day, and for all nine samples.
6. Calculate the relative standard deviation for each of the separate means obtained.
7. Compare the standard deviations for the different days and the standard deviations for the different concentrations.
8. If the different standard deviations are all statistically insignificant (e.g. F-test), then compare the overall mean and standard deviation with the established criteria from above.

d) Selectivity

Selectivity is the capability of a test method or instrument to respond to a target substance or constituent in the presence of non-target substances.

The laboratory evaluates selectivity using the procedures described in Section 27.2.1.2 of this QA Manual and is defined further in the test method SOPs.

F.2 Demonstration of Capability

Demonstration of Capability (DOC): A procedure to establish the ability of the analyst to generate analytical results of acceptable accuracy and precision.

Before reporting any data with a given method, a satisfactory initial DOC is performed in accordance with F.2.(a) below and SOP 80_0016 (Training) Thereafter, each analyst demonstrates continuing proficiency through the procedures outlined in Ongoing Demonstration of Capability below.

a) Initial Demonstration of Capability (IDOC)

An IDOC is performed:

- Before using any method
- Each time there is a change in instrument type, personnel or method (or any change that could potentially affect the precision and bias, sensitivity or selectivity of the output), and

- If the laboratory or analysts has not performed the method in a preceding twelve-month period.

The IDOC(s) for each analyst is documented in the analysts' training files kept by the QA Dept. The document identifies the analyst(s) involved in preparation and/or analysis; matrix; analyte(s), class of analyte(s), or measured parameter(s); the method(s) performed; the laboratory-specific SOP used for analysis (including revision number); the date(s) of analysis; and a summary of the results used to calculate the mean recovery and standard deviations.

All raw data, preparation records, and calculations for each IDOC are retained and are available for review.

When methods specify procedures to be followed only those procedures will be used. If no procedures are specified, the laboratory uses its own procedure (per SOP 80_0016 and below). SOP 80_0016 is documented in the QA Dept. master SOP files and also in the relevant departmental files.

Process for Initial DOC:

a) A quality control sample is obtained from an outside source. If not available, the QC is prepared using stock standards that are prepared independently from those used in instrument calibration.

b) The analyte(s) is diluted in a volume of clean quality system matrix sufficient to prepare four aliquots at the concentration specified, or if unspecified, to a concentration of 1-4 times the limit of quantitation.

c) At least four aliquots are prepared and analyzed according to the test method either concurrently or over a period of days.

d) Using all of the results, calculate the mean recovery in the appropriate reporting units and the standard deviations of the population sample (in the same units) for each parameter of interest. When it is not possible to determine mean and standard deviations, such as for presence/absence and logarithmic values, the performance is assessed against established and documented criteria.

e) Compare the information from (d) above to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory-generated acceptance criteria (if mandatory criteria have not been established). If all parameters meet the acceptance criteria, the analysis of actual samples may begin. If any one of the parameters do not meet the acceptance criteria, the performance is unacceptable for that parameter. The acceptance criteria must be defined prior to the analyst performing the method.

f) When one or more of the tested parameters fail at least one of the acceptance criteria, the analyst must proceed according to 1) or 2) below.

    1. Locate and correct the source of the problem and repeat the test for all parameters of interest beginning with c) above.

2. Beginning with c) above, repeat the test for all parameters that failed to meet criteria.

Repeated failure, however, confirms a general problem with the measurement system. If this occurs, the source of the problem is located and corrected and the test repeated for all compounds of interest beginning with c).

b) Ongoing Demonstration of Capability

After the demonstration of capability is completed, on-going proficiency is maintained and demonstrated at least annually. Each analyst is expected to consistently meet the QC requirements of the method, the laboratory SOP, client requirements and/or the TNI Standard. Ongoing DOCS are documented in the analysts' training files kept by the QA Dept. and all records related to the demonstration are retained.

The laboratory uses the following procedure described in SOP 80.0016 and below to demonstrate ongoing DOC:

Process for Ongoing (a/k/a Continuing) DOC:

a) Acceptable performance of a blind sample (single blind to the analyst). Successful analysis of a blind performance sample on a similar method using the same technology (e.g., GC/MS volatiles by purge and trap for Methods 524.2, 624 or 5030/8260) would only require documentation for one of the tests.;

b) Another initial DOC;

c) At least four (4) consecutive (as listed chronologically in the LIMS database) laboratory control samples with acceptable levels of precision and accuracy. The laboratory shall determine the acceptable limits for precision and accuracy prior to analysis. The laboratory shall tabulate or be able to readily retrieve four (4) consecutive passing laboratory control samples (LCS) for each method for each analyst each year;

d) A documented process of analyst review using quality control (QC) samples. QC samples can be reviewed to identify patterns for individuals or groups of analysts and determine if corrective action or retraining is necessary; or

e) If a) through d) are not technically feasible, then analysis of real-world samples with results within predefined acceptance criteria (as defined by the laboratory or method) shall be performed.

F.3 Calibration

Section 23.2.2 includes information on calibration of support equipment. This Section covers calibration of analytical equipment.

Initial instrument calibration and continuing instrument calibration verification are an important part of ensuring data to be of known and documented quality. If more stringent calibration requirements are included in a mandated method or by regulation, those calibration requirements override any requirements outlined here or in laboratory SOPs. Generally, procedures and criteria regarding instrument calibrations are provided in test SOPs.

F.3.1 Initial Instrument Calibration

- Records:

  Initial instrument calibration includes calculations, integrations, acceptance criteria, and associated statistics referenced in the test method SOP. Sufficient raw data records are collected and retained to allow reconstruction of the initial instrument calibration. These include, at a minimum, calibration date, test method, instrument, analysis date, analyte names, analysts signature or initials, concentration and response, calibration curve or response factor, or unique equation or coefficient used to reduce instrument responses to concentration. Calibration date and expiration date (when recalibration is due) is documented for equipment requiring calibration, where practicable (see Section 23.1).

- Number of Standards and Concentrations:

  If the reference or mandated method does not specify the number of calibration standards to use, the minimum number is three for inorganic analyses and five for organic analyses, not including blanks or a zero standard, except as noted below. All reported analytes and surrogates shall be included in the initial calibration. Reported results for all analytes and surrogates shall be quantified using a multipoint calibration curve, except as noted above. Exclusion of calibration points without a scientifically valid technical justification is not permitted.

  For instrumentation where single point calibration is recommended by manufacturer's instructions, such as with some ICP and ICP/MS technologies (with a zero and single point calibration), the following apply:

  a) For single point plus zero blank calibrations, the zero point and the single point standard are analyzed prior to the analysis of samples, and the linear range of the instrument established by analyzing a series of standards, one of which is at the lowest quantitation level.

  b) Zero blank and single point calibration standards are analyzed with each analytical batch for methods where they are specified.

  c) A standard corresponding to the limit of quantitation is analyzed with each analytical batch and must meet established acceptance criteria when using single point plus zero blank calibrations.

  d) The linearity of single point plus zero blank calibrations is verified at a frequency established by the method or the manufacturer.

The lowest calibration standard is the lowest concentration for which quantitative results can be reported without qualification. The lowest calibration standard is at or below the Limit of Quantitation (LOQ) and is greater than the Limit of Detection. Results that are less than the LOQ are considered to have increased uncertainty, and are either reported with a qualifier code or explained in the case narrative.

The highest calibration standard is the highest concentration for which quantitative results can be reported. Data reported exceeding the highest calibration standard without dilutions (which must be done if sufficient sample volume and holding time permit) is considered to have increased uncertainty and are reported with a qualifier code or reanalyzed and explained in the case narrative. However, for metals analysis with a single point calibration, the laboratory may report a sample result above the quantitation range if the laboratory analyzes and passes a CCV that exceeds the sample concentration but is within the linear dynamic range.

- Evaluation, Verification and Corrective Action

  All initial instrument calibrations are verified with a standard obtained from a second source traceable to a national standard when commercially available. If a second source is not available, a standard prepared from a different lot (independently prepare from different source materials) may be used. Concentration of the second source shall be at or near the midpoint of the calibration range.

  Criteria for the acceptance of an initial instrument calibration is established (e.g., correlation coefficient or relative percent difference) and defined in the test SOP. The criteria used are appropriate to the calibration technique and must be at least as stringent as those for the continuing calibration verification (CCV).

  Where appropriate, the laboratory has manual integration procedures (SOP 110_0016 (Manual Integration Policy and Procedure) that are adhered to when evaluating calibration data.

  Any samples that are analyzed after an unacceptable initial calibration are re-analyzed or the data are reported with qualifiers, appropriate to the scope of the unacceptable condition (see Section 12 – "Control of Nonconforming Environmental Testing").

  Quantitation is always determined from the initial calibration unless the test method or applicable regulations require quantitation from the continuing instrument calibration verification.

  Corrective actions are performed when the initial calibration results are outside acceptance criteria. Calibration points are not dropped from the middle of the curve unless the cause is determined and documented. If the cause cannot be determined, the calibration curve is re-prepared. If the low or high calibration point is dropped from the curve, the working curve is adjusted and sample results outside the curve are qualified.

F.3.2 Continuing Instrument Calibration

- Records

  The calculations and associated statistics for continuing instrument calibration are included or referenced in the test method SOPs. The concentration of the CCV standard is greater than the low calibration standard and less than or equal to the midpoint of the calibration range. All CCVs must be analyzed and reported. If a CCV fails, reanalysis or corrective action must be taken.

  Sufficient raw data records are retained to allow reconstruction of the continuing instrument calibration verification. Continuing instrument calibration verification records connect the continuing verification date to the initial instrument calibration.

  Where appropriate, the laboratory has manual integration procedures, detailed in SOP 110_0016 that are adhered to when evaluating calibration data.

- Frequency

  Calibration shall be verified for each compound, element, or other discrete chemical species, except for multi-component analytes such as Aroclors, Chlordane, Total Petroleum Hydrocarbons, or Toxaphene, where a representative chemical, related substance or mixture can be used.

  Calibration verifications are performed:

  - At the beginning and end of each analytical batch. For methods employing internal standards, a single verification is performed at the beginning of the analytical batch, per the TNI Standard. Some methods have more frequent CCV requirements (see specific SOPs). Many inorganic methods require the CCV to be analyzed after every 10 samples.
  - Whenever it is expected that the analytical system may be out of calibration or might not meet verification acceptance criteria.
  - When the time period for calibration or the most recent calibration verification has expired.
  - For all analytical systems that have a calibration verification requirement. Requirements can be found in the method SOPs.
  - Before sample analysis, after every 10 field samples, and at the end of the analysis sequence, with the exception of CCVs for Pesticides multi-component analytes (i.e. Aroclors, Toxaphene, Chlordane, total petroleum hydrocarbons), where a representative chemical, related substance or mixture can be used.

- Evaluation, Verification and Corrective Actions

  The validity of the initial calibration is verified prior to sample analysis by use of a continuing instrument calibration verification (CCV) standard. CCV acceptance criteria are included in the test method SOPs.

Corrective action is initiated for CCV results that are outside of acceptance criteria (see Section 12 – "Control of Nonconforming Environmental Testing" and below).

F.3.3 Unacceptable Continuing Instrument Calibration Verifications

If routine corrective action for continuing instrument calibration verification fails to produce a second consecutive (immediate-must start within one hour; no samples can be run between the failed CCV and the two additional CCVs) calibration verification within acceptance criteria, then a new calibration is performed or acceptable performance is demonstrated after corrective action with two consecutive calibration verifications.

For any samples analyzed on a system with an unacceptable calibration, some results may be useable if qualified and under the following conditions:

a) If the acceptance criteria are exceeded high (high bias) and the associated samples are below detection, then those sample results that are non-detects may be reported as non-detects.

b) If the acceptance criteria are exceeded low (low bias) and there are samples that exceed the maximum regulatory limit, then those exceeding the regulatory limit may be reported.

Saturated Hydrocarbons and Alkylated MAH and PAH:

ESS Laboratory performs the forensic GCFID and GCMS analysis using the following procedures:

Soil Extraction: Samples are extracted by Microscale Solvent Extraction- MSE (EPA Method 3570 Modified):

Initial volume: 5g

Final volume 2 mL

Water Extractions: Samples are extracted by MSE (EPA Method 3511 Modified):

Initial volume: 35mL

Final Volume: 2mL

Saturated Hydrocarbons, Isoprenoids and Aliphatic Ranges (DRO and TPH): GC/FID analysis

Alkylated MAH and PAH: GC/MS analysis (Analytes evaluated from SIM with full scan also collected)

QC Criteria: Surrogates 50-120%, Blank Spike 60-140%

GC-FID CCV +/-20%D w/ 15% <25%D

GC-MS CCV +/- 25%D w/ Average <15%D

Soil samples are dried with sodium sulfate in glass vials, spiked with surrogate and extracted for 4 hours using method 3570-Mod. Once complete samples are filtered through sodium sulfate and concentrated to a final volume of 2mL. If high levels of contamination are present the final volume may be adjusted. The extract is spiked with internal standard and aliquots removed for GC-FID and GC-MS analysis.

Water samples have sodium chloride, surrogate and 2mLs of DCM added and are extracted for 4 hours using method 3511-Mod. Once complete a portion of the DCM is removed, spiked with internal standard and aliquots removed for GC-FID and GC-MS analysis.

For saturated hydrocarbons the extracts are analyzed by wide-range GC-FID using method 8015-Mod. This method provides gas chromatographic conditions for the detection of some volatile and all semi-volatile petroleum fractions including gasoline, kerosene, diesel fuel or No. 2 fuel oil (home heating oil), lubricating oil, No. 6 oils, and crude oil. In addition, the method can be used to identify pyrogenic materials such as coal tar, creosote, and pitch. Extracted samples are injected into a capillary column that is temperature programmed to facilitate separation of organic compounds. Detection and quantitation are based on FID detection response compared to calibration standards using the internal standard technique.

For alkylated MAH and PAH the extracts are analyzed by GCMS/SIM using method 8270-Mod. The GC column is temperature programmed to separate the analytes, which are then detected with a mass spectrometer (MS), connected to the gas chromatograph. Analytes eluted from the capillary column are introduced into the mass spectrometer by a direct connection. Identification of target analytes is accomplished by comparing their mass spectra with the electron impact (or electron impact-like) spectra of authentic standards. Quantitation is accomplished by comparing the response of a major (quantitation) ion relative to an internal standard using an initial calibration curve. In addition, a full scan run is collected simultaneously and can be provided for TIC identification.

Petroleum Hydrocarbon Analysis / Fingerprinting

Compound	Aqeous (ug/L - ppb)	Soil (mg/Kg - ppm)	NAPL (mg/Kg - ppm)
C-8	57.1	0.400	200
C-9	57.1	0.400	200
C-10	57.1	0.400	200
C-11	57.1	0.400	200
C-12	57.1	0.400	200
C-13	57.1	0.400	200
2,6,10-trimethyldodecane (1380)	57.1	0.400	200
C-14	57.1	0.400	200
2,6,10-trimethyltridecane (1470)	57.1	0.400	200
C-15	57.1	0.400	200
C-16	57.1	0.400	200
2,6,10-trimethylpentadecane (1650)	57.1	0.400	200
C-17	57.1	0.400	200
Pristane	57.1	0.400	200
C-18	57.1	0.400	200
Phytane	57.1	0.400	200
C-19	57.1	0.400	200
C-20	57.1	0.400	200
C-21	57.1	0.400	200
C-22	57.1	0.400	200
C-23	57.1	0.400	200
C-24	57.1	0.400	200
C-25	57.1	0.400	200
C-26	57.1	0.400	200
C-27	57.1	0.400	200
C-28	57.1	0.400	200
C-29	57.1	0.400	200
C-30	57.1	0.400	200
C-31	57.1	0.400	200
C-32	57.1	0.400	200
C-33	57.1	0.400	200
C-34	57.1	0.400	200
C-35	57.1	0.400	200
C-36	57.1	0.400	200
C-37	57.1	0.400	200
C-38	57.1	0.400	200
C-39	57.1	0.400	200
C-40	57.1	0.400	200
TPH (C8-C40)	57.1	0.400	200

MAH_PAH Analyte List

Compound	Aqeous (ug/L - ppb)	Soil (ug/Kg - ppb)	NAPL (mg/Kg - ppm)
Benzene	0.571	4.00	2.00
C1-Benzene	0.571	4.00	2.00
C2-Benzenes	0.571	4.00	2.00
C3-Benzenes	0.571	4.00	2.00
C4-Benzenes	0.571	4.00	2.00
C5-Benzenes	0.571	4.00	2.00
Methylcyclohexane	0.571	4.00	2.00
Toluene	0.571	4.00	2.00
Ethylbenzene	0.571	4.00	2.00
m,p-Xylene	0.571	4.00	2.00
Styrene	0.571	4.00	2.00
o-Xylene	0.571	4.00	2.00
Isopropylbenzene	0.571	4.00	2.00
n-Propylbenzene	0.571	4.00	2.00
1,3,5-Trimethylbenzene	0.571	4.00	2.00
1,2,3-Trimethylbenzene	0.571	4.00	2.00
1,2,4-Trimethylbenzene	0.571	4.00	2.00
t-Butylbenzene	0.571	4.00	2.00
sec-Butylbenzene	0.571	4.00	2.00
p-Isopropyltoluene	0.571	4.00	2.00
n-Butylbenzene	0.571	4.00	2.00
trans-Decalin	0.571	4.00	2.00
cis-Decalin	0.571	4.00	2.00
C1-Decalins	0.571	4.00	2.00
C2-Decalins	0.571	4.00	2.00
C3-Decalins	0.571	4.00	2.00
C4-Decalins	0.571	4.00	2.00
Benzo(b)thiophene	0.571	4.00	2.00
C1-Benzo(b)thiophenes	0.571	4.00	2.00
C2-Benzo(b)thiophenes	0.571	4.00	2.00
C3-Benzo(b)thiophenes	0.571	4.00	2.00
C4-Benzo(b)thiophenes	0.571	4.00	2.00
Naphthalene	0.571	4.00	2.00
2-Methylnaphthalene	0.571	4.00	2.00
1-Methylnaphthalene	0.571	4.00	2.00
C1-Naphthalenes	0.571	4.00	2.00
C2-Naphthalenes	0.571	4.00	2.00
C3-Naphthalenes	0.571	4.00	2.00
C4-Naphthalenes	0.571	4.00	2.00
Biphenyl	0.571	4.00	2.00
Acenaphthylene	0.571	4.00	2.00
Acenaphthene	0.571	4.00	2.00
Dibenzofuran	0.571	4.00	2.00
Fluorene	0.571	4.00	2.00
C1-Fluorenes	0.571	4.00	2.00
C2-Fluorenes	0.571	4.00	2.00
C3-Fluorenes	0.571	4.00	2.00

Dibenzothiophene	0.571	4.00	2.00
C1-Dibenzothiophenes	0.571	4.00	2.00
C2-Dibenzothiophenes	0.571	4.00	2.00
C3-Dibenzothiophenes	0.571	4.00	2.00
C4-Dibenzothiophenes	0.571	4.00	2.00
Phenanthrene	0.571	4.00	2.00
Anthracene	0.571	4.00	2.00
C1-Phenanthrenes/Anthracenes	0.571	4.00	2.00
C2-Phenanthrenes/Anthracenes	0.571	4.00	2.00
C3-Phenanthrenes/Anthracenes	0.571	4.00	2.00
C4-Phenanthrenes/Anthracenes	0.571	4.00	2.00
Retene	0.571	4.00	2.00
Benzo(b)naphtho(2,1-d)thiophene	0.571	4.00	2.00
C1-Benzonaphthothiophenes	0.571	4.00	2.00
C2-Benzonaphthothiophenes	0.571	4.00	2.00
C3-Benzonaphthothiophenes	0.571	4.00	2.00
C4-Benzonaphthothiophenes	0.571	4.00	2.00
Fluoranthene	0.571	4.00	2.00
Pyrene	0.571	4.00	2.00
C1-Fluoranthenes/Pyrenes	0.571	4.00	2.00
C2-Fluoranthenes/Pyrenes	0.571	4.00	2.00
C3-Fluoranthenes/Pyrenes	0.571	4.00	2.00
Benzo(b)fluorene	0.571	4.00	2.00
Benzo(c)fluorene	0.571	4.00	2.00
2-Methylpyrene	0.571	4.00	2.00
4-Methylpyrene	0.571	4.00	2.00
1-Methylpyrene	0.571	4.00	2.00
Benzo(a)anthracene	0.571	4.00	2.00
Chrysene/Triphenylene	0.571	4.00	2.00
C1-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
C2-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
C3-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
C4-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
Benzo(b)fluoranthene	0.571	4.00	2.00
Benzo(k)fluoranthene	0.571	4.00	2.00
Benzo(e)pyrene	0.571	4.00	2.00
Benzo(a)pyrene	0.571	4.00	2.00
Perylene	0.571	4.00	2.00
Indeno(1,2,3-cd)pyrene	0.571	4.00	2.00
Dibenzo(a,h)anthracene	0.571	4.00	2.00
Benzo(g,h,i)perylene	0.571	4.00	2.00
Coronene	0.571	4.00	2.00
2,6,10-trimethyldodecane (1380)	0.571	4.00	2.00
2,6,10-trimethyltridecane (1470)	0.571	4.00	2.00
2,6,10-trimethylpentadecane (1650)	0.571	4.00	2.00
C-17	0.571	4.00	2.00
Pristane	0.571	4.00	2.00

C-18	0.571	4.00	2.00
Phytane	0.571	4.00	2.00

MAH_PAH Additional Compounds

Compound	Aqeous (ug/L - ppb)	Soil (ug/Kg - ppb)	NAPL (mg/Kg - ppm)
2,6-Dimethylnaphthalene	0.571	4.00	2.00
2,3,5-Trimethylnaphthalene	0.571	4.00	2.00
4-Methyldibenzothiophene	0.571	4.00	2.00
2/3-Methyldibenzothiophene	0.571	4.00	2.00
1-Methyldibenzothiophene	0.571	4.00	2.00
3-Methylphenanthrene	0.571	4.00	2.00
2-Methylphenanthrene	0.571	4.00	2.00
2-Methylanthracene	0.571	4.00	2.00
9/4-Methylphenanthrene	0.571	4.00	2.00
1-Methylphenanthrene	0.571	4.00	2.00
Carbazole	0.571	4.00	2.00
C0-Naphthobenzothiophenes	0.571	4.00	2.00

The following are summaries of ESS Laboratory procedures with standard operating values. Volumes used and detection limits can change with difficult sample matrices and high moisture content.

MADEP EPH with PAHs:

ESS Laboratory performs the MADEP EPH analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 25g

Final volume: 1ml

Water Extractions: Samples are extracted by Separatory Funnel method 3510.

Initial Volume: 1L

Final Volume: 1ml

Fractionation: 5 gram silica cartridges

Aliphatic range analysis: GC/FID analysis

Aromatic range and PAHs: GC/MS analysis following modified 8270 criteria per MADEP EPH method, using EPH surrogates and internal standards.

PAHs can be analyzed by GCMS-SIMs when lower detection limits are required.

Total Petroleum Hydrocarbon analysis from the EPH extract:

The sample is extracted by the MADEP EPH method. The extract is split into two sub-extracts. One sub-extract is analyzed by GC/FID for DRO C10-C28 and TPH in the C9-C36 range. (This range can be expanded to C40 or C44.) The remaining sub-extract is fractionated though a silica cartridge according to the MADEP EPH method and analyzed for Aliphatic and Aromatic hydrocarbons.

VOC Analysis, including MtBE:

Soils: Soils are prepared by method 5035 and analyzed by method 8260C. Method 5035 provides two procedures to prepare soil samples, a Low Level VOC analysis and a Mid to High Level VOC analysis using Methanol.

Low Level VOC analysis: The Low Level VOC analysis can produce low detection limits and is not suitable for samples with high concentrations of VOCs or difficult matrices that adsorb VOCs. Vials must be analyzed immediately or frozen with 48 hours of sampling for a 14 day hold time.

Methanol Analysis: For those samples with high concentrations of VOCs and difficult matrices, the methanol procedure is recommended. Vials must be stored <6C with a 14 day hold time.

ESS laboratory typically provides vials for both the Low Level VOC and Methanol analysis. It is recommended that only Methanol vials be submitted when detection limits from the Methanol vials are

low enough to meet data quality objectives. The methanol can sometimes produce a better extraction, especially for difficult matrices. Low Level vials should be submitted when low detection limits are needed. Low Level vials should always be submitted in duplicate accompanied by one methanol vial. Any analyte outside of the low level calibration range will need to be analyzed from the methanol vial.

Required containers:

Low Level VOC: 2 x 40 ml pre-weighed VOA vials with 5 ml if DI water and a stir bar.

Methanol: 1 x 40 ml pre-weighed VOA vial with 15ml of methanol.

% Solids: An additional jar should accompany the VOA vials for % solids analysis.

Waters are prepared according to method 5030 and analyzed according to method 8260C. ESS requests 3 x 40ml 1:1HCl preserved vials with zero headspace for each sample. Vials must be stored <6C with a 14 day hold time.

TAL Metals plus Tin

Metals in soil are digested by method 3050 and analyzed by methods 6000 and 7000. Mercury in soil is digested and analyzed by method 7471.

Metals in water are digested by method 3005. Mercury in water is digested and analyzed by method 7470.

Samples (waters and soils) are initially run by ICP method 6010. The lab may opt to analyze some elements by ICPMS or GFAA either to achieve lower detection limits or due to suspect matrix interferences.

Soil: (Elements not including Hg) – increasing weight for wet samples

Initial Volume: 2.5- 5 grams

Final Volume: 100ml

Soil Hg: – increasing weight for wet samples

Initial Volume: 0.6 to 2g

Final Volume: 40ml

Water (Elements not including Hg) : (or 100 to 10 for lower DLs)

Initial Volume: 50 ml

Final Volume: 25 ml

Water Hg:

Initial Volume: 20 ml

Final Volume: 40 ml

Semivolatile 8270D:

ESS Laboratory performs the 8270D analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 15g

Final volume: 0.5ml

Water Extractions: Samples are extracted by Liquid/Liquid Extraction method 3520.

Initial Volume: 1L

Final Volume: 1ml

PCB 8082A:

ESS Laboratory performs the 8082A analysis with the following parameters:

Soil Extractions: Sample are extracted by Soxhlet method 3540.

Initial volume: 20g

Final volume: 10ml

Water Extractions: Samples are extracted by Separatory Funnel method 3510.

Initial Volume: 1L

Final Volume: 1ml

Cleanups: All sample extracts are acid washed. Extracts are copper cleaned when sulfur interferes with chromatography.

Pesticide 8081A:

ESS Laboratory performs the 8081A analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 20g

Final volume: 5ml

Water Extractions: Samples are extracted by Separatory Funnel method 3510.

Initial Volume: 1L

Final Volume: 5ml

Cleanup: All sample extracts are Carbopreped.

Herbicide 8151A:

ESS Laboratory performs the 8151A analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 10g

Final volume: 4ml

Water Extractions: Samples are extracted by Separatory Funnel.

Initial Volume: 500ml

Final Volume: 4ml

Micro-extractions (When low reporting limits not needed)

Initial Volume: 40ml

Final Volume: 4ml

Cyanide, Free method 9014

Soils: Colorimetric analysis of a water leach

Waters: Colorimetric Analysis of water.

Total Cyanide method 9014

Soil Extractions: Midi-distillation followed by manual colorimetric analysis

Initial volume: 1ml

Final volume: 5ml

Water Extractions: Midi-distillation followed by manual colorimetric analysis

Initial Volume: 50ml

Final Volume: 50ml

Appendix E

Historical Documents

To His Excellency Sir Henry Moore, Bar.t

Captain General and Governour in Chief,
In and Over His Majesty's Province of
NEW YORK
and the Territories depending thereon in America,
Chancellor and Vice Admiral of the same.

This Plan
of the City of New York and its Environs,
Survey'd and Laid down
In most Humbly Dedicated by His Excellency's
Most Obed.t Humble Servant
B. Ratzer
Lieut.t in His Majesty's 60.th or Royal American Reg.t

Surveyed in the Years 1766 & 1767.

REFERENCES.

a. Fort George
b. Trinity Church
c. St. Pauls Church
d. St. Georges Chapel
e. Old Dutch Church
f. New Dutch D.o
g. New Reformed D.o
h. Old Presbyterian Meeting
i. New Presbyterian D.o
k. Old Lutheran Church
l. New Lutheran D.o
m. German Ref.d Church
n. French Church
o. Mennonist Meeting
p. Anabaptists Meeting
q. Methodists Meeting
r. Quakers Meeting
s. Moravians Meeting
t. Jews Synagogue
u. The City Hall
w. The Exchange
x. The Prison
y. The House of Correction
z. The College
&. The Theatre
1. Fish
2. Old Slip
3. Hay
4. Peeks
5. Oswego
} Market
6. The Upper Barracks
7. The Powder House
8. The Jews Burial Ground
9. The Lower Barracks
10. The Artillery Stores

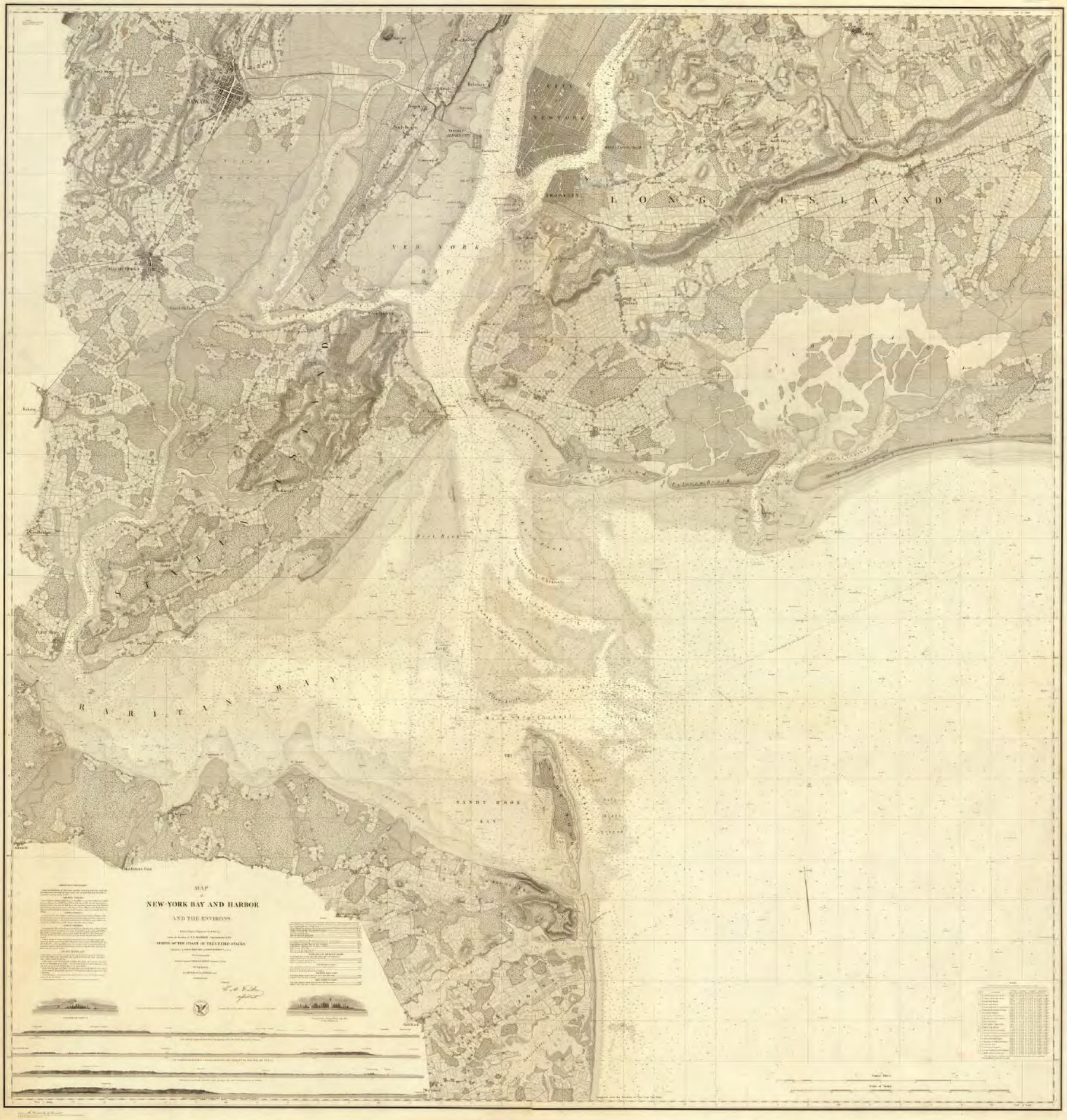
The City of New York lies in Lat.d 40 42 North & near 2 d. of West from the Meridian of London.

PART OF NEW JERSEY
HUDSON'S RIVER
NORTH OR
EAST RIVER
OR THE SOUND
LONG ISLAND
PART OF THE BAY
OYSTER BANKS
Salt Meadows
Bucking Island
Bedloes or Kennedy.s Illand
The Governours or Nutten Illand
Red Hook
Paulus Hook
Hoboken
Outward Boundaries
Southward Boundaries
Westward Boundaries
Magnetick Meridian
Road to Bergen & Cog.t Remsens
Road to Greenwich
Road to Kings Bridge
Road to Jamaica
Road to Flatbush
Road to the Narrows
Ship Yards
Delancys Square
Brookland Ferry
Remsen's Mill
The WALLABOUT BAY
BROOKLAND Parish
BEDFORD
Newtown Inlet
Bushwick Inlet
Gowanus Bay
Gowanus Creek
Mill Dam
Scale of 5000 Feet
Scale of One Mile
Scale of Yards

Oliver Delancey Esq.r
Wm Bayard Esq.r
J. Jeaumecey Esq.r
Lady Warren
Wm Bayard
Geo. Harrison Esq.r
Foundry
Fresh Water
N. Bayard
James Delancey Esq.r
Th.s Jones Esq.r
I. M. Scott Esq.r
Capt. Clarke
R.t Murray
I. Donnie Esq.r
I. Thetwout
I. Ketteltas
Sand Hill
P. Stuyvesant
G. Stuyvesant
N. Stuyvesant
I. B. Beekman
Turtle Bay
Kep.s Bay
Blackwells
Dalliffery
Phil. Livingston Esq.r
R. G. Livingston

London, Publish'd according to Act of Parliament, Jan.y 12. 1776. by Jefferys & Faden, Corner of St. Martins Lane, Charing Cross

(Map Div 01-314) [Filed with NYC 1767] South Sheet sheet 192 NYC, 1767 Ratzer


NEW YORK
BROOKLYN
NEWTOWN
L O N G I S L A N D
NEW YORK BAY
R A R I T A N B A Y
SANDY HOOK BAY
MAP
OF
NEW-YORK BAY AND HARBOR
AND THE ENVIRONS

MAP
OF THE CITY OF
BROOKLYN,
STATE OF NEW YORK.
(WILLIAMSBURGH.)
NEW YORK.

210
1855
No
43

MAP

of the Cities of

NEW YORK BROOKLYN

&

JERSEY CITY

Published by M. Dripps No 103 Fulton St
NEW YORK
1855.

Map 92.3.1855
Public Library of the City of Boston.
Est Nov. 30, 1931

Scale 1800 feet to an inch.

G3804 .N4 1855 .D75 39999 06567938

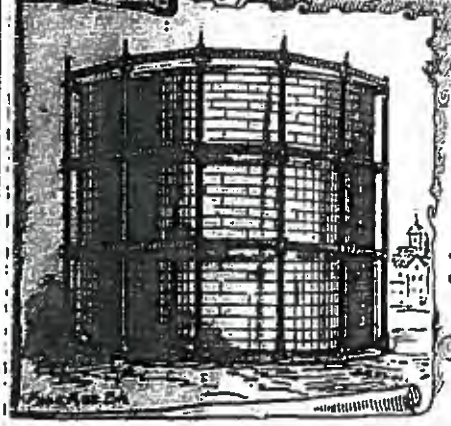
PROGRESSIVE AGE

GAS ELECTRICITY WATER

Vol. XI. No. 1. NEW YORK, JANUARY 2, 1893. $3.00 a Year.

PASCAL IRON WORKS PHILA. PA. ESTABLISHED 1821. DELAWARE IRON WORKS NEWCASTLE DEL.

MORRIS, TASKER & CO. INCORPORATED



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Single and Telescopic, with Cast or Wrought Iron Guide Frames.

Specifications and Estimates Furnished.

plied through a general distribution system has failed in some particular to meet the expectations of its friends.

It may be at once admitted that no gas can be manufactured that can be distributed over a wide area and sold heat unit for heat unit, at a price less than three times that at which Pittsburgh and Allegheny have been supplied with natural gas. Such a price would be prohibitory for general manufacturing purposes in a country where coal is as cheap as in America, and if the price of coal advance, the cost of fuel gas must necessarily advance with it.

A few years ago, Mr. Faben made an assertion in connection with fuel gas that had a sound of heresy and cowardice to believers in fuel gas, but which at this day reads like a prophecy. Yet there was not at the time Mr. Faben made his memorable assertion evidence sufficient to support him in it. If he has proven the true prophet, it is more by accident than by reason of any special foresight.

With the fading of the schemes of the fuel gas men, and the hopes of those of us who looked to them for the solution of the domestic heating problem, there is a growth in the demand for illuminating gas for other purposes than illumination that is most gratifying to the gas manager, to the housekeeper and to the user of small power motors.

For cooking, the generation of power and intermittent heating, gas to day has no equal, and illuminating gas is sold in most cities in this country at a price that makes it the cheapest fuel for this class of work.

As the supply of natural gas gives out, there will be a growth in the use of manufactured gas in the towns now using the natural product that will be most gratifying to the holders of the stock of the local gas companies. While it will not be nearly so cheap as natural gas at 15 cents per 1,000 cubic feet, it will be cheaper than solid fuel, and its convenience, backed by its economy, will insure the rapid extension of its application.

Had natural gas been used with economy, a reasonable price asked for it, and its use confined to domestic purposes and light manufacturing, the supply would have lasted many years, and probably the Pittsburgh supply would have lasted a generation. But it would have been un-American to have economized any gift of nature. We used natural gas in a good old American way, just as we have used the buffalo, and are using the pine forests of the northwest, of Georgia and Alabama. And the gas went as has gone the buffalo, and as are going the pine forests. Truly America is a great country, and we Americans will continue a great people, no matter what it costs us or our posterity.

BROOKLYN FIDGITS.

J. Edward Addicks and his magic wand still continue to occupy the attention of those most interested in the future gas supply in Brooklyn. Whether or not Mr. Addicks will find it possible to accomplish all that he has set before him in this undertaking time alone will demonstrate. Natural conditions and the physical status of several of the Brooklyn companies make the present a more than propitious time for the consummation of a grand consolidation. No matter what the measure of Mr. Addicks' Brooklyn success, it cannot be hereafter said of him that he has not pretty generally given voice to his intentions and expectations. One almost might be permitted to say that Mr. Addicks has hunted the control of the Brooklyn companies with a brass band, and it is now being announced that this gentleman openly states that he has "no doubt whatever of carrying out all that he has thought to do."

Messrs. Rockefeller and Rogers, of the Standard Oil Co. have recently resigned their positions as directors in the Metropolitan Company. It will be remembered that the Metropolitan has for some years purchased its supply from the Fulton-Municipal, the latter company being, it is generally understood, closely affiliated with the Standard-Rockefeller-Rogers interests, and it is rumored that the Standard people propose taking an active hand in the struggle, report going so far as to state that Messrs. Rockefeller and Rogers have decided to launch a syndicate of their own. Meanwhile the Brooklyn United Gas Company has been incorporated under Addicks auspices, with the object, it is said, to absorb first the old Brooklyn Gas Light Company, and its liberal charter purposes gives it the necessary elasticity to include other companies from time to time as others may put themselves in line for such action. We also understand that Mr. Addicks has formed still another company called the Beckton Construction Company, (so named probably after the great central station operated by the London, England, Gas Light and Coke Company). The avowed intention of this company is to build, equip and maintain in or adjacent to the city of Brooklyn a most gigantic gas works, having a capacity sufficient to supply the present needs of that city and, when required, a much larger territory. Friendly or unfriendly critics of Mr. Addicks must at least give that gentleman credit for contemplating operations on a majestic scale and with an assurance in demeanor that would indicate not only his belief in complete ultimate success, but his own financial and executive ability to carry out. Several men closely associated and large holders in Brooklyn gas stocks maintain silence, while others intimate that a decidedly interesting game of "blind man's buff" is being played in the "City of Churches" with the prospect of a general surprise in the end.

OBITUARY.

DERRICK LANE.

Mr. Derrick Lane, treasurer of the Troy (N. Y.) Gas Co., died on December 14 at his home in that city after a long illness. Mr. Lane was 65 years of age and was a descendant of one of the oldest families in the city. He was a graduate of Union College in the class of '47, and was admitted to the bar in 1857. From 1866 he had been trustee of the Troy Savings Bank and president of that institution since 1886. He was chamberlain of the city from 1867 to 1871, and has been long connected with the Troy Gas Light and Troy Gas Companies. Mr. Lane is survived by a wife, four sons and two daughters.

GEORGE J. M'GOURKEY.

The death in this city at his residence of Mr. George J. McGourkey, ex-president of the American Meter Company, occurred on December 14. Mr. McGourkey refused a re-election to the presidency of the company, with which he has been so long connected, at its recent annual meeting, but he continued to serve as a member of the Board of Directors.

WILLIAM LILLEY.

Mr. William Lilley, for many years superintendent of the Ashtabula (O.) Gas Light Co., died at his home in that city on the evening of December 16 at the age of 45 years. He leaves a wife and several children. A sad feature arising from is death is that his wife, who was devotedly attached to him, became insane soon after he breathed his last and all efforts to restore her reason have up to this writing been futile.

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FINANCIAL

WALL STREET, Jan. 14, 1893.

The new year has not had an active opening. It has however had a steady opening and all the active gas and electric stocks close at advances since our last issue. A noticeable feature since the opening of the year has been the decided increase in interest in gas stocks on Wall street where the belief is gaining ground rapidly that electric competition is not a factor that needs to be taken into immediate consideration. Aside from the stocks dealt in on the exchange, there is no little interest being taken by Wall street houses in other gas stocks. A notable instance is the Equity Gas Light Co., of Williamsburg. The Equity Co., has been purchased by a New York syndicate. It so far has had a very hard fight and up to date has been successfully delayed from supplying gas to consumers by the Williamsburgh Gas Light Co., in which the Standard Oil interests have practical control. The Equity, however seems to have started out on new lines which contemplate the establishment of an immense plant at Ravenswood, Long Island, to supply gas to outside companies. The identity of the members of the syndicate is so far concealed, though the Rockefeller interests are credited by Wall street with being very largely interested. John Devlin the former president of the company has resigned and the syndicate has put B. I. H. Trask of this city to the presidency, and Charles A. Knittle is the new secretary. Both these men, it will be remembered, were connected with the East River Gas Co., and Mr. Trask was largely responsible for the sale of that Company to a syndicate represented by Hollins & Co. The directors for the new company are seven in number—B. I. H. Trask, Isaac L. Egbert, Franklin Everhart, Charles A. Knittle, Edward Dodd, George W. Pinchback, Henry McInerney, and Aaron Peck. Some of the members of the old board, which numbered thirteen, will serve until the next meeting on Monday when the new board will take hold. The Ravenswood scheme, it will be remembered, is to tunnel the East River, and to supply the whole of Manhattan Island with gas. So far as is known, it is not proposed to lay opposite mains to the companies now in operation but will either control these companies by purchasing a majority of the stock or contract to supply the companies with gas at a lower price than it can be manufactured in the city. The Equity Gas Light Co., has contracts with the Equity Construction Co., of New Jersey to build its plant and lay its mains. It is understood that the syndicate has paid the construction company $400,000 for its contracts and has paid over $300,000 for a controlling interest in the Gas Light stock.

The news of the Equity's plans have had no depressing effect upon New York gas stocks. The Consolidated, in fact, has been decidedly well held, closing at an advance from our previous quotations. The latter company, it is officially announced, has no negotiations pending either with the Equity or any other company. When President James W. Smith was questioned as to whether the Equity company had already made overtures for an arrangement, he said: "There are no negotiations pending with the Equity company. There is a desire and there may be expectations, but we cannot keep track of such matters." From another source it is learned that the Consolidated company's interests would be materially benefited if it could get a larger supply of gas. The part of the city situated west of Central Park and north of Fifty-ninth street is, according to residents, very poorly supplied and a petition is in circulation and has received many signatures asking the State Legislature to appoint an investigating committee. The specific complaints are that the force of gas in the mains has been lessened to such a degree that not more than 75 per cent. of the supply of former years is available, and within the last three weeks a number of dwellings have been without gaslight.

News comes from Boston that the Metropolitan Gas Light Co., of Brooklyn, has been purchased by J. Edwards Addicks. The terms are not named, but it is known that the price is high. Last week Felix Campbell bid 151 for two-thirds of the stock, and Mr. Addicks bid 155 for a control. Wall street brokers supposed to represent R. A. C. Smith and his syndicate, are reported to have bid 162, however, so it is evident that Mr. Addicks' control has cost him a good round figure. Mr. Addicks' purchase is for the account of his construction company, known as the Brooklyn United Gas Company for which Clarke, Ward & Co. recently raised $1,700,000 in this city and $700,000 in Boston, as told in our last issue. Mr. Addicks has evidently a big job on hand if he intends to control the Brooklyn companies, and will need more than the $2,400,000 already raised. He has now control of the Brooklyn Gas Light Co. and the Metropolitan. But there are eight companies in Brooklyn. The Citizens Co. is controlled by Mr. Werdenfeld, who is opposed to the Boston gas magnate. The Fulton Municipal and the Williamsburgh are controlled by the Standard Oil interests, who have publicly declared their opposition to Mr. Addicks. The People's and the Nassau companies are opposed to Mr. Addicks because he foiled a nearly completed plan for a consolidation with the Brooklyn when he raided the stock of the latter company and as the Standard Oil interests are supposed to have gained control of the Equity, that company, too, may be beyond Mr. Addicks' reach. It is claimed that the high price paid for the Metropolitan is immaterial to Mr. Addicks, as that company was absolutely necessary to his scheme of forcing consolidation with the other companies, and had to be purchased at any cost.

Chicago gas during the past fortnight has recovered from the raid made when the Wormsers' pool was dissolved. Laclede gas has also ruled firmer. Sales by the Laclede company increased 10 per cent. for the month of December over the corresponding month in 1891. The net earnings increased about 20 per cent. for December and 20 per cent. for the year 1892.

The general stock market seems to be getting into sound condition again. It is believed that the unseasonable gold export movement has ceased, and now that the January interest and dividend disbursements have been made, the money market has resumed its easy tone. The chief cause of nervousness is the Silver Purchase bill, which is under consideration by Congress, and if the compulsory purchase clause of that bill be repealed, it is the conservative Wall street opinion that foreign confidence will immediately be restored in our currency, and in turn in our securities, and that the market for international specialties at least will undergo a big improvement.

Following are closing prices for active electric and gas stocks:

	Prices Wednesday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas.....	88½@ 89½	85¼@ 90	71¼@ 99½
Consolidated Gas.....	125 @125¼	124½@125¼	102 @128
General Electric Co....	113½@113¾	111 @113¾	104½@119½
Citizens' Gas (Brooklyn)	112 @113½	.....	94½@114½
Edison Electric Illum..	118¼@119½	114½@117	79¾@115½
Laclede Gas	23¼@ 24½	23¼@ 23¾	17¼@ 27¼
Laclede preferred	69 @ 71	. ....	57½@ 74½

The closing quotations at leading brokers' offices of inactive gas stocks show marked advances. They follow:

Gas Companies.	Bid.	Asked.	Gas Companies.	Bid.	Asked.
Brooklyn Gas Light.	135	139	Williamsburgh..... .	150	.....
Jersey City & Hoboken	180	.....	Bonds, 6s	108	111
Metropolitan—Bonds..	110	.....	Metropolitan (B'klyn...	155	.....
Mutual (N. Y.)	142	.....	Municipal—Bonds), 7s..	103	.....
Bonds, 6s.....	100	102	Fulton Municipal. ..	150	155
Nassau (Brooklyn)	150	.....	Bonds, 6s.....	103	.....
Scrip.....	100	.....	Equitable.....	185	190
People's (Brooklyn) ...	105	108	Bonds, 6s.....	103	.....

The Oneida (N. Y.) Gas Light Co. paid a 3 per cent. semi-annual dividend on January 10th.

The Boston (Mass.) *Herald* of recent date has the following to say concerning Mr. Addicks' Brooklyn enterprise: "The Beckton Construction Company, limited, of Pennsylvania, is the name of the finance company organized by Mr. J. Edwards Addicks to acquire the eight gas plants of Brooklyn and consolidate them under the title of the Brooklyn United Gas Company. Of the companies Mr. Addicks has control of one, the old Brooklyn company, and knows about what can be done with others. The only known officer of the construction company is Mr. Addicks, the treasurer. The capital stock is $5,000,000,

(*Continued on page 36.*)

J. EDWARDS ADDICKS - Industrialist and Capitalist obtained wealth from Gas Co. financing and building gas works. Four unsuccessful Senate campaigns in Delaware

SHORT RUNS

Clinton Gas Light & Coke Co.,
Clinton, Ia., May 12, 1892.

May it always be as progressive in the future as it has been in the past. The rapid advancement of the gas interest in the past few years has been largely due to such journals as PROGRESSIVE AGE.

S. M. Highlands, Superintendent.

A change of charter is proposed by the Willimantic (Conn.) Gas Co.

It is reported that the Nyack (N. Y.) Gas Works have been sold to Howard M. Storms.

F. W. Cheney and others have applied to the Connecticut legislature for the incorporation of the South Manchester Light, Power & Tramway Co.

The firm of Tufts Bros., Meter Company of Boston has recently been established. The firm is composed of Messrs. Eugene Tufts and Joseph P. Tufts.

Extensive improvements will be made at the works of the Sioux City Gas & Electric Light Co., at Sioux City, Iowa, commencing in the early spring.

A considerable number of improvements have been made in the Rome (Ga.) gas plant and it is expected that further additions will be made in that works.

Charles A. Williams has made application to the Connecticut legislature for authority to organize and operate a gas company in New London, Conn.

F. M. Manning has applied to the Connecticut Legislature for an electric light and gas company to operate in Mystic, Mystic River and Mystic Bridge, Conn.

We are in receipt of a very attractive catalogue issued by the Favorite Stove & Range Co., of Piqua, Ohio, embracing a very complete line of "Favorite" gas ranges.

The Gas Light Co., of Rockville, Conn., have recently fitted up in an elaborate way a room in that town wherein to display a variety of gas stoves and gas consuming devices.

The Consumers' Gas Co. of Reading, Pa., begun with the new year the occupancy of a handsome office in the new building of the Mutual Fire Insurance Co. in Reading.

The Worcester (Mass.) Gas Light Company believes in printer's ink. Our thanks are extended to them for two very much condensed, yet very useful, calendars covering the year 1893.

Beginning with January 1 the price of gas charged at Mattoon, Ill., has been reduced to $1 per thousand feet. It will be remembered that the "Rew" process is in operation at Mattoon.

Major John W. Mish has just been re-elected secretary and treasurer of the Lebanon (Pa.) Gas Co. for the thirty-eighth time. We congratulate the gas company. No further words are necessary.

The La Porte (Ind.) Herald states that parties have secured an option on the La Porte Gas Works. The consideration is stated to be $40,000. It is said that the new purchaser will expend $15,000 in improvements.

The Helena (Mon.) Gas Co. report great progress in the introduction of gas stoves. The secretary of that company states that fully seventy-five houses in Helena use gas exclusively for heating and cooking purposes.

Mr. James Gardner, Jr., of Pittsburgh, Pa., the well known manufacturer of fire clay goods for gas works, believes in sending out as a reminder that he is still doing business at the old stand a useful as well as ornamental reminder in the shape of a russia leather memorandum book of good quality and not burdened with excessive advertising.

Nearly a year has run by since the expiration of the contract between the city of Newark and the gas companies of that city, the companies working under the old contract. It is thought that a new contract will soon be signed.

There is talk of removing the plant of Marlboro (Mass.) Gas Light Co. to another section of the town, so as to enable the city authorities to run a street parallel to Main along the business portion, and about three hundred feet therefrom.

The Equity Gas Co., of Williamsburgh, N. Y., has been purchased by New York capitalists, and rumor states that the new purchasers are in close touch with the East River Gas Co.'s undertaking. It is stated that $300,000 was paid for the control of the voting stock.

Among Brooklyn notes it may be worthy of mention that the Citizens' Gas Light Company operating in our sister city has under consideration the expenditure of $500,000 to $1,000,000 in greatly enlarging and extending its plant, particularly its distribution system.

Some time ago the authorities of Tacoma, Wash., received an offer from C. B. Wright, owner of the water and gas works in that city, for the sale of the above mentioned water and gas works to the municipality for $2,100,000. The city refuses to give more than $1,500,000.

The common council of Philadelphia held a meeting on December 27 and passed an ordinance appropriating $7,778,239.88 to the various bureaus of the department of public works, of which $3,014,968 goes to the bureau of gas lighting to be used for improving the supply of gas.

The town of Little Falls, Minn., is now being supplied with illuminating gas for the first time in its history, gas having been turned on in that city on the evening of December 27th. Little Falls has a population of about 2,500. It is understood that it is a naphtha plant.

Jacob Weinman, of Pittsburgh, Pa., recently entered suit against the Pittsburgh Gas Co. to obtain damages for alleged injury done to his farm in Penn township. The plaintiff claims the defendant company laid a gas main through his lands and damaged them to the extent of $5,000.

The gas war inaugurated several weeks ago between the municipal authorities and the Alton (Ill.) Gas & Electric Light Co. over the subject of rates was terminated on the 3d inst. No agreement, we understand, has been reached. The lights were voluntarily turned on, working under the old contract.

At the regular meeting of the common council of Malden, Mass., council heard the report of the joint standing committee on municipal lighting, in which it was stated that it was not suitable to establish a municipal gas lighting plant. The report was referred to the next city government in concurrence.

As heretofore reported an effort is being made to secure a foothold for a new gas company at Jamestown, N. Y. We are informed by a local correspondent living in that town that there is a strong prejudice against the Pennsylvania Gas Company, and that in all probability the city fathers will grant a franchise.

The Board of Aldermen of Kansas City, Mo., have decided not to erect a gasoline plant at present. The city has 1,100 gasoline lights now maintained under a contract with F. K. Hoover, amounting to upwards of $21,000. It is thought that an effort will be made by the city within a short time to purchase Mr. Hoover's plant and operate it by the municipality.

Mr. Thomas W. Cole, Superintendent of the Altoona (Pa.) Gas Company, has resigned that position, to take effect January 1, 1893. His successor will be Mr. George H. Harper, of Kansas City, at present engineer in charge of the gas and electric light plants of the United Gas Improvement Company of that place. It is Mr. Cole's intention to engage in business for himself.

The Equity Gas Light Co. and the Equity Gas Works Construction Co., of Brooklyn, N. Y., mention of which has previously been made in these columns, have filed a demurrer to the action brought against them to enjoin the laying of pipes in the Eastern District on the ground that the facts stated by the complaint were insufficient to constitute a cause of action. The demurrer was argued at the General Term of the City Court on December 27 before Chief Judge Clement and Judge Van Wyck. W. J. Curtis appeared for the defendants and William C. DeWitt and Jesse Johnson for the plaintiff. Decision was reserved.

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WATER NOTES

I have subscribed to and read with much interest and profit your valuable journal, PROGRESSIVE AGE, *from its first issue, and am more and more pleased with it. The interests it represents cannot fail to appreciate its steady improvement.—D. M. Clark, Secretary and Treasurer Elyria, O., Gas and Water Company.*

Works are projected at Highland, N. Y. Address A. D. Lent.

It is reported that works will be built at Elberton, Wash., in the Spring.

It is said that works will be built at Alabaster, Mich., in the Spring.

Estimates place the cost of building a second plant at Niles, Mich., at $30,000.

The York (Me.) Aqueduct Co. has been incorporated, with a capital stock of $100,000.

The people of Girard, Pa., have voted for the issuance of $19,000 of bonds for works.

The Collingdale (Pa.) Water Co. has been incorporated with a capital stock of $1,000.

The people of Mahanoy City, Pa., have voted in favor of having water works to cost $98,000.

It is reported that the water-works question is being freely discussed at New Cumberland, O.

What elegant weather this is for the men who mend water pipes—that is to say, profitable weather.

A proposition to leave out the water works is being considered by the city council of Sherman, Tex.

A certain party of Birmingham will build a 40 by 60-foot stand-pipe at Huntsville, Ala., to cost $7,138.

There is talk of going to King's Station to obtain a supply of water for Saratoga Springs, N. Y.

The new system of water works for Northville, Mich., is now practically completed. Cost, $36,000.

The Manufacturers' Water Co. has been incorporated at Ballard, Wash., with a capital stock of $12,000.

The people of Pine Grove, Pa., at their spring election will vote on incurring a debt of $26,000 for works.

The Ingleside (Pa.) Water Co. has been incorporated with a capital stock of $2,000. Geo. M. Hill, is treasurer.

Certain parties of this city have secured the contract to supply the cast-iron pipe for the water works of Lowell, Mass.

The Hazel Water Company has been incorporated at Mauch Chunk, Pa., with a capital stock of $5,000. Daniel G. Baird is treasurer.

Report comes to us that a certain party has applied to the authorities of Rockport, Mass., who proposes to supply the town with water works.

It is said that the authorities of Whatcom, Wash., have voted to buy the private works for $147,000 and to spend $103,000 for improvements.

Certain parties of Waterford have been awarded the contract for supplying Syracuse, N. Y., with valves and hydrants for this year for $42,185.

An election will be held at Fort Valley, Ga., at which the people will vote on the question of issuing $25,000 of bonds for water works and sewers.

The private works at Corvallis, Ore., have been purchased by the city for $28,000. Plans have been prepared for improvements to cost between $25,000 and $30,000.

The village trustees of West Troy, N. Y., held a meeting and adopted a resolution directing the village board of health to take action against the West Troy Water Works Co. for furnishing impure water and maintaining a nuisance. For some time past the water has been taken from the Mohawk and is said to be unfit for use.

Franchises have been granted by the town board to two water companies to operate in Babylon, L. I. The companies will be known as the Babylon Water Co., with a capital stock of $25,000, and the Amityville Water Co., capital stock $25,000. The companies propose to lay mains and supply water for fire purposes and to private residences.

The city council of El Paso, Tex., held a meeting at which the ordinances prepared by the city attorney were presented and carried—the first repealing the $75,000 of water bonds issued last January, and the second repealing the $50,000 of city bonds, which also remain in the hands of the city. The third paper provided for the issuance of $205,000 of water bonds, which are to mature in thirty years and bear six per cent. interest, payable semi-monthly.

A burst water-main caused a flood in the down-town district at Chicago a few days ago which destroyed many thousand dollars' worth of property and endangered several lives. The main is three feet in diameter and burst at the northwest corner of Fifth Avenue and Charles Place at 7:15 o'clock in the morning and flooded the basements of all business houses and dwellings within a radius of three blocks. Water rose in some buildings to a depth of nine feet, and was not pumped out for six hours. The damage is said to be $70,000.

Frank M. Hoyt, Charles Quarles and F. T. Smith have incorporated at Madison, Wis., under the name of the Wisconsin Water Company, with a capital stock of $100,000. It is said that the company is an offshoot of the Hygeia Pipe Line Company, which proposes to pipe Waukesha water to Chicago. And it is also said that that the company was organized to assist the Hygeia Company in getting its pipes to Waukesha, and that measures to this effect will be brought before the legislature this Winter. The operation of the company, it is reported, will be confined to Wisconsin.

The presence of organic impurity in water can be detected by dissolving some loaf sugar in it and then, after putting in a tight stopper, allowing it to stand in a warm, well-lighted room for a few days. If it becomes turbid there are certainly organic impurities in it; if it remains clear, it is safe and pure to drink. To test the presence of earthy matters take litmus paper dipped in vinegar, and if on immersion, the paper returns to its true shade, the water does not contain earthy matter or alkali. If a few drops of syrup be added to the water containing any earthy matter, it will turn green.—*Fire and Water.*

FINANCIAL.

(*Continued from page 31.*)

one-half preferred and the rest common. Mr. Addicks takes the common stock, and Messrs. Clark, Ward & Co. have sold the preferred, about $800,000 in Boston, and the rest in New York. New York has paid the first 25 per cent., and Boston will pay at once. The remaining instalments will be called 25 per cent. monthly. Certificates of stock will be issued later. This finance company is to own the assets of the Brooklyn United Company, and the preferred stock will have a first lien on said assets until the holders receive 100 per cent. of their subscription in cash or an acceptable equivalent. After that it will share alike with the common stock. The Brooklyn United Company has only a nominal capital now, but will be capitalized and issue collateral bonds later, when enough properties have been acquired, so that their stocks will furnish collateral, as the stocks of the various gas companies did for Boston united gas bonds. The Brooklyn gas companies are at present capitalized for about $3,000,000 bonds and $10,000,000 stock. The earnings are about $1,300,000, and could probably be made to earn 5 per cent. on $30,000,000 with ease by economies of administration and the manufacture of water gas. Mr. Addicks' ultimate plans embrace consolidation of the New York city as well as Brooklyn gas plants, and if they are executed both cities will be supplied from a common source. To acquire and reorganize the New York city gas plants will require a larger concern than the Beckton Construction Company. That company, by the by, is named after the great London works, the greatest in the world."

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FINANCIAL

WALL STREET, Feb. 14, 1893.

The stock market has ruled quiet since our last review, and the gas and electric properties dealt in on the Stock Exchange have naturally shared in the general dullness. On the street, also, the chief feature has been dullness, and quotations for gas stocks at leading brokers' offices indicate few changes when compared with those of a fortnight ago. In a word, the entire market is in the hands of professionals and is dull, for the reason that outside speculators and investors have been frightened away by the noise made over the currency problem. There is no actual fear that the country will be forced to a silver basis. The trouble seems rather that each speculator thinks his neighbor may regard the Treasury's condition as sufficiently weak to encourage bear attacks on the entire list, and he has come to the conclusion that the safer policy is to leave the market alone until the recognition of the threatening evils has so aroused public opinion that the Silver Law will be repealed.

The Industrials, however, have fully held their own in the volume of speculation, and there is no indication of the "bursting of the bubble" that some of the old-time Wall Street operators claim will result from the invasion of the new class of securities on the territory of railroad shares. They will acknowledge no merit in any Industrial, and when there is a response to an increase of dividend or other stimulating influence, the advance is dubbed a piece of manipulation. On the other hand, should there be reason for a sharp movement in the other direction, there is an immediate demand for striking them off the list on the score of "protecting the public." The truth of the matter is, that some of the older market operators are jealous of the new class of securities that they cannot control, and are endeavoring to force them into disfavor by every means in their power, particularly in the direction of discriminating against them as collateral for loans and inducing their banking friends to do the same. If there has been manipulation in industrials, it certainly has not yet reached the stage where it surpasses some of the manipulation of railroad properties—Erie, Northern Pacific, Manhattan, for instance—about which there is never a demand to have them stricken from the Stock Exchange list. It is evident, however, that as far as the outside speculative and investment public are concerned, the Industrials have come to stay and will be dealt in on the New York Stock Exchange when their enemies are dead and forgotten. The fact remains, as pointed out recently by a successful operator in the Industrial list, that more money has been made in that list during the past year than in any other class of stocks. It is the Industrials that have shown the big advances. In Chicago Gas, for instance, the bull pool cleared something like a million dollars; in National Cordage something like $1,300,000 was made; Sugar Trust certificates advanced from 85 to 130 and so on. Some of the Industrials are making big profits, some of them more than they dare to pay, and the result will be the division of profits in the form of watered stock, in which they will simply be following such successful examples as Western Union Telegraph, the coal roads, New York Central, and others.

Mr. Addicks continues to attract much interest in Wall Street, but so far as the Brooklyn companies are concerned investment buying is at a stand, and will most probably continue so until the Boston capitalists show exactly what he intends doing, or to be more exact what he is able to do, against such a strong antagonist as the Standard Oil Company. The only noticeable movement in prices of Brooklyn gas stocks has been a little flurry in the negotiable receipts of the Equity Company, which have advanced from 52 to 65, and the reason for the advance, it seems, was buying by two Wall Street bankers for Mr. Addicks' account. Whether the latter gentleman has secured control of a voting majority of the stock remains to be seen. If so, he has secured a decided advantage in his fight for the control of the Brooklyn companies. The Standard Oil Company is Mr. Addicks' opponent in Brooklyn, and the Williamsburgh Gas Light Company is one of the Standard's best paying companies, having practically a monopoly of the Eastern District business. For fifteen years the Equity Co. has been threatening the Williamsburgh, but has been prevented from going into business by litigation, which was continued until, a short time ago, it passed into the hands of a syndicate which is friendly to the Standard if it is not controlled out and out by the Standard. It was then supposed that the matter had been arranged and some carelessness in keeping the stock together was shown. This suggested to Mr. Addicks that he could get control, and thus carry the fight into the enemy's own camp.

When Mr. Addicks first announced his intention of securing the consolidation of the Brooklyn gas companies it will be remembered that he had organized a syndicate of New York and Boston capitalists to do it with $2,000,000. He found, however, that he had a larger order on hand than he could fill and there has been a change in his plans. He has now issued the prospectus of a company of which he is treasurer. It is known as the Beckton Construction Co., limited, and has a capital of $5,000,000. The prospectus, as an example of theoretical financiering, is pretty, and shows, on paper, that there are millions to be made out of Brooklyn gas, but as he has as yet secured no options in the stock of several of the companies he proposes to buy, the practical operation of his plans may be looked for with interest. Mr. Addicks presents his plans as follows:

Beckton Construction Company, limited, capital	$5,000,000
Purchases and consolidates the seven old companies of Brooklyn, with their stock, amounting to	12,000,000
Bonds amounting to	3,000,000
Total of bonds and stocks of purchased gas companies	15,000,000
A consolidated gas company is organized with:	
Bonds	15,000,000
Stock	20,000,000
Total bonds and stock of Consolidated Gas Co.	35,000,000
The Beckton Construction Co., limited, sells Old Gas companies to the Consolidated Gas companies for the entire issue of stocks and bonds	
The Beckton Consolidated Co., Limited, pays for the Old Gas with the cash received for its stock and bonds of the Consolidated Gas Co.	10,000,000
Stock	5,000,000
Leaving for the subscribers to the Beckton Construction Co., "Limited," stock, bonds of the Consolidated Gas Co.	5,000,000
Stock of Consolidated Gas Co.	15,000,000
Subscribers to the stock of the Beckton Construction Co., Limited, receive for each $12,000 cash, payable as follows: At time of subscribing $7,000: March 1, April 1, $2,500.	
Bonds of the Consolidated Gas Co., 5 per cent. gold	10,000
Stock of the Consolidated Gas Co.	30,000
Net earnings, 1892	1,300,000
To pay interest on bonds of Consolidated Gas Co.	750,000
Total	550,000
Leaves available for dividends equal to 2¼ per cent. upon stock that cost subscribers 6⅔ per cent.	

With the regular rate of increase in consumption 6 per cent. dividends can be earned within three years.

Indianapolis reports that a Chicago syndicate has obtained options on the natural gas plants at Crawfordsville, Lebanon, Thornton and Darlington, and that the same party is preparing to purchase the plants at Kokomo, Anderson, Muncie, Elwood, Marion and other cities. The Chester Pipe & Tube Co., of Chester, Penn., has not yet consented to dispose of its interests in the four first named plants.

The closing quotations at leading brokers' offices of inactive gas stocks show few and unimportant changes since our last. They follow:

Gas Companies.	Bid.	Asked.	Gas Companies.	Bid.	Asked.
Brooklyn Gas Light.	138	139	Williamsburgh	157	.....
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Metropolitan—Bonds	110	....	Metropolitan (B'klyn)	140	.....
Mutual (N. Y.)	146	.....	Municipal—(Bonds), 7s	105	.....
Bonds, 6s	100	102	Fulton Municipal	150	152
Nassau (Brooklyn)	105	.....	Bonds, 6s	103	.....
Scrip	100	.....	Equitable	197	199
People's (Brooklyn)	114	117	Bonds, 6s	105	.....

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	Prices Saturday.	Range Sales 1893.	Range Sales 1892.
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General Electric Co.	110½@110¾	100⅛@114¾	104½@119⅝
Citizens' Gas (Brooklyn)	....	109 @108	94¾@114⅝
Edison Electric Illum.	125¾@126	114½@131	79¾@115½
Laclede Gas	23 @ 24	23⅝@ 26	17½@ 27¾
Laclede preferred	73 75	71 @ 74¼	57½@ 74½

It is reported that H. H. Rogers, of the Standard Oil Company, with whom are associated C. Weidenfield and Gen. James Jourdan, have purchased the plant of the Brookline (Mass.) Gas Light Co.

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PROGRESSIVE AGE

GAS-ELECTRICITY-WATER.

Vol. XI. NEW YORK, MARCH 15, 1893. No. 6

PUBLISHED SEMI-MONTHLY AT 280 BROADWAY, NEW YORK.
BY THE PROGRESSIVE AGE PUBLISHING CO.
E. C. BROWN, - - - - - - - - - PRESIDENT AND EDITOR.
[Entered at the New York Post Office as second-class matter.]

PUBLISHER'S ANNOUNCEMENT.

TO SUBSCRIBERS.—Subscription price for United States and Canada, $2 per year in advance (postage paid). Foreign subscribers will add postage. Remittances should be made by P. O. Money Order, Draft or Registered Letter, to order PROGRESSIVE AGE PUBLISHING CO. Sample copies sent free on application.

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The circulation of this journal exceeds the combined circulation of all other papers devoted to the gas interests of this country.

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OUR MAP OF NEW YORK CITY.

We have been at considerable pains to make the map of New York City and vicinity, published with this issue, represent with accuracy the location of the different gas works on and immediately surrounding Manhattan Island. It may be relied upon as accurate.

A careful study of it, in connection with our comments below, will give the gas engineer as perfect a knowledge of existing conditions in the great industry of gas manufacture and supply in our "Greater New York" as could be obtained without that intimate acquaintance with the locations of centres of population and industry, topography, subsoil formation and construction, possible only to the men engaged in the business in the territory represented.

Naturally first in interest, as first in importance among the gas companies in or about New York City, is the great Consolidated, having an annual output of 8,000,000,000 cubic feet; and a largest daily output of nearly 40,000,000 feet. The Consolidated's principal works will be found at 21st street, where they have a very large Tessie du Motay plant, as well as a Double Superheater Lowe plant of 6,000,000 or 7,000,000 cubic feet daily capacity.

It will be remembered that the Consolidated was formed through the union of a number of companies, including the Municipal, the New York and the Manhattan.

The Consolidated's station at 14th street and Avenue B is the large coal gas station of the old Manhattan Company. At its other works the Consolidated Company has Tessie du Motay plant.

The extent of territory that the Consolidated Company covers can be inferred from the fact that its holder at the upper end of Manhattan Island is twelve miles from the Battery; and that it supplies gas to the northward of that holder, as well as to the Battery itself.

The next company in importance on Manhattan Island is the Equitable, with a sendout annually of 1,500,000 cubic feet. The Equitable has but one manufacturing station, at 41st street and East river, where gas is made on the well-known Equitable principle. It will be noticed that the Equitable has an outlying holder at 59th street and 10th avenue.

The New York Mutual Company, with its manufacturing station at 11th and Pitt streets and East river, has the next largest output among the New York companies—900,000,000 cubic feet per annum. The Mutual's manufacturing and storage plant is all at the location just referred to.

Following the Mutual in importance is the Standard Gas Light Company, with an output of 700,000,000 cubic feet per annum; a manufacturing station at 116th street and East river, and storage station at 124th street and 10th avenue, at 104th street and Avenue A, at 33d street and 1st avenue, and at 19th street and Avenue A.

These are all the companies operating on Manhattan Island, and their operations are confined to the Island, except that the Standard Company has a main laid across the Harlem river, and is penetrating into the district of the Central Gas Light Company.

The Central works are located on Long Island sound, at Port Morris, and supply the territory adjacent thereto as far west as the Harlem river. They send out 170,000,000 a year.

The Northern Company, with an output of 70,000,000 cubic feet, is located on Boston road, to the northeast of the Central works about two miles. It is on the Bronx river.

Off of Manhattan Island the most important works on our map is that of the Fulton Municipal Company, with a sendout of 938,000,000, and supplying a large part of Brooklyn. Their works are located at Degraw and Nevins streets.

The next Brooklyn company in importance is the Brooklyn Gas Light Company, with an output of 475,000,000 cubic feet, and works situated on East river and Hudson avenue.

The Williamsburgh Gas Company, with an output of 450,000,000 cubic feet, and works located on East river and Kent street, is the next in importance in the Brooklyn companies.

This is followed by the Nassau, with an output of 430,000,000 cubic feet, and works located at Wallabout bay.

The Citizens' Company has an output of 400,000,000 cubic feet and works located southwest of the Fulton Municipal plant on 5th and Hoyt streets, nearly adjacent to the Metropolitan Company, which has an output of 325,000,000 cubic feet.

The People's Company is seventh in the Brooklyn list, with an output of 300,000,000 cubic feet; and is followed by the Greenpoint company, with an output of 69,000,000 cubic feet.

Just now a very interesting feature in the gas situation of New York is the East River Gas Light Company, of Long Island City. Though it has so far put out but 52,000,000 cubic feet a year, it is now very largely extending its works, putting in Lowe apparatus for the manufacture of high candle power gas, and is tunneling the East river from Webster avenue, Long Island City, to East 71st street, New York city. It is understood that the East River Gas Company proposes to sell gas to New York distributing companies, if possible to make satisfactory arrangements, or otherwise, to go into competition with the present New York companies.

The Equity Gas Co. is just completing a Lowe water gas works at Maspeth and Morgan avenues. So far it has not sold gas. The magnitude of the gas business in "Greater New York" will be understood from the above figures. The total output, as shown by the above figures, is 14,779,000,000 cubic feet per annum. The present growth is rapid. What the future may hold in the direction of consolidation no man can foresee; but there can be but little doubt that the time will come when consolidation and one management will result in an improvement in the gas situation of New York and vicinity.

MUNICIPAL OWNERSHIP OF GAS IN THE UNITED STATES.

The first engineering question essayed by Prof. Bemis in his 1891 monograph is Leakage, and with his opening paragraph on this branch of his subject begins the list of his misstatements. It will trouble the professor to explain the connection asserted by him to exist between holder capacity and leakage. We have yet to learn that there is any such connection, yet we read from the professor's book that "leakage beyond ten per cent" is due, among other causes, to lack of "sufficient holders."

A recent experience with a broken holder in Richmond appears to be in part responsible for this error of Prof. Bemis. Some serious leaks developed at a time when the demand for gas would not permit of immediate repairs, and gas was lost. Apparently from this the above erroneous conclusion is drawn.

On page 21, in reference to the fact that the gas company at Hamilton sells gas at 95 cents, while the city's gas is sold at $1, we read that "the pressure must be so great to carry the gas through the small mains" (of the company) that it leads many people to believe that "the city gas is really cheaper."

Here again we are at a loss to see the connection. Why gas should be worth less, or cost more per 1,000 cubic feet, the price remaining the same, from having been put through small mains at high pressure can only be explained by the professor's erroneous assumption that under such condition "meters will record an unduly large amount of gas."

We have come to read with patience the attacks on the gas meter of the flippant reporter, and the alleged humorous contributor to the weekly papers, but it is impossible to repress an expression of disappointment on reading the same old charge of over-registration, as the result of increased pressure, in the work of a man of reputation and position. Professor Bemis should know that a meter records the gas that passes through it, and that the registration varies only as the amount varies, except that excessive pressure will result in the passage of a portion of the gas unregistered. The movement of the meter hands is under the control of the man using the gas, and entirely out of the control of the manufacturer of the gas. If the former uses bad burners, or permits them to become clogged, or to blow, he will not get the highest attainable efficiency from the gas he uses; but he will not be called upon by the gas company to pay for more than he uses. The meter will not record "an unduly large amount of gas."

Professor Bemis' most important misstatement, considered in its bearing on the question at issue, occurs on page 41 of his monograph. He states, referring to the gas plant of the city of Philadelphia: "It appears from the report of the gas department of 1890 that $817,667.48 have been spent in the last four years for improvements and extensions. By comparing the work accomplished with this money with the entire plant, it appears that this expenditure *has increased the capacity of the works in every way fully 25 per cent.* Then $817,667.48 must be one-fifth the present value of the works, exclusive of land." The italics are ours. We will first consider his statement of alleged facts. According to the report quoted by Professor Bemis, the total holder capacity of the Philadelphia Gas Works was, at the date of the report, 14,008,000 cubic feet. This is an increase of about 22.9 per cent. for the four years; not enough at variance with the professor's figures for any serious contention, but quite enough to indicate the looseness of his method of figuring.

According to the reports of the Gas Bureau of Philadelphia, there was an increase in the number of meters set, from December, 1886, to December, 1890, of (20,006 ÷ 113,283) = 17.6 per cent.

The largest daily make of gas in 1886 was 12,932,000 cubic feet, therefore, the generating capacity (retorts) must have been equal to the production of at least 12,932,000 cubic feet in one day. In 1888 the largest daily make was 13,191,000; and Director Wagner writes that to make this gas with the apparatus at hand, "required very careful management and a fortunate combination of circumstances not often occurring." From that date to December, 1890, there was added a generating capacity of 1,700,000 cubic feet per day.

13,191,000 + 1,700,000 = 14,891,000, the possible daily make in 1890, if *all* the new retorts be accepted as available every day. 14,891,000 — 12,932,000 = 1,959,000, or an increase in the four years of 15.1 per cent.

We read in the 1887 Report, page 22, of the erection of a purifying plant of 1,000,000 cubic feet daily capacity. There was also added to the purifying capacity of the Philadelphia gas plant during the four years referred to by Prof. Bemis one set of boxes 24′ × 36′ each, with a capacity of 1,500,000 cubic feet per day (24 × 36 ÷ .6 = 1,440). In 1886 over 12,900,000 cubic feet were purified in one day. The addition to the purifiers was then (2,500,000 ÷ 12,900,000) 19.4 per cent. for they ears 1887, 1888, 1889 and 1890.

To summarize:

Prof. Bemis' statement of increase in "the capacity of the works in every way" was "fully 25 per cent."

The facts are—

	Per Cent.
Increase in holder capacity	22.9
Increase in consumers' meters	17.6
Increase in retort capacity	15.1
Increase in purifier capacity	19.4

WALL STREET, March 14, 1893.

There has been a further decline in the stock market since our last review. Mr. Cleveland has as yet given no indication of his intentions in regard to the currency question, and bear operators have taken advantage of the general uncertainty to manipulate money rates and thus frighten "bull" speculators. Industrials have naturally shared in the general depression, and in some instances where they have been the active stocks of the market, they have suffered a decline more severe than the railway stocks that have been in partial neglect. The most severe decline, as far as gas and electric stocks are concerned, has been in General Electric, which fell about seven points, and then slightly recovered. The decline was accompanied by rumor of an unfavorable financial condition of the company, and of a consequent probable reduction in the dividend rate from 8 per cent. to 7 and even 6 per cent. It is likely, however, that the rumors were the result of the decline and not the decline the result of the rumors. A director of the company who represents a very important interest in the financial community says he has no knowledge of any impending unfavorable developments. People in a position to know the position of the company express the belief, however, that while it has been doing a prosperous business, the dividend rate has been larger than circumstances warranted. The General Electric earns its dividend, but, they say, does not appear to earn it fully in cash. Another sharp decline has been in Consolidated Gas, which has declined over 5 per cent. Chicago Gas has been well maintained, but aside from the Williamsburg Company's stock, which has advanced 5 per cent., there has been some irregularity in prices of the local gas companies' securities, some of which have yielded two or three points.

Wall Street's interest in gas stocks has, it is safe to say, never been greater than at present. It is understood that several large purchases are about to be consummated by New York syndicates and for the purchase of the Milwaukee Gas Co. by Emerson McMillin & Co. and associates of this city. The latter sale was the result of several weeks of negotiation, and the purchase comprised 22,000 shares out of a total of 26,735 shares. The syndicate will be known as the Western Gas Investment Co., a corporation organized under the laws of this State with $4,000,000 capital, which will issue $3,500,000 five per cent. bonds. The company has negotiations for other water gas properties under way. Among those interested are: E. W. Clark & Co., of Philadelphia; Maitland, Phelps & Co.; J. & W. Seligman Co., F. W. Montgomery and Vermilye & Co., of this city; A. J. Davis, of Syracuse, and several English capitalists. These parties have subscribed to all the stock in the new company, with the exception of $1,000,000, which has been taken by capitalists in Milwaukee. The terms of the subscription are that with every $10,000 block a bonus of $5,000 is given, and the purchasing syndicate expects to make a large profit on the deal. A part of the stock and bonds will be reserved in the treasury and sold later on for extensions. The original owners of the Milwaukee Co. received an equivalent of $125 for their holdings. It is understood that no change will be made in the executive management of the property, and the net earnings of the current year are estimated at $325,000.

A Wall Street gentleman well qualified to speak on the subject stated that in his opinion gas syndicates are destined to be as great a rage as the brewery syndicates of a few years ago ever were. English and German capitalists have become much interested in them now that the fact has become demonstrated that electric light is an ally rather than an enemy of the gas industry.

For the moment Mr. Addicks seems to have fallen into a waiting mood as far as Wall Street and his Brooklyn enterprise are concerned, and the Brooklyn stocks that he is interested or expects to be interested in have eased off somewhat, while the others have as a rule been well maintained. The Williamsburg company have advanced 5 per cent., while the Equity has declined a like amount. What will be the result of Mr. Addicks' deliberation is of course a matter of conjecture, for he is not a man particularly given to proclaiming just what his next movement will be. The plant of the Equity company is to be increased so that instead of 1,800,000 feet a day it will (when finished) be able to produce 4,000,000. The increased product, it is said, is to be sold to the East River company of Long Island City.

The strength in Chicago gas is due to buying on the belief that the stockholders will get a good deal more than 6 per cent. in dividends this year, as the World's Fair is expected to make the business of the company during the summer months even better than it has been during the recent winter months, when earnings are alleged to have been at the rate of 11 to 12 per cent.

Following are closing prices for active electric and gas stocks:

	Prices Saturday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas	88¼ @ 89	85½@ 94½	71¼@ 99¾
Consolidated Gas	124 @...	123¼@144	102 @128
General Electric Co.	101½@...	99⅝@114¼	104½@119¾
Citizens' Gas (Brooklyn)	....	106 @109	94½@114½
Edison Electric Illum.	121¼@122	114½@131	79¾@115½
Laclede Gas	21½@ ..	20¾@ 26	17¼@ 27¼
Laclede preferred	71¼@...	71 @ 74¼	57½@ 74½

The closing quotations at leading brokers' offices of inactive gas stocks are appended. A noteworthy advance is in the Williamsburgh.

GAS COMPANIES.	Bid.	Asked.	GAS COMPANIES.	Bid.	Asked.
Brooklyn Gas-Light	184	135	Williamsburgh	160	.....
Jersey City & Hoboken	180	.....	Bonds, 6s	108	111
Metropolitan—Bonds	110	.....	Metropolitan (B'klyn)	140	.....
Mutual (N. Y.)	145	.....	Municipal—(Bonds), 7s	105	.....
Bonds, 6s	100	102	Fulton Municipal	150	152
Nassau (Brooklyn)	175	.....	Bonds, 6s	105	.....
Scrip	100	.....	Equitable	190	195
People's (Brooklyn)	100	110	Bonds, 6s	105	.....

DON'T WANT SANITARY GAS.

The following article taken from the Wilkes-Barre (Pa.) *Record*, may not be interesting reading for the advocates of "sanitary gas," but it bears out the position taken by the AGE on the subject and is therefore worthy of perusal:

The expressed convictions of the *Record* that the borough council was doing the citizens of the West Side an injustice by granting the exclusive right for furnishing gas to Kingston to a company for the sole reason that they claimed to manufacture a harmless gas has at last been completely vindicated.

The Consumers' Gas Co., of Wilkes-Barre, has refused to accept the plant or gas of the "Sanitary" Company after a large and expensive plant had been erected and a thorough trial given the product. Now the new company must go to work and erect an entirely new plant and will furnish the ordinary illuminating gas.

The *Record*, while the matter was before the council, took occasion to ridicule the claims of the gushy young man who appeared here in the interest of the company as preposterous and impossible, but the council seemed entirely carried away by his eloquence and voted for "sanitary gas."

Now the matter has come to just where the *Record* said it would—the West Side has no gas of any kind, sanitary or unsanitary, and no immediate prospect of any. If the council had gone on and admitted both companies applying, the actual flesh and blood company which was thrown out and the "on paper" company which was given everything, the West Side town would before now have been piped from Wyoming and Edwardsville, and real gas furnished consumers. People who were present at the council meeting at which the franchise was given will recall with a smile the speech of the young but aggressive member of the body, who brought the matter favorably before the council for action. The "burning" eloquence of the man from Jersey had done its work and sunk deep into the breast of the young man. As he rose to address the body, his chest heaved, his eyes flashed and his voice trembled, as with Demosthenean eloquence he ripped out: "Gentlemen, we have found what we have been looking for—a harmless illuminant; one that can be breathed instead of air, drunk instead of milk, eaten instead of soup, and will burn with twice the brilliancy of electricity. I move you, gentlemen, that we invite its coming by giving the asked for franchise."

And the rest of the councilmen followed him like sheep through a hole in the fence.

Then the few men in the room who knew anything of the requirements and composition of real illuminating gas, and could appreciate the humorous element in the childlike credulity of the borough fathers, went out into the darksome street and leaned against trees and smiled, and they are smiling yet.

And the West Side is without gas.

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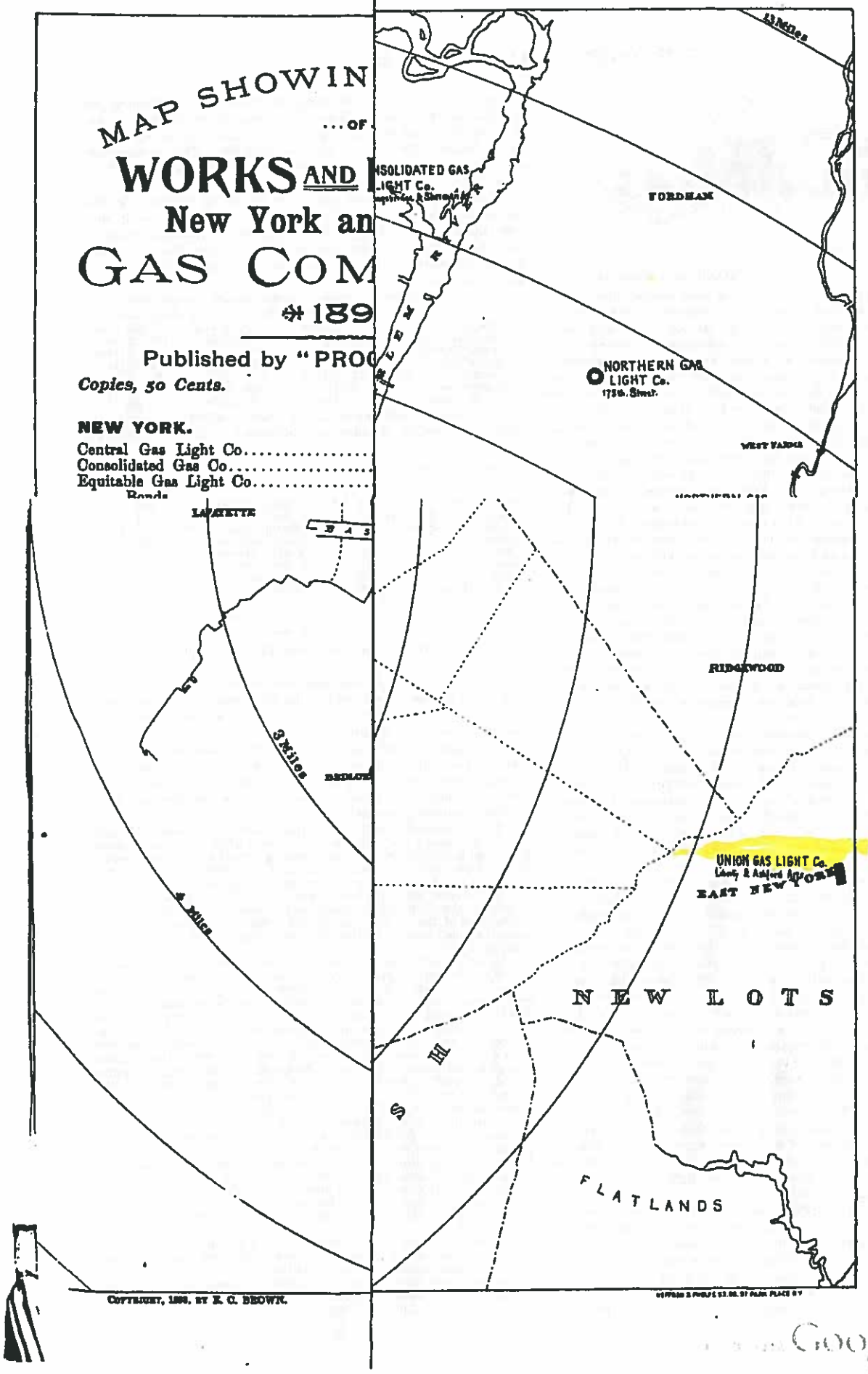
Central Gas Light Co.....
Consolidated Gas Co.....
Equitable Gas Light Co.....
Bonds



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The Georgetown (D. C.) Gas Light Co. intends making numerous improvements in its plant during the coming season. This company recently asked the commissioners of the district for permission to lay a six-inch pipe from its works to connect with the mains of the Washington Gas Light Company for the purpose of supplying such an amount of gas as may be required for use in Georgetown in excess of production. It is said the commissioners appreciate the importance of having the connection established between the two companies, in view of possible accident occurring to either of the works.

The Ottawa (Canada) Gas Co. and Ottawa Electric (arc) Light Co. have been purchased by an English syndicate with headquarters at Montreal. It is said the buyers are the same people behind the bill now in the Canadian parliament to secure powers to buy up and consolidate all the gas and electric companies in Canada. The combined capital of the two companies named is $650,000. The purchasers have acquired about $500,000 of these holdings. The Ottawa Gas Co. owns a most valuable franchise, having by their charter perpetual right to tear up the streets to put in pipes or repair the same. No matter how the streets may be paved or macadamized, the privilege is just the same, the only condition attached being that the company is supposed to put the street in the same repair as when they broke it up. They hold a perfect monopoly in their particular line. The Ottawa Electric Light Co. is another corporation possessed of valuable privileges and own their own water power, beside a magnificent plant at the Chaudiere, all of which, by a control of stock will go to the new owners. It is understood that extensive improvements will be made in the plant, and distributing service of the gas company.

There is every indication of a lively time in the near future over gas matters in Detroit. The Detroit Gas Company recently asked permission of the authorities to lay mains in certain streets of Detroit. Like many other cities Detroit has some choice, and highly worshipped asphalt pavements, which the citizens dislike seeing disturbed, and certain aldermen are inclined to place stumbling blocks in the way of the company's progress; for years it has been whispered among the knowing ones that the Detroit Gas Company had no right in the city of Detroit; strange to say no one has ever been able to catch a glimpse of the company's charter until a few days ago, when an enterprising newspaper in that city succeeded in bringing the franchise to light, from which it appears that in 1861 the city granted right to a "gas manufactory" and to supply its product for private and public purposes exclusively for the period of ten years. Strangely enough nothing in the document limits the corporate life of the company, or to what time it shall have the right to use the streets. The attorney for the gas company states that it is the intention of his client to claim practically perpetual rights, or at least during the corporate life of the Detroit company, which will not cease until 1901. That a red hot fight in Detroit gas affairs is about opening cannot be doubted by any one at all familiar with the situation.

Buffalo is threatened with another gas company as has already been mentioned in these columns, but probably the most serious attack on the exisiting gas interests of that city is the following resolution introduced in the board of aldermen on the 13th ult.: "*Whereas*, The city of Cleveland has recently passed an ordinance fixing the price to be paid by consumers of illuminating gas of 18-candle power at 80 cents per thousand cubic feet, and also requiring the several gas companies of the city to pay into the city treasury 6¼ per cent. of their gross earnings, said rates to remain so fixed for a term of ten years, and *Whereas*, The city of Buffalo is nearly as well situated for the manufacture of cheap gas as is Cleveland; therefore, "*Resolved*, That it is the sense of this board that a good quality of illuminating gas should be furnished to consumers in Buffalo at a rate not exceeding $1 per thousand cubic feet, and if fixed for a term of years such rate should be considerably less. *Resolved*, That the corporation counsel be and he is hereby directed to report to this board whether the common council of the city of Buffalo has the power to fix the price and prescribe the terms and conditions under which the several gas companies of the city shall furnish gas to private consumers." The resolution passed without any opposition. Buffalo has three artificial gas companies at the present time, and two concerns supplying natural gas delivered in pipes from the Canadian side. The wells in this territory are said to be rapidly diminishing, and the time is not far distant when Buffalo may reasonably look forward to five artificial gas plants, not to count the prospective competitor now knocking at her doors.

It is rumored that a bill will be introduced in the next municipal assembly in Missouri granting to Philadelphia, New York and Chicago capitalists a franchise to supply gas in St. Louis. One of the features of the new company's application will be gas at 75 cents per thousand cubic feet. We doubt very much if a new company could find an entrance in the city of St. Louis so long as the present interests are held in the present hands. St. Louisians are a particularly clannish lot of business people, and much of the stock of the Laclede Company is held locally. The same with the street railroads, electric lighting and other municipal interests of the city, so that when one interest is attacked it is sure to arouse the antagonistic spirit of the others, so that all the parties in interest get together and bring the most powerful influence to bear on any project looking to the undermining of any one of those common interests.

The Wheeling (W. Va.) board of gas trustees has submitted its annual report for 1892 to the city. In view of the extraordinary expanse of construction of the electric light plant, interest and principal of bonds, etc., the statement is a very favorable one:

RECEIPTS.

To balance on hand January 1, 1893	$4,878.29
Receipts from all sources	108,109.50
Total	$112,982.79

EXPENDITURES.

Gas making (wages)	$23,675.26
Repairs to apparatus	5,618.10
Repairs and extension of mains	842.63
Tools	226.15
Coal	15,617.01
Lime	1,071.35
Public lamps, cleaning, lighting and extinguishing	986.73
Public lamps, erection and repairs	82.97
Attending calls and adjusting meters	1,950.00
Services	4,862.19
Meters	1,393.46
Natural gas lamps	28.87
Oil lamps	644.28
Salaries and miscellaneous	5,893.62
	$63,487.59

ELECTRIC PLANT.

Construction	$22,233.07	
Maintenance	14,082.56	
Redemption of bonds	8,000.00	
Interest on bonds	4,900.00	$49,065.63
Total		$112,553.22
Balance on hand		429.57

The Equity Gas Light Company of the Eastern District (Brooklyn) has reduced the price of gas to $1 a thousand cubic feet. Within a short time canvassers have been sent out and they have been actively engaged in securing customers for the newly completed company. The works of the Equity Gas Light Company were turned over to the present owners about two weeks ago by the Equity Gas Works Construction Company. Preliminary to turning over the plant it was thoroughly tested and was pronounced to be according to contract. The company has at the present time pipe laid on Grand street, Broadway and Flushing avenue, which is the heart of the district of the Williamsburgh Gas Company. In all the company has something over five miles of pipe laid. The regular price of gas in the city at the present time is $1.25 a thousand cubic feet. The Equity company has all along maintained that there would be no cut in the price of gas, but that they would offer better gas as an inducement for the customers of the Williamsburgh Company to leave that company. Secretary Blodgett, of the Williamsburgh company, was recently seen by a press representative, but he refused to state what steps his company would take in the matter. The injunction which the Williamsburgh Company has secured against the Equity company restraining the latter from laying more pipes is at present before the General Term of the Supreme Court. Mr. Blodgett said a few days since that it would be pushed to the end. The Citizens' and the Fulton Municipal companies in the Western District will begin the work of extending their plants in the districts of the Brooklyn and the Metropolitan companies, both of

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Galva, Ill., will soon be electrically illuminated.

Electric lighting is soon to be put in at Clyde, Ohio.

An electric light plant is to be put in at Massillon, Ohio.

An electric light plant will soon be put in at Ridgefield, Conn.

It is reported that an electric light plant will probably be put in at Ripon, Wis.

The people of Margaretville, N. Y., are desirous of having electric street lighting.

The Paxton (Ill.) Electric Co. has increased its capital stock from $24,000 to $40,000.

An appropriation of $1,100 has been made for electric street lighting for Holly, N. Y.

A private party contemplates putting in an electric light plant at St. Johnsville, N. Y.

The people of Watertown, N. Y., at a recent election, voted to have an electric light plant put in.

A private party hopes to have an electric light plant in operation at Freeport, Ill., within three months.

The contract for lighting the streets of Columbus, Ga., has been awarded to the Electric Light Company.

At a recent election, the people of Paris, Tenn., voted in favor of the proposition for electric street lighting.

The De Pere (Wis.) Electric Light & Power Company has been incorporated with a capital stock of $20,000.

The citizens of Chesapeake City and North East, Md., have the electric lighting question under consideration.

The people of Red Cloud, Neb., have voted in favor of issuing $6,000 in bonds for an electric lighting system.

The Peninsula Light, Power & Heat Co., of Grand Rapids, Mich., has been formed with a capital stock of $20,000.

The people of Falmouth, Ky., are agitating the question of establishing an electric light plant for street lighting.

The plant of the Electric Light Company at McKeesport was recently destroyed by fire; estimated loss, $100,000.

Report has it that capitalists have organized an electric light company at Four Joliet, Ill., and will put in a plant.

Flandreau, Dak., will ere long be electrically illuminated. An electric light plant will be put in during the coming summer.

The authorities of New London, Ohio, have awarded a contract for an electric light plant to the Howe Construction Co., of Newark.

Bonds to the amount of $50,000 will be issued by the authorities of North Attleboro, Mass., to pay for the erection of an electric light plant.

The work of stringing wires at Tucson, Ariz., preparatory to the turning on of the electric current for street lighting has been completed.

A petition has been presented by the residents of Cary Hill, Mass., asking for electric lights. They have already raised $400 for the erection of poles.

An increase has been made in the capital stock of the Del Norte (Col.) Electric Light & Power Co. to $25,000. The company was organized in January, 1892.

An election will be held at Anna, Ill., at which a proposition to authorize the issuance of $1,000 of bonds to light the town with electricity will be voted upon.

Joseph R. Beckerdike, Tracey D. Hull and Benton Johnson have incorporated the Crescent Electric Light, Heat & Power Company at Chicago, Ill. Capital stock, $100,000.

The Lewiston (Mon.) Electric Light & Power Company has been formed with a capital stock of $10,000. The company proposes to erect and operate an electric light plant.

A franchise has been granted to the Power City Illuminating Company with privilege to string wires and erect poles for an electric lighting system for Niagara Falls, N. Y.

Hannibal, Mo., owns and operates its own incandescent electric light plant. The city began supplying light about March 1, and have in about 400 lights with prospects of another hundred.

The Mount Vernon (N. Y.) Electric Light & Power Company's plant was recently destroyed by fire. All the engines and dynamos were ruined. Loss $12,000, partly covered by insurance.

The Cleveland (Ohio) General Electric Co. will build a power house on Canal street; 10,000 horse-power machinery will be put in, and more than half a million dollars will be invested in the plant.

The people of West Peabody, Mass., who reside on West, Pine, Locust, Broad and Newbury streets want the electric light company operating in Peabody to extend their lines to that portion of the town.

The Bound Brook (N. J.) Electric Light, Heat & Power Company has been formed with a capital stock of $5,000. The incorporators are: C. P. Sebrig, North Plainfield; L. J. Amerbacher, Newark; F. H. Cook, Bound Brook.

The consolidation of the Edison Electric Light and the Water Power Electric Light companies of Des Moines, Ia., has been effected. The company will be known as the Des Moines Electric Company. Capital stock $1,000,000. Fred Goode was elected president and J. A. Colby secretary.

The Humboldt Light & Power Company has been formed at Eureka, Col. The capital stock of the company is set at $50,000, divided into 1,000 shares at $50 per share. The directors are James Strong, of San Francisco; Josiah Bell, J. M. Melundy, S. A. Vance and W. V. Lockwood.

Noah L. Cochen, president of the State Electrical Light & Power Co., has made a proposition to the board of aldermen of Brooklyn, N. Y., offering $10,000 for a franchise to do business in Brooklyn. He says if the franchise is granted he will furnish electric light for 20 cents less per lamp than the city is now paying.

H. R. Leavens, T. S. Coolidge, M. O. Brown, and E. B. and O. S. Potter, of Glens Falls, N. Y., have a scheme on foot to build a dam across the Hudson river 30 feet high, put in an electric plant, and supply the villages of Glens Falls, Sandy Hill, Fort Edward, Ganesvoort, Fort Ann, Saratoga and other neighboring places with electricity for power and lighting.

The cause of the blackening of incandescent lamp bulbs has been the subject of considerable investigation by electricians. Various theories have been advanced, but all have been more or less unsatisfactory. M. Bainville, manager of a large incandescent lamp factory in France, advances a new theory to explain the phenomenon. He suggests that the oxygen contained in the filament is responsible for the blackening. This forms carbonic oxide, which, when it comes in contact with the relatively cold wall of the bulb, splits up, the carbon being deposited on the glass and the oxygen set free to repeat the operation.

The annual report of the gas inspector for Allegheny county, Pa., shows that there was used in his district last year 1,100,274,000 cubic feet of illuminating gas by 20,165 meters. The report states that the candle power of the gas furnished is 33⅓ per cent. above legal requirements. Of the 2,490 meters inspected only two were rejected.

Judge Clement, of the Brooklyn City Court, has handed down a decision unfavorable to the defendant in the case of The People vs. The Equity Construction Company. The latter it will be remembered engaged to build the plant for the Equity Gas Light Company. As the decision is against the Construction Company and the Court of Appeals of the State has rendered a decision favorable to the validity of the charter under which the Equity maintains its works, it is not thought that the plant can be prevented from manufacturing or continuing to supply gas in the territory covered by its franchise.

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WALL STREET, April 29, 1893.

With the strained condition of the currency question the general stock list has shown signs of pronounced liquidation since our last review, and gas and electric securities have naturally shared in the general decline. Last week it was reported that the government had decided to pay the silver certificate issued under the Sherman law of 1890 in silver as soon as the $100,000 gold reserve had been entrenched upon. On Thursday a diplomatic statement was given to the press association by the Secretary of the Treasury, Mr. Carlisle, showing that the government legally had the right to take such action. The publication of this statement in the newspapers the next day had the effect of demoralizing the stock market and forcing large engagements of gold for export on the supposition that the government was about to establish a silver basis for part of its currency. The effect of this supposition was so great that President Cleveland deemed it prudent to furnish to the newspapers for publication a statement denying that the administration had contemplated refusing gold or silver certificates. This in connection with the action of banks in various cities in exchanging gold for legal tender created a favorable tone, and the feeling toward the close of the month was more confident.

Gas securities that are dealt in at broker's offices and are not listed on the Stock Exchange declined quite as much as the regular stock market. This was particularly the case in regard to Brooklyn companies where the breaking out of an old fashioned gas war has unsettled matters. Gangs of men in the employ of the Fulton Municipal Gas Light Co. began last week to open the streets in the district heretofore constituting the exclusive field of Mr. Addicks' Metropolitan Co. a twelve inch main being laid in the heart of the district. The Municipal Co. has 24 miles of pipe on hand and is working with such an energy that it will not be long before the pipe is all underground. The Citizens' Co., of Brooklyn, has also mains on hand with which to enlarge the capacity of its works to 3,000,000 feet per day. So it seems fair to assume that it will not be long before it enters the territory of Mr. Addicks' Brooklyn company. These developments mean that the Boston financier is going to have a hard fight, and the reason the Fulton Municipal people have not started it sooner is because they were waiting for their election so that the officers could see how they stood with their own stockholders. The result of the election completely confirmed their policy and they began work immediately. It appears that the Standard Oil interests have forced dollar gas in Boston, and the consequences following from the first result of a personal controversy may be far reaching, for the logical outcome would seem to be cheaper gas in Brooklyn as well as Brookline. It is thought that the edict of dollar gas which has gone forth from the gas commission to the Boston Gas Light Co., may mean the suspension of dividends upon Bay State stock, but it does not necessarily mean suspension of payment upon its income bonds.

Chicago gas shows a sharp decline from quotations current a fortnight ago. It is reported that insiders have been gradually getting out of the stock preparatory to becoming connected with other enterprises The only project that has been floated, and which might be construed as having any bearing on the withdrawal of support from Chicago gas, was the Indiana National & Illuminating Gas Co., which has been brought out by J. H. Benedict, Jr.

Following are closing prices for active electric and gas stocks :

	Prices Tuesday.	Range Sales 1892.	Range Sales 1893.
Chicago Gas.....	85¼@ 86	82¼@ 94½	71¼@ 99½
Consolidated Gas.....	127 @128	120 @144	103 @128
General Electric Co....	99¼@ 99½	97¼@114¼	104½@119¾
Citizens' Gas (Brooklyn)	107½@108½	106 @109	94¼@114½
Edison Electric Illum..	121½@122	114¼@131	79¼@115½
Laclede Gas.....	19½@ 20	19¾@ 26	17¼@ 27¼
Laclede preferred	68 @ 70	68 @ 74¼	57½@ 74½

The closing quotations at leading brokers' offices of inactive gas stocks are appended.

GAS COMPANIES.	Bid.	Asked.	GAS COMPANIES.	Bid.	Asked.
Brooklyn Gas Light.	119	123	Williamsburgh.....	150	155
Jersey City & Hoboken	180	.....	Bonds, 6s.....	108	.....
Metropolitan—Bonds..	110	.....	Metropolitan (B'klyn)..	125	130
Mutual (N. Y.).....	140	145	Municipal—(Bonds), 7s.	105	.....
Bonds, 6s.....	100	102	Fulton Municipal....	142	145
Nassau (Brooklyn)....	170	.....	Bonds, 6s.....	105	.....
Scrip.....	110	.....	Equitable.....	190	191
People's (Brooklyn) ...	90	95	Bonds, 6s..... ..	105	.....
			Beckton Construc. Co	.....	85

An annual dividend of 6 per cent. has been declared by the Chucatunda Gas Light Co., of Amsterdam, N. Y.

A financial article in one of the Boston papers gives this interesting story: "It is said that an effort is being made to put through the original scheme to buy up all the gas plants of the leading American cities, for which $50,000,000 of English and native capital was subscribed, but which fell through on account of the Baring failure." Fifty millions is a good deal of ready cash but hardly enough to buy up "all the gas plants of the leading American cities." It could make a very respectable beginning with that sum in New York City but "the syndicate" would have to go down much deeper into its trousers pocket before it could acquire a decent holding in this town alone; for example, the Consolidated Co., with about $40,000,000 capital and its stock selling at 1.25 @ 1.30.

One of the very latest cheap gas processes to come to our notice is styled the Miller-Zizzag. The principal claim of this method is stated by one of the promoters in his talk to a "syndicate" as "by this process we can furnish as good a fuel gas as the natural gas for half the money." Presumably he means half the cost of natural gas. We should be willing to wager something that the process will have a "zizzag" road to travel.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
DREXEL BUILDING, PHILADELPHIA, April 20, 1893.

The annual meeting of the stockholders of the United Gas Improvement Co. will be held at the company's office, Drexel Building, Philadelphia, on Monday, May 1, at 12 o'clock noon, when an election will be held for a president and six (6) directors to serve for the ensuing year, and such other business transactions as may be brought before the meeting.

The stock transfer books will be closed from 3 P.M., Tuesday, April 25, until 10 A.M., Tuesday, May 2.

EDWARD C. LEE, Treasurer.

(*Continued from Page* 164.)

rolling by pieces of 4"×4". The entire wooden structure was securely bolted together.

The standard piles were for raising and permanently supporting the pipe, and the brace piles and the diagonal braces were to withstand any side thrust caused by sliding of the marsh.

One of the difficult features of this piece of work was the bracing of the right angle in the main, at the corner of Santa Clara avenue and De Haro street. This was accomplished by driving ten piles around the T at the corner, and by a system of diagonal braces. To prevent the pipe from drawing apart, iron bands were bolted around it at the corner, and these bands were connected on each side by rods with turn buckles.

After the pipe was raised and supported, the 12"×12" caps were removed and the tops of the standard piles were sawed off below the grade of the street. As the street was filled, the pile structure stood the strain of the street settling, but there was little or no lateral thrust, as the clay under the marsh was nearly level at this point, and the fill did not slide.

This piece of work was not subject to any of the unfavorable conditions that so seriously affected the first part of the work. In fact, the method employed to raise the first section would have been successful in raising the second section; but it is doubtful if any wooden structure would have withstood successfully the various forces exerted to overthrow it, at the crossing of Santa Clara avenue and Arkansas street.

Google

FINANCIAL

WALL STREET, May 31, 1893.

On the Stock Exchange the dealings in gas and electric securities since our last review have been light, though values indicate further recoveries from the demoralization in industrial stocks that was current early in the month. A special feature has been the activity and the sharp and sustained advance in Consolidated Gas resulting from the declaration of a 2 per cent. quarterly dividend, placing, it is believed, the stock permanently on an 8 per cent. basis. Chicago Gas, which broke to 59 from 83¾ during the panic in the industrials, has recovered to 75. General Electric stock on the other hand has suffered a sharp decline as a result of rumors affecting the company's credit. During the excitement to the industrial group this stock broke from 97⅞ to 58, and then recovered to 76. Last week the news became public that the company had sold its holdings of the stock of the Edison Illuminating Company, and the sale was accepted as an indication that General Electric was in need of ready money. The Illuminating Company has been paying the General Electric Company 6 per cent. dividends. An officer of the General Electric Company furnished the PROGRESSIVE AGE with a carefully compiled statement denying that the company is in financial straits. "The company has realized," the statement in question says, "that a determined attack is being made apparently on its credit, and to place itself therefore on a basis financially beyond the possibilities of harm it has adopted the policy of increasing its cash resources by the sale of such portion of the security of local companies now in its treasury as can be easily and profitably made. So far the company has sold $2,000,000 of these, and, as was stated in its annual report, proposes to sell others from time to time through some of the many channels open to it. It has in its treasury at very low valuation about $7,000,000 more of good local company securities. Negotiations for the sale of many of these at prices above inventory prices are progressing. The company sold during the year 1892 more than $5,000,000 of such securities. The acquisition and sales of royalty and other bonds an securities have always formed a secure and profitable part of its business. The company has now on hand besides the proceeds of the sales just made, $1,500,000 in cash."

The purchasers of the stock of the Edison Illuminating Co., of New York, from the General Electric Company are Kuhn, Loeb & Co., on behalf of European associates. The transaction is simply another instance of the interest that is being taken in gas and electric stocks by European investors. The price paid was a shade above 105. With their other purchases of Edison Illuminating, Kuhn, Loeb & Co.'s customers have sufficient stock to give them control, though it is understood that no change in management is contemplated. That the management is good is shown by the following comparative report of earnings for April and for the four months ending with April:

	1891.	1892.	1893.
Gross earnings	$45,812	$75,404	$102,093
Operating expenses	24,987	34,078	56 153
Net earnings	$20,824	$41,326	$45,940
Accrued interest on bonds	8,333	9,375	18,541
Gross earnings (4 months)	206,598	311,830	431,058
Net earnings (4 months)	103,737	161,894	210,717
Accrued interest on bonds	33,333	37,500	58,833

There has during the past fortnight been a very sharp break in the values of Brooklyn Gas stocks, according to the prices quoted by leading brokers to-day. Bids for Fulton Municipal have been reduced 7 points to 135, for the Nassau & Williamsburgh 20 points to 150 and 130 respectively, and the Metropolitan 10 points to 115. The decline has resulted on account of the "gas war," for which Brooklyn seemed to have become justly famous. The decline has affected by sympathy prices of companies that are not immediately concerned. Last week the Fulton Municipal Gas Co. began serving several hundred consumers in the Ninth and Twenty-second wards, which is known in the gas world as Mr. Addicks' Metropolitan Company's district. There is reason to believe that the competition will extend until a general war is raging and the result will naturally be the cutting of rates when the competition becomes so keen as to warrant such a step. The Fulton Municipal on a contract which could be terminated on six months' notice, sold at wholesale to the Metropolitan Company all the gas which was then distributed to consumers in the Metropolitan district. It is reported that the price paid was less than 60 cents per 1,000 feet. The Metropolitan people thought there was more money in manufacturing gas than in buying it, however, and they had the old works renovated and an improved process of manufacture substituted. That the fight of the Fulton Municipal people is against Mr. Addicks as against their old customers is shown by the fact that the Citizens Company has applied to the department of city works for permission to lay several miles of gas mains in the Brooklyn Company's district. It has not yet been successful. The Brooklyn Gas Light Co. is controlled by Mr. Addicks.

Beyond the increase in the Consolidated Gas Co. the New York companies have been without special features, and values indicate few changes of moment.

There have been no new offerings of gas stock or bonds for subscription since our last review, the continued unsettled condition of financial affairs rendering it out of the question to place the securities on a satisfactory basis.

The closing quotations at leading brokers' offices of inactive gas stocks are appended.

GAS COMPANIES.	Bid.	Asked.	GAS COMPANIES.	Bid.	Asked.
Brooklyn Gas Light	.....	120	Williamsburgh	130	.....
Jersey City & Hoboken	180	.....	Bonds, 6s	106	108
Metropolitan—Bonds	110	...	Metropolitan (B'klyn)	115	120
Mutual (N. Y.)	140	145	Municipal—(Bonds), 7s	105	.....
Bonds, 6s	100	102	Fulton Municipal	135	140
Nassau (Brooklyn)	150	.....	Bonds, 6s	105	.....
Scrip	100	.....	Equitable	178	180
People's (Brooklyn)	90	95	Bonds, 6s	105	.....
			Beckton Construc. Co	.....	85

Following are closing prices for active electric and gas stocks:

	Prices Saturday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas	74½@ 74¾	59 @ 94½	71¾@ 99⅜
Consolidated Gas	128 @130*	112 @144	102 @128
General Electric Co.	66¼@ 66¾	58 @114¾	104½@119¾
Citizens' Gas (Brooklyn)	107½@108½	106 @109	94½@114½
Edison Electric Illum.	109½@111	110 @181	79¾@115½
Laclede Gas	17 @ 17½	14 @ 26	17¾@ 27¼
Laclede preferred	60 @ 65	57 @ 74¾	57½@ 74½

* Ex. Dividend.

The Washington (D. C.) Gas Light Co. is said to have a desire to purchase a controlling interest in the Georgetown (D. C.) Gas Light Co.

DIVIDENDS, ETC.

OFFICE OF THE AMERICAN GAS COMPANY.

222 SOUTH THIRD STREET,
PHILADELPHIA, PA., May 25, 1893.

The Board of Directors of the American Gas Company have this day declared a semi-annual dividend of 3 per cent., or $3. per share on the capital stock of the company, payable on and after June 1, 1893

MORRIS W. STROUD, Treasurer.

It is seldom our pleasure to see a more elaborate catalogue or a better illustrated and carefully prepared volume than that being sent out by the Berlin Iron Bridge Co. of East Berlin, Conn. Was it not that the matter depicts the practical affairs of every day life one could look upon this book as an artistic memento. The cuts show the various factories, shops and buildings that have been constructed by the Berlin Company and cover an almost endless variety of construction all for establishments that stand very high in the manufacturing world and acknowledged to produce the very best of products. It is a real pleasure to note the appearance among the illustrations contained therein, a considerable number of gas company buildings which may be taken as indicative of the growing disposition on the part of these companies to erect the most modern, and at same time the most desirable, class of structures.

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FINANCIAL

WALL STREET, July 14, 1893.

Neither as a medium of speculation nor as a source of investment have gas or electric stocks shown any prominence on Wall Street since our last review. They have one distinctive feature however, viz., they have not sympathized to any marked extent with the general demoralization in prices that has shown itself in other branches of the general financial market. At this writing, for instance, Chicago Gas, which is the leader of the gas stocks, is in the vicinity of 66, comparing with 68, the quotation when we last wrote. St. Paul, which is the accepted leader of the railroad list, has declined to 61¼ from 69½ on July 1.

Brooklyn Gas stocks have been in complete neglect and the quotations to a considerable extent are nominal. There are no new signs of the promised "gas war." The Citizens' Gas Co., which passed its January dividend, has declared one for 2 per cent. payable August 2. Mr. Addicks, last week, paid a flying visit to Brooklyn and that gave rise to the rumor that he is making arrangements preliminary to a bid for the Fulton Municipal Co. It has been impossible, however, to find any reliable basis for the rumor.

The firmness in Chicago Gas was in the face of a generally demoralized financial situation and also in the face of renewed rumors of opposition. The rumors are to the effect that the Watson gas ordinance, which was defeated in the old council two months ago, is to come up again at an early date. The rumors further state that there is a good deal of money behind the Watson scheme. It is supposed to be backed by the Hyde Park Mutual Fuel Gas Co. which supplies gas south of Thirty-ninth street and has been unable to obtain a franchise in the city proper. "It is," according to a Chicago special, "the threatening peril of Chicago Gas, compelling the latter to keep the council continually in its pay to prevent a new and powerful rival. L. Z. Leiter and Marshall Field are stockholders in the Mutual Fuel Co."

The decline in General Electric is more apparent than real inasmuch as it is now selling ex-dividend. In view of the recently published statements to the effect that the United Electric Security Company and the Electric Corporation are a part of the General Electric Company, we are informed by an executive officer of the General Electric Company that neither corporation is financially related to the General Electric Company with the exception that the latter company runs a little of the common stock of the Electric Corporation. The companies work together to a greater or less degree for their mutual profit. The General Electric obtains the business of the equipping plants and one of the security corporations furnishes the money to pay the bills, taking the securities of the various enterprises in payment therefor. The Electric Corporation, which is duly formed, deals only in first-class mortgage bonds. Assessments of 20 per cent. each were called in March and May. The United Electric Security Co., which deals in all classes of securities, has issued nine series of bonds of $1,000,000 each. The last was put out April 26 and was based on securities held by the General Electric Company at the time its annual report was made, thereby reducing such holdings to the extent of the issue. It is said that a third stock assessment of the Electric Corporation will be called this month, in which case the General Electric will be enabled to release certain of its stock and bad collateral.

The dullness in the gas and electric market is simply in sympathy with the nervous feeling among investors generally. The difference is that there is no "short" selling of gas stocks carried on to any extent. Holders of these properties know they have value for their money and are not frightened by currency scares and exaggerated reports of financial difficulties to dispose of their properties. The general stock market is certainly in a most nervous condition and many of the most conservative houses would not be surprised if a regular panic were to ensue. Notwithstanding the concerted action of the banks in issuing clearing house certificates and the timely action of President Cleveland in calling an extra session to consider the currency question, money is tight and many solid mercantile houses are known to be in difficulties. In order to obtain ready money, stocks are being sacrificed and prices on the Stock Exchange each day become lower. It was expected that after the "July settlements," financial affairs would gradually work into better shape and that the Stock Exchange would reflect the improvement. So far, however, the expectations have not been fulfilled.

It is hardly necessary to state that there have during the past fortnight been no steps reported in Wall Street in the direction of floating new gas enterprises.

The closing quotations at leading brokers' offices of inactive gas stocks are appended.

GAS COMPANIES.	Bid.	Asked.	GAS COMPANIES.	Bid.	Asked.
Brooklyn Gas Light...	110	115	Williamsburgh.....	180	.....
Jersey City & Hoboken	180	.....	Bonds, 6s.....	106	108
Metropolitan—Bonds..	110	.....	Metropolitan (B'klyn)..	120	128
Mutual (N. Y.).....	140	148	Municipal—(Bonds), 7s.	103	.....
Nassau (Brooklyn)....	150	.....	Fulton Municipal.....	125	128
Scrip.....	100	.....	Bonds, 6s.....	105	.....
People's (Brooklyn) ...	87	91	Equitable.....	.....	170
			Bonds, 6s.....	105	.....

Following are closing prices for active electric and gas stocks:

	Prices Thursday.	Range Sales 1892.	Range Sales 1891.
Chicago Gas.....	62¼@63	59 @ 94½	71¼@ 99½
Consolidated Gas.....	021 @ ..	112 @144	102 @128
General Electric Co....	62¼@63⁸	58 @114¼	104½@113¾
Citizens' Gas (Brooklyn)	....@....	106 @109	94¼@114½
Edison Electric Illum..	104 @106	100 @151	79¾@115½
Laclede Gas.....	15¼@....	14½@ 26	17¼@ 27¼
Lacleds preferred.....	55 @ 59	55¼@ 74¼	57½@ 74½

The New Bedford (Mass.) Gas and Edison Light Co. has declared a dividend of $1.50 per share.

The Brookline (Mass.) Gas Light Co. has declared a semi-annual dividend of 2 per cent., payable July 15. This is a reduction of 1 per cent. from the last dividend and 1½ per cent. from former dividends necessitated by the large amount of construction work which the company has been and is now prosecuting.

The Mt. Sterling (Ky.) Gas Co. and the Mt. Sterling Electric Lighting Co. have effected a consolidation to take effect July 15.

Parties at Champaign, Ill., have a plan on foot with the object of organizing and conducting a fuel gas plant to operate in that town.

In pursuance of the mandates in the Lyford bill passed by the Massachusetts Legislature at its last session the Bay State Gas Co. has filed in the Supreme Judicial Court of Massachusetts a certificate asking for three commissioners to determine the value of the property of the company as provided for by the said act.

A franchise has been granted by the city of Brazil, Ind., to W. S. Carpenter and J. D. Sourwine. The franchise provides for the erection of a fuel gas plant under a forty years' franchise. The price to be charged shall be 50 cents per thousand cubic feet for fuel and $1 per thousand cubic feet for illuminating gas, the latter to be not less than 16 candle power.

The council of St. Joseph, Mo., have passed the ordinance asked for by the St. Joseph Light & Fuel Co., to enable it to engage in the supply of carburetted water gas. A provision of the charter provided that the public buildings of St. Joseph are to be lighted by the company free of charge; the price to be charged to consumers is $1 per thousand cubic feet.

An application by the directors of the Elmira (N. Y.) Gas & Illuminating Co. and of the Elmira Illuminating Co. for a voluntary dissolution and the appointment of a receiver has been made before Justice Smith, of the Supreme Court, and Mr. Reuben Leland, of Elmira, has been appointed temporary receiver for both companies under bonds of $25,000 in each case.

(*Continued from page 241*).

Total energy received in foot pounds....55,200,000	40,800,000	16,750,000
" energy expended,			
" indicated work in foot pounds.....21,280,000	14,860 000	3,200,000
" water jacket in foot pounds.....23,900,000	17,800,000	1,333 000
" exhaust, radiation, etc., in ft. lbs ..10,020,000	3,740,000	12,168,000
" efficiency for 1 h. p.....	39%	25%	19%
" " " B "	33%	26%	

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FINANCIAL

WALL STREET, July 31, 1893.

Speculative gas and electric stocks during the last fortnight have simply joined in the demoralization amounting almost to panic that has been the feature of the general stock market. They withstood the on slaught better than the general list, but holders on margins were finally compelled to give up the struggle against adverse monetary conditions. The weakness in the market at the present time has come from the west, where shares of every description have had to be sacrificed to obtain ready money that banks have found it impossible to furnish. Firms of the very highest standing have been unable to place their paper even when offering liberal inducements, and as a result their firms and individual members of their firms have been forced to go to the big auction market—the Stock Exchange—and sell stocks for whatever they would bring. It was quite natural, therefore, that stocks particularly identified with the west should feel the strain the greatest and Chicago Gas in industrial shares and the Grangers on the railroad list were naturally the greatest sufferers. Chicago Gas has experienced a decline of more than 20 points, while Consolidated Gas, a distinctively eastern property, has only declined 11 points. General Electric has declined about 22 points. As an evidence that news affecting special stocks has had little bearing on prices it may be noted that the decline in General Electric was in the face of a preliminary injunction granted at Milwaukee July 20 by Judge Seaman in the United States District Court against the Oconto Manufacturing Company restraining that company from making the Edison incandescent lamp. This decision upholds the validity of the Edison patents controlled by the General Electric Company. The Oconto concern represented the combined interests that have been fighting the Edison patents and introduced the "Goebel defense," claiming that Henry Goebel, a German watchmaker in New York, invented the lamp as early as 1854. This defense had been introduced in a suit against the Beacon Vacuum Lamp Company in Boston which was decided in favor of Edison by Judge Colt last year. The latest decision therefore fully sustains Judge Colt and is important.

For the month of June the net earnings of the Laclede Gas Co. (St. Louis) were $45,410 against $36,782 in June last year. For the first six months of this year the earnings are $373,788 against $316,330 during the corresponding months in 1892.

Gas stocks that are not dealt in on the Stock Exchange have stood the strain better, particularly the Brooklyn properties. In other words they are not such an available collateral in case of stringency and consequently are not forced for sale. An important development since our last review has been the knowledge contained in the news that W. J. Logan, W. H. H. Childs, George P. Sheldon and Henry Meyer have succeeded William Rockefeller, H. H. Rogers, Benjamin Brewster and John Willetts in the directory of the Williamsburgh Co. In other words the company has cut loose from the Standard Oil Co. As a rule the responsibility for the change, which was accomplished by proxies sent to the management, is placed upon the shoulders of Secretary Charles W. Blodgett and Mr. Blodgett's position in Mr. Addicks' Brooklyn Gas Co. gives color to the matter. On the other hand President Steers is credited with being at the bottom of the change. It is stated that the new directors are not identified with Mr. Addicks. An election of directors in the Beckton Construction Company has taken place and it is reported that Mr. Addicks has secured better backing than ever. The present financial stringency, it is also said, has not affected Mr. Addicks' loans on his purchased gas companies stock, for they are time loans and have yet some time to run. Interests friendly to Mr. Addicks' state that a compromise on Brooklyn gas matters is probable, but Mr. Addicks' opponents emphatically deny that such is the case.

It is hardly necessary to state that no attempt is being made to place new gas properties during the panicky times that are now current. To say that the times are panicky is no exaggeration. As far as the general situation is concerned the condition is quite as bad if not worse than the Baring panic of 1890, though Wall Street's list of disasters has not been so great. That panic was a quick one. This has been a slow and steady one, and its progress has been so gradual that it has given financial houses and merchants an opportunity to sacrifice their property and still keep on the solvent list. Wall Street prices are about the best indication that can be afforded of the country's general condition, as the following compilation will show at a glance how bad the condition actually is. The figures compare prices of two panic years.

STOCKS.	Highest 1890.	Lowest during Baring Panic, Nov., '90.	This year (highest).	Lowest prices July 28, '93.
Atchison	50⅛	23½	36¼	12¼
Canada Southern	61⅛	42	58¼	37
Northwest	117	98	116⅜	84¾
C., B. & Q.	111⅜	80	103⅜	69¼
St. Paul	79¾	44	85½	46½
Rock Island	98¾	61½	89⅜	53
C. C. C. & St. L.	80¼	53	80½	25½
D., L. & W.	149½	123¾	136½	130
Denver pfd.	61½	45	57¼	23
Lake Shore	114½	101	134½	107½
L. & N.	92½	65½	77⅜	48¾
Manhattan	117	92	174¼	100
Missouri Pacific	79¼	58	80	17¾
New England	52¼	28	52¼	18⅜
New York Central	111	95¼	111½	92¾
North American	47½	7	11⅜	5
Northern Pacific pfd.	86	55	50¾	19¼
Reading	48½	26¼	53¼	12¼
Texas	24½	12	11	5
Wabash pfd.	31½	15	28¼	9¾
Western Union	87	71¾	101	67½

It is not surprising, when the above figures are taken into consideration, that there is a large amount of investment buying for cash going on in the face of the general demoralization.

The closing quotations at leading brokers' offices of inactive gas stocks are appended.

GAS COMPANIES.	Bid.	Asked.	GAS COMPANIES.	Bid.	Asked.
Brooklyn Gas Light	110	115	Williamsburgh	128	133
Jersey City & Hoboken	180	.....	Bonds, 6s	107	109
Metropolitan—Bonds	102	....	Metropolitan (B'klyn)	118	122
Mutual (N. Y.)	135	142	Municipal—(Bonds), 7s	105	.....
Nassau (Brooklyn)	150	160	Fulton Municipal	130	140
Scrip	.....	100	Bonds, 6s	105	.....
People's (Brooklyn)	85	90	Equitable	155	159
			Bonds, 6s	108	110

Following are closing prices for active electric and gas stocks:

	Prices Thursday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas	44½@45¼	43½@ 94½	71¾@ 99½
Consolidated Gas	110 @ ..	110 @144	102 @128
General Electric Co.	41 @41¾	40½@114¼	104½@119½
Citizens' Gas (Brooklyn)	....@....	106 @109	94½@114½
Edison Electric Illum.	....@....	100 @131	79¾@115½
Laclede Gas	10 @ 11	10 @ 26	17¼@ 27¼
Laclede preferred	45 @ 55	45 @ 74¾	57½@ 74½

City Councilman Anderson, of St. Louis, Mo., is doing a good deal of talking in the St. Louis papers and giving at length his ideas for the improvement and lowering of the price of gas in that city. A bill has been introduced into the city council providing for the granting by the city of a franchise to a company that would supply gas at 80 cents per thousand for illuminating and 50 cents for fuel purposes. The *Republic* newspaper in a recent issue contains the following: "There has been, however, independently of the plans of the city council, much private talk of the formation at once of a company which will stand ready to pledge itself to supply the city with the best gas at 80 cents and with the same gas for fuel at 40 cents per 1,000. 'The capital for the new company can be raised in a day, provided a charter can be obtained'; so said Mr. Frederic Egner yesterday. Mr. Egner is a gas engineer of great experience. Previous to 1891 he was for over eight years engineer and superintendent of the Laclede Gas Light Co. He has been chief engineer of the Standard Gas Light Co., of New York, and was for years engineer and superintendent of the City Gas Light Co., of Norfolk, Va. Mr. Egner is most positive as to the feasibility of forming at once a company with a capital of three and a half millions of dollars, which he says would be ample. A prominent New York capitalist desires, Mr. Egner says, to take a very large amount, if not the entire stock, but the wish of those interested is to make the company a home enterprise. All that is needed is that the city should give a franchise and permission to lay the pipes. If gas can be made so much cheaper some will ask: Why does not the Laclede Company undertake the task? Mr. Egner says it is 'simply because the Laclede, which absorbed the St. Louis Gas Light Co. and the Water Gas Co., has an enormous capitalization to provide for, and to a great extent an antiquated and unsatisfactory plant. In many parts of the city it is claimed its mains are far too small.' Mr. Egner asserts, 'and a new company with a modern plant of the best description could sell gas at a substantial profit where the Laclede Company, getting the same prices, would be losing.'"

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FINANCIAL

WALL STREET, August 31, 1893.

Since our last review all Wall Street interests have been centered on the progress of the legislation looking toward the repeal of the silver purchasing clause of the Sherman bill. For some time before the voteon Monday it was known by Wall Street almost to a certainty that the House would vote for repeal, and, as a result, the general market ruled firm and the announcement of actual action by the House had comparatively little outward influence. Investors have continued their policy of buying stocks outright in small lots for cash and this has had an important influence in the way of curtailing the operations of the bear party by limiting the amount of shares available for formal delivery. Consequently while the market has had a firm tone it has been narrow and entirely in the hands of the professional traders.

As far as gas and electric properties are concerned the only unfavorable feature has been the heavy realizing sales of General Electric on Boston account. There has been some change in the details of the plan for taking up the floating debt of the company from those outlined in our last issue. The trust will be styled "The Street Railway and Illuminating Properties." The stock of the trust will be nine million dollars. One-half will be cumulative six per cent. stock with a preference applying to principal and dividends. The trust will comprise $12,000,000 to $13,000,000 notes receivable, and interest bearing stocks and bonds from the General Electric treasury. These are bought for $4,500,000 less ten per cent. (or $450,000), which goes to the underwriters, the company receiving $4,050,000 net from the transaction. It is calculated that the securities in the trust will yield an income in interest and dividends of more than $400,000 per year. The preferred dividend will call for $270,000 leaving a balance for the common stock. As the notes and other securities are liquidated, the proceeds will be applied to cancellation of the principal of the preferred stock to be drawn for payment at a premium. When the preferred stock has been canceled, the remaining assets will stand to the credit of the common stock.

New York and Brooklyn gas stocks have remained quiet and without important change in value. It is expected, however, that renewed activity will be shown in a short time, as a number of influences seem to be on the point of development, at least as far as Brooklyn is concerned. The Fulton Municipal in the latter city has, of late, been doing exceedingly well in the district of the Metropolitan Company and has laid its mains throughout nearly the entire district. The Fulton Municipal which, it should be remembered, is backed by the Standard Oil Company is likely to make it interesting for the Williamsburgh Gas Company before the Fall months have advanced very far. Three forces of men have been put to work in the fattest part of the Williamsburgh Company's districts tearing up the streets and laying mains as fast as they can. When the Fulton Municipal forced peace to be declared after the gas war ten years or so ago, it had long arms of pipes reaching out into almost every section of the city. During that gas war it made it a rule to attack the other companies only in the best parts of their districts, and to do that it was necessary to have these long arms extending everywhere. Just as soon as enough main has been laid to enable the company to serve gas to a few customers, connections will be made with these old mains which have been lying almost useless for years and then active competition with the Williamsburgh Company will begin.

The causes which have led up to this change of feeling between the Fulton Municipal and the Williamsburgh companies is in itself interesting. The latter company was not very long ago controlled by the same men who controlled the Fulton Company. They form what has always been known in the local gas industry as the Standard Oil interest, William Rockafeller, H. H. Rogers, and Benjamin Brewster being the principal ones. Then it came time for the annual election of the Williamsburgh Company and the proxies of the various stockholders were sent in large numbers to the offices of the company. The day for the election came along and it was supposed by every one with the exception of two of the prominent officers of the company and a few men outside the company, who are heavily interested in Brooklyn gas affairs, that the result of the election would be the same board as before. Instead a new board was put in and the control of the company changed hands. President Steers of the Williamsburgh Company at once disclaimed all knowledge of the little game which was worked upon the confidence of the stockholders, but later developments aroused suspicions otherwise.

The Fulton Municipal Company put things together and came to the conclusion that the same man who had succeeded in securing enough stock of the Brooklyn and the Metropolitan Companies was the one who had caused the change in the Williamsburgh—Mr. J. Edward Addicks, of Boston. So they set out to fight him. In its fight against the Metropolitan Company the directors of the Fulton Company assert that they have had greater success by far than they had any right to anticipate. Already several miles of pipe have been laid in the Ninth, Eighth and Twenty-second wards and the competition for custom is waxing hot The Citizens' Company, which is allied with the Fulton Municipal Company in its antagonism to Mr. Addicks and his methods, secured some time ago permits to enter the Brooklyn Gas Company's district and lay pipes to supply the First, Fourth, Fifth and Second wards, but owing to the financial stringency the work has been delayed. The Fulton Municipal Co. was fortunately supplied with money of its own earnings when its fight with the other companies was begun, so it has not been compelled to delay work.

Following are closing prices for active electric and gas stocks:

	Prices Monday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas.....	51 @52¼	39 @ 94½	71¾@ 99¼
Consolidated Gas.....	119 @120	108 @144	103 @128
General Electric Co....	88¾@89¼	80 @114¾	104½@119¾
Citizens' Gas (Brooklyn)	@....	99¾@109	94¾@114½
Edison Electric Illum..	89 @....	71¾@131	79¾@115½
Laclede Gas.....	10 @....	10 @ 26	17¾@ 27¾
Laclede preferred	48 @ 55	53 @ 74¾	57½@ 74½

The closing quotations at leading brokers' offices of inactive gas stocks are appended:

GAS COMPANIES.	Bid.	Asked.	GAS COMPANIES.	Bid.	Asked.
Brooklyn Gas Light...	110	120	Williamsburgh.....	120	.....
Jersey City & Hoboken	180	.....	Bonds, 6s	106	.....
Metropolitan—Bonds..	105	....	Metropolitan (B'klyn)..	..	120
Mutual (N. Y.).....	.....	185	Municipal—(Bonds), 7s.	105	.....
Nassau (Brooklyn)....	140	150	Fulton Municipal.....	.....	125
Scrip.....	....	100	Bonds, 6s.....	105	.....
People's (Brooklyn) .	.....	88	Equitable.....	147	150
			Bonds, 6s.....	105	.....

HARTFORD, CONN., Aug. 18, 1893.

Editor PROGRESSIVE AGE:

As an investor always seeking desirable securities in which to make safe disposition of surplus funds, I wish to express my thanks for the very excellent financial articles that appear in your readable paper. I have cause to be largely governed by the hints thrown out by you in my purchases of gas securities. I wish to ask your opinion about Chicago Gas. I have a good block of stock of this enterprise, much of which was purchased and put away around 60. Would you advise me to part with it when I can do so at no sacrifice, or do you believe it will pay me to hold on? I have seen the price quoted about 88 since I made my investment therein, but since that time I have often thought I should have done well to have taken the profit. J. H. S.

[Our correspondent is evidently influenced by the general situation. He believed in Chicago Gas at 60, but the influence due to lack of confidence has unsettled his mind somewhat. We would say that in our judgment Chicago Gas is cheap, very cheap around 60. Our friend will remember that this company operates in one of the greatest of modern cities, a city that is very rapidly growing in both population and wealth. That it is practically in control of the lighting business now and for the future in Chicago. Its affairs are ably administered by a directorate that understands the gas business and is sensibly appreciative of the future of gas supply. It may be deemed wisdom on the part of the officers of the Chicago Gas Trust to pass the next dividend. If so, while this will doubtless have its influence temporarily on the market value of the stock, its permanent worth will not be injured through the stoppage of one or even more dividends. If our reader has bought this stock as an investment and not for purely speculative purposes we should advise him to keep his holdings for the dividends that are sure to follow bye and bye.—EDITOR, PROGRESSIVE AGE.]

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FINANCIAL

WALL STREET, Sept. 30, 1893.

The improved feeling noted in our last review has received somewhat of a check on account of the Senate's delay in voting on the Sherman Law Repeal Bill. Traders, both large and small, show no disposition to act until they receive assurances that the Senate will soon act, and in the mean time the market shows the effect of the dullness in business in the form of a gradual shrinkage of values. There has been no indication of a general liquidation, and the market shows few signs of any material short lines having been put out. In other words the bears, while indulging in their usual pessimistic talk, show a decided disposition to preach rather than practice. The general financial situation seems in good shape; money has become easy; each week's bank statement indicates a large addition to the reserves and the banks have already canceled about one-third of the outstanding clearing house certificates.

Gas and electric properties have simply joined in the general depression.

General Electric has been attacked on various rumors. President Coffin of the company is our authority for the statement that there is no truth whatever in the report circulated here and in Boston that there is a disruption in the syndicate recently formed. Mr. Coffin said the money has all been paid in.

Brooklyn gas properties as a rule have proven an exception to the general depression although transactions in them as far as reported have been few and far between. There has, nevertheless, been an amount of nervousness shown which would seem to indicate that the quotations have been maintained not so much on account of firm bids as on account of the absence of firm bids and the indisposition of holders to make sales at sacrifices. The cause of the nervousness is the rumor, a vague one it is true, of a new and mysterious company with capital and experience enough in its directory to give battle to all existing companies. The company has as yet not been incorporated and indeed its proposed name is not definitely known, though the rumor that is current about the new concern gives its name as the Majestic Gas Co., of Kings County. Another detail that the rumor professes to give and which cannot as yet be traced to any responsible source is that the Standard Oil people are to furnish the brains and capital and that General Jourdan is to be the head of the affair. Some color is lent to this statement by the fact that there has recently been a conference between General Jourdan and B. I. H. Trask, the latter being the principal owner of the Equity Co. If it be true that the Standard Oil people are at the back of the new company its first object of attack, it is argued, will be the territory of the Williamsburgh Gas Light Co. on account of the precipitate departure the Standard people were forced to take at the recent election of the Williamsburgh Co. The Majesty Co. can, it is argued, lease on most advantageous terms the mains of the Fulton Municipal Co. in the Eastern District of Brooklyn, and would quickly be able to wage a little war. It is more than probable that the entire report is untrue as far as the Majestic Co. is concerned, though there appears little doubt in usually well-informed circles that the Standard Oil people have decided to punish the Williamsburgh Co. General Jourdan makes an explicit denial of the story as far as it concerns himself. He had, he said, heard nothing of the new enterprise, was certainly not interested in it and never expected to be interested in any such scheme.

Following are closing prices for active electric and gas stocks:

	Closed Tuesday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas	54⅛@54½	39 @ 94½	71⅛@ 99¼
Consolidated Gas	124½@126	108 @144	102 @128
General Electric Co.	41¼@41½	30 @114¼	104½@119⅜
Citizens' Gas (Brooklyn)	.....@....	99⅝@109	94½@114½
Edison Electric Illum.	90 @	71½@181	79¼@115½
Laclede Gas	14½@ 15	9½@ 26	17⅛@ 27½
Laclede preferred	58 @ 62	48 @ 74½	57½@ 74½

The closing quotations at leading brokers' offices of inactive gas stocks are appended:

Gas Companies.	Bid.	Asked.	Gas Companies.	Bid.	Asked.
Brooklyn Gas Light	.....	110	Williamsburgh	120	.....
Jersey City & Hoboken	180	.....	Bonds, 6s	100	102
Metropolitan—Bonds	105	.....	Metropolitan (B'klyn)	.....	120
Mutual (N. Y.)	139	148	Fulton Municipal	128	.....
Nassau (Brooklyn)	140	150	Bonds, 6s	105	.....
Scrip	.....	100	Equitable	168	175
People's (Brooklyn)	.....	85	Bonds, 6s	100	.....

It is reported that the Bay State Gas Company, of Boston, Mass., has sufficient funds to pay full interest on income bonds on Nov. 1.

While on the witness stand Mr. F. P. Addicks, treasurer of the Bay State Gas Company, stated, in reply to an inquiry as to the net earnings of the Bay State Company for the year ending June 1, 1893, that the same were $503,598.97.

Detroit Gas Company 5 per cent. bonds sold in this city a few days since at 15 cash and the following day at 20 regular, the last previous sale being on July 6 at 85. The reason given for the decline is that bonds are being sold out in a loan. The company is not in default. On the contrary it more than earns all interest charges. It is, however, undergoing a fight with the city of Detroit, which some think may be the real cause of the present selling.

The net bonded debt of the Chicago Gas Company after the new bonds are issued, will be $30,846,000, which, added to the stock outstanding, $24,885,800, will make a total capitalization of $55,231,800, and the interest charges hereafter will be about $1,500,000, against $1,087,508 in 1892. To pay 6 per cent. on Chicago Gas it will require $128,304 more than was earned in 1892, but net earnings have increased largely every year. On Jan. 1 next the price of gas will be reduced from $1.20 to $1.15.

The Grand Island (Neb.) Light & Fuel Company, we are informed by Mr. James Murray, superintendent, has decided on making material reduction in the price of gas. The gross price per thousand feet has been fixed at $2.50 with discount on all bills paid on or before the 10th of each month as follows: Under 2,000 cubic feet, 10 per cent.; between 2,000 and 5,000 cubic feet, 15 per cent.; 5,000 to 15,000 cubic feet, 20 per cent.; 15,000 to 40,000 cubic feet, 24 per cent.; 40,000 cubic feet and upwards, 30 per cent. On all gas used for fuel purposes, when consumers for the month shall equal 1,000 cubic feet, 36 per cent. discount.

The following comparative statements of the Laclede Gas Light Company have just appeared:

For month of July.

1892.	1893.
Net earnings, $34,783.64	$38,750.25

For seven months ending July 31st.

1892.	1893.
Net earnings, $351,314.61	$412,539.07

Increase gain for July, 11.38 per cent.
" " " 6 mos., 17.42 " "

VALUABLE GAS INTEREST FOR SALE.

The undersigned will sell to the extent of $20,000 to $50,000, in sums to suit purchaser, an interest in a growing gas business, now netting 8 per cent.; increase this year will give net earnings of over 12 per cent. Money wanted for extensions to cover valuable territory. A magnificent opening for a party desiring a permanent occupation and investment in one of the most pleasant residence locations in California. Banks and business firms as references.

Address for particulars and statement,

LOS ANGELES SAFE DEPOSIT AND TRUST COMPANY,
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LOS ANGELES, CAL.

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not less than four holes on top. If small appliances are included, like boiling stoves, the number would probably reach 600. The Cicero Company has disconnected about 40 gas machines, and has set over 800 meters. The company is now entering upon a gas grate campaign and has already set about 50 gas grates, most of them asbestos type. They are also trying to do something with gas heating stoves. During July and August over 75 per cent. of the gas output was sold for fuel purposes. The company is by no means neglecting the lighting business, but is constantly adding light consumers. The opposition electric companies established long before gas was put in are feeling the effect of the new gas company greatly. The price charged is $1.25 net for fuel gas and $1.50 net for illuminating gas.

In our issue of the 15th ult. among the "Short Runs" appeared an item in regard to the city lighting at Lawrence, Mass. We have been informed that the information contained therein is not in all respects entirely accurate. A reading of the article would convey the impression that the public lighting of Lawrence was most unsatisfactory to the citizens; that the service was poor and the price charged excessive. The matter being one of considerable importance, we have made an investigation with a view of getting at the facts, and we are now able to state that the gas company operating the electric lighting plant and furnishing the city of Lawrence with street lights, is running full arc lights—2,000 c. p.—running every night till 12.30 and during the winter months starting up again in the morning while the mill help is going into work, and for this service have been receiving only $100 per year per arc. Considering the distance from the coal mines this price is very reasonable, particularly when we remember that the price at Lowell has been 40 to 37½c., Boston 40c., Charlestown 40c., Haverhill 45c., Lynn 46c., Salem 45c.; these prices being per day, of course. The city of Lawrence has spent very little money for street lighting, not half as much per mile of street as the neighboring cities, and this is where the dissatisfaction comes in. In other words, the dissatisfaction noted in the local papers arises, we are informed, from so little money being spent in street lighting, and not on account of the price charged for the service. Of course this point was hardly grasped by some of the newly elected councilmen, but the facts are as now given. This is shown quite clearly by the census return, which gives the cost of street lighting per head of population in the various cities.

The following gives this item for Lawrence and several similar cities:

City.	Cost of street lighting to each head of population for each lamp.
Lawrence	34c.
Lowell	73c.
Boston	$1.24
Worcester	94c.
Fall River	37c.
Lynn	66c.

Again, the cost per capita for 278 cities in the United States is 60 cents. These figures, we believe, will emphasize the point that Lawrence is paying very little for street lighting.

There have been many rumors of late, says the Boston *News Bureau* of a union of the Brookline and Bay State gas interests, but they cannot be confirmed. It is understood that the Brookline company made its contracts upon the basis of the contractors accepting bonds for payment, which arrangement in the recent stringency has made a considerable hardship. It has not been easy work of late to dig up Roxbury pudding stone with unsalable Brookline gas bonds. The Standard Oil interest believed it was going to make short work of all the Boston gas companies and drive the Boston people out of Brooklyn, N. Y., and pick up the wrecks at Standard Oil valuations in both Boston and Brooklyn. But nobody has yet failed, the Standard Oil Co. has made no progress in Brooklyn, N. Y., and it has only succeeded in Boston in making a bad investment and reducing the price of gas to the lowest point of any leading city in the United States. It is therefore natural that there should be a little "tired feeling" in some quarters. The growth of the gas interests in the Back Bay and Roxbury districts is about 7 per cent. per annum, and the Brookline Co. has not yet secured for its business one-half of the annual increase, in fact, it has taken orders for meters for less than 3 per cent. of the gas consumed in that district, and as the company is not yet equipped to furnish the quality of light furnished by the Boston Gas Light Co., the consumers are returning to the older company after giving the new company a trial. Of course dividends on Bay State gas under dollar gas are out of the question save from some years' growth in consumption. Mr. F. P. Addicks, treasurer of the Bay State Company, in his testimony before the gas commission, at Boston, is reported to have stated that gas in the holders costs his companies .37½.

The following piteous appeal appears in an editorial of the Hamilton *Republican*. It will be remembered that city embarked in a municipal gas works a few years ago. The *Republican's* appeal runs: "How well the citizens of Hamilton could serve a double purpose by giving their united support and patronage to the city gas works? By increasing the output of the gas works, the cost of the production of gas is cheapened, the earnings are increased, all of which goes to the credit of the citizens of Hamilton. If the citizens ever hope to obtain cheaper gas they must resolve to patronize exclusively the city's plant. At the same time the city itself should do all in its power to furnish the best light possible and to meet every wish of its patrons. The demand from many of the merchants to day and the only excuse they offer for patronizing a private gas company is that the city cannot furnish electric light. Electric light is then the need of the hour. It is not only needed as a public convenience but it is needed as a means of increasing the usefulness of the city gas works. The gas works is now furnishing gas to the city at the rate of 40 cents per thousand. By means of an electric light plant, providing the city pays a sufficient revenue to cover the cost of the manufacture of electric light, the price of gas for private consumption can in all probability be reduced. The city cannot afford to delay in this matter, for the very reason that the public demands electric light. The private company now seeking to make a contract with the city stands ready at the present time to supply that need. If the sale of bonds is all that stands in the road, we venture that by the time those bonds are ready to be put on the market, the money market will be so easy that they will command a premium. Let the council and gas trustees

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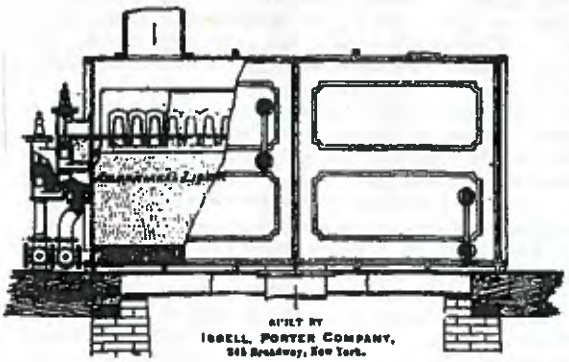

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Ask the Brooklyn Gas Co., the Bridgeport Gas Co., the Brookline Gas Co., the Nassau Gas Co., the Providence Gas Co., the Trenton Gas Co., and a number of others which we can't name for want of space, if IT won't.

Geo. Shepard Page's Sons,

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meet in conference and arrange for estimates and make a showing to the people of Hamilton, of not only the cost of erecting an electric light station, but also the cost of manufacturing electric light."

The City & County Gas Company, of Chicago, Ill., capital stock $30,000,000, has been licensed by the secretary of state of Illinois with Henry C. Rew, Nelson A. McClary, Charles D. Hauk and E. E. Morrell as incorporators. Mention of this undertaking has been made in these columns and from private information recently received by us we are disposed to regard the City & County Gas Company for Chicago as a very likely competitor of the Chicago Gas Trust. With few exceptions we find the Chicago local papers disposed to regard the new scheme in a favorable way, although we are informed that the corporation council of Chicago does not favor the idea of giving the city one-third of the stock of the new company as proposed. Instead, he says he thinks a better and more satisfactory basis would be a clause providing that the city should receive semi-annually 33⅓ per cent. of the profits made by the company. The state, he says, receives a percentage of the gross earnings of the Illinois Central Railroad Company, and that some such idea could be incorporated into this proposition if the National Gas & Water Company would accept the change. To this H. C. Rew, the president, said to a reporter "Such a proposition would suit our company fully as well, if not better than the one we are making, but is it not open to the objection that was urged to our first plan, viz., that it would leave the company in shape to sell out to the present trust, while on the other basis it gives the city the control which, from the investigation I have made, seems to be the desideratum. However, our proposition is not unalterable, but will go in as a basis to work on." It will be remembered that the new gas company proposes to issue $10,000,000 of its $30,000,000 of capital stock to the city and claims to be able to make and sell illuminating gas at a cost of 80 cents or less per 1,000 feet to the consumer, by the use of the inventions and appliances of the National Gas & Water Company, which has a large plant in operation in Cicero. The incorporators are the same persons interested in and controlling the National Gas & Water Company and the Cicero plant.

George Olney, of this city, who is more or less known as a builder of gas plants, is said to have acquired a franchise for a new gas works at West Springfield, Mass. Certain local people at West Springfield have held, for some years, a sort of franchise for gas in that town. The reason these parties have never taken active steps to organize and build works is that the town is very much scattered and the population small, viz., about 5,000. It seems according to the Springfield *Union* which says: "The first intimation that any one in West Springfield had that such a scheme was on foot was given to K. Arthur Dearden, who about a week ago was approached by a gentleman calling himself George Olney and presenting credentials which showed him to be the agent of the Mutual Gas Light Company of New York. Mr. Dearden had been recommended to him as one who was thoroughly conversant with affairs in West Springfield and Mr. Olney at once stated his business. Briefly, it was to look over the town and if circumstances were favorable secure the right to construct a suitable gas plant for the town's use. Mr. Dearden took his team and drove him around the village and later made another trip. Mr. Olney was well satisfied with the outlook and wishing to consult others upon the advisability of the plan, Mr. Dearden introduced him to J. L. Worthy, who some ten years ago started a similar scheme, but which has been allowed to lapse. Mr. Worthy also considered the plan favorably and then Mr. Dearden introduced the visitor to the selectmen of the town. The plan was informally discussed and as the officials were in favor of granting the company the right, Mr. Olney consulted the company's attorney, Mayor Kendrick, and the required papers were drawn up. This was on Monday. Yesterday morning the selectmen held a regular meeting and as the company did not require the town to expend a dollar, they decided to grant the petition, and Mr. Olney returned to New York with the franchise in his pocket. His next effort will be to effect an organization of his company in this state, and to get permission from the state gas commissioners to construct the works, after which work will be begun. It is thought that these matters can be settled so that the construction of the plant can be begun inside of two weeks, and if everything works well the works will be finished in sixty days. The gas house will be located on the line of the Boston and Albany near Worthy's grist mill—one of the most convenient and profitable sites that could be selected. Thence mains will be run both to West Springfield proper and to Mittineague, gas being supplied for both illuminating and heating purposes. The company will have a capital stock of $60,000, and after the works are complete local men may become interested, but at present the New York company will furnish all of the capital. Already the company has two plants in Brooklyn, one in Huntington, L. I., one in Bound Brook, N. J., and another in Connecticut, so it ought to thoroughly understand the construction of the plant and give West Springfield such a one as is required. The venture ought to prove profitable in the end, although it may not at first, as the town is steadily growing, and there are already 125 or more houses piped for gas. Last year sixty new houses were erected, and the actual increase in property valuation was about $200,000. So it would seem that the town was ready for the introduction of the system." We hope Mr. Olney will fare better in this enterprise than those engineered by him at Huntington and Bay Shore, Long Island. The same is to be hoped for any local people who may chance to be interested. The Mutual Gas Company, of New York, is a new title to us. It certainly cannot be the New York Mutual Gas Company, for the interests of the last named company are confined to local affairs exclusively.

The Williamsburgh (Brooklyn, N. Y.) Gas Light Co. is now serving gas in the district of the city which has heretofore been provided with that almost indispensable commodity by the People's Company. That move is not intended so much an attack upon the latter company as it is upon the Fulton Municipal Co., of which General James Jourdan is president. For a more perfect understanding of the reason why it will hurt the Fulton Municipal Company it is necessary to give a little history concerning the gas companies in that city. Some ten years ago they were all at loggerheads, and General Jourdan's Company, which had an exceedingly comprehensive charter, went free lancing all over the city. One after another the other companies succumbed to its attacks and were glad to make almost any terms they could. The Citizens', the Brooklyn, the Metropolitan, the People's and the Williamsburgh all made settlements which resulted in large sums of money being turned into the Fulton Municipal coffers on one pretext or another. In return contracts were signed or agreements of some kind made by which the Fulton Company was to cease its invasions and leave the other companies in peace and quietness. Since that time, up to about a year and a half ago, there were no clouds of war in the gas sky. Then Mr. Addicks swooped down from his Boston headquarters upon the local gas forces, and was successful in securing control of the Brooklyn Company. Soon after he made another raid, and the Metropolitan Company became his property. Recently there was an election of directors in the Williamsburgh Company, and in some way, which is understood by very few, the board was changed and with it the policy of the company. When the Fulton Municipal Company halted in its attacks it had reached very nearly, it is said, the limit which its backers had agreed to spend in the fight, and could not have continued it successfully more than a short time. Then it was that a cool game of bluff was begun. The Williamsburgh Company thought it had enough of the fight and wanted a compromise. The Fulton Company, with a depleted treasury, but a bold front, stood off. The Williamsburgh directors were most anxious to make terms. John T. Willets, vice-president, was then in control of the company, the president being sick. Finally the Fulton Company made its own terms. It would lease to the Williamsburgh company its Tesse du Motay system of making gas at a monthly rental of $3,000. This is the first that this has been made public, and Williamsburgh stockholders and Fulton Municipal stockholders will probably be equally surprised. In addition to this several of the Fulton Municipal officials were presented with stock of the Williamsburgh Company, amounting, it is said, to one-third of the capital. With that stock they were elected soon after to the directory of the Williamsburgh Company. They were the men who were recently voted out of office. There are probably very few persons outside of the directors of the two companies who ever knew the true inwardness of the deal between the Fulton and the Williamsburgh Companies. The change in the directory of the Williamsburgh Company was at first taken as an evidence of Mr. Addicks' far-reaching ability to win support. That has since been denied, but is still firmly believed by many well informed gas men. Since the new board has been in power the attitude of the Williamsburgh Company has changed from one of great friendliness to that of active antagonism. The chip which it has been wearing upon its cor-

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poration shoulders is connected closely with the tax of $3,000 a month for the Tesse du Motay system of making gas. The Williamsburgh Company have no use for it and never used it in any way, but it paid its rental just the same. When the price of gas was reduced to $1.60 a thousand the rental was decreased, and again it was reduced to $1.50 the rental was made $12,000 a year. When the last reduction took place and the price was fixed at $1.25, another reduction was asked. Just at that time it looked very much as if the long hoped for consolidation of gas interests would be effected, and the Williamsburgh Company was asked not to make any fuss and all would soon be adjusted. Adjustment fell through with the schemes for consolidation, but with the beginning of 1893 the Williamsburgh Company ceased to pay tribute to the Fulton Company. In April the Williamsburgh ceased to buy naphtha from the Standard Oil Company. Correspondence followed, which culminated on August 7 in the asking of a single direct and pertinent question of the Fulton Company directors. No written answer was made, but in a few days a gang of men were opening streets in Williamsburgh to lay pipes for the Fulton Company. This was exactly what was wanted by the Williamsburgh Company and before General Jourdan's company could begin serving gas they were being hit pretty hard in the People's district. When peace was declared ten years ago the terms the People's Company made were that it should cease to make gas, but should buy all it used from the Fulton Company. Every customer the Williamsburgh Company obtains decreases the Fulton Company's output, and according to a statement made the People's Company will lose nothing, because the Fulton people have contracted to protect them. On the other hand, officials of the Fulton Company say there is no such agreement. In such a case the People's Company will be the battleground and the stockholders of that company the greatest sufferers. Both of the competing companies, while not yet actually cutting rates, are offering inducements of various kinds to secure customers. Whether there will be any great reduction the future alone can show. The Fulton Municipal Company still uses the system for making gas that it did ten years ago, only it is improved in many ways. The Williamsburgh Company has the Loomis system now in complete operation, and claim that it is the best and cheapest. The Fulton Municipal has now about a mile and a half of mains in the Williamsburgh territory. The latter company has extended its system a mile into the People's district. It has ten miles of mains on hand which it intends to use.

The thirty days allowed the Detroit (Mich.) Gas Company in which to accept or reject the ordinance passed by the council fixing the price of illuminating gas at 80 cents a thousand expired some time since, at which time the directors of the company, representing all the gas interests involved in the controversy, met at the office of the company in Detroit and formulated a letter addressed to the council. In this communication to council, giving notice of their decision, the directors first recite the connection of the present company with the controversy. The directors allege that they lost of annual revenue no less than $60,000 by reducing the price of gas to $1.25 per thousand and $20,000 more by improving the quality of the product from fourteen to eighteen candle power on the east side of the city and from eighteen to twenty-one candle power on the west side. The directors declare that they contemplated very extensive improvements but were prevented from carrying their designs into effect by "the unreasonable and we think unjust treatment which the company has received at the hands of the city authorities. This company's plans contemplated the expenditure during this year of fully a million of dollars in this city, if it had been permitted to prosecute its business, as in law and justice it was entitled to do, and fully three-fourths of that amount would have been paid in wages to laborers employed upon the work." The present owners of the company, the communication relates, consulted high authority as to the value of the franchises and plant. The gentlemen are assured that they have the right "to do a gas business in this city under existing grants and ordinances for many years to come." They were told that the plants for making artificial gas could not be duplicated for less than $2,000,000. "While a very much greater sum than that was paid, still, for the purposes of this argument, we will concede that figure as a fair basis upon which to discuss the question of the reasonableness of the ordinance of August 15." It does not concede that any new grants or franchises so-called, are required by it or are necessary to enable it to continue doing business. Only because the passage of the ordinance conveys to the public the impression that the company is not acting in a fair and reasonable manner toward its customers does it desire to lay before the public what it thinks are conclusive arguments against the reasonableness of the ordinance. The company argues that the donation of the franchise, fifteen years, is too short for the reason that during that time the company would be unable to meet the loss of property that must result when the franchise expires and the plant is rendered worthless. In its communication the company states as follows: "The net price of 80 cents per thousand cubic feet fixed by the ordinance is unreasonable," the company declares, "and no gas company can furnish gas of 18 candle power at that price to the citizens of Detroit." Taking the figures used by the framers of the ordinance of Aug. 15 in their computations the company declares that before any concern could pay an ordinarily reasonable dividend on two million dollars it would have to manufacture and sell in the city of Detroit not less than one and one-quarter billions of cubic feet of gas, being about five times the present amount at the price fixed by the ordinance. The company, computing from data other than that used by the city, declares that the cost of making gas is 67 cents per thousand feet in this city, which "would require a consumption of one billion seven hundred and fifty million cubic feet annually, or more than seven times the present consumption, to pay what is conceded to be a fair dividend on say two million dollars invested, an amount of consumption which will in all human probability never be reached in Detroit." The company notes the universal use of electricity as a means of lighting as an adverse feature of the situation. Alderman Beck, chairman of the special committee on the gas question, gives his views on the company's non acceptance of the new ordinance, stating as follows: "There are one or two things I want to say in reply to the gas company's two-column argument. They compare Cleveland and Detroit, and speak about the 600,000,000 output there as compared with the 230,000,000 output here. Now, they forget to mention the fact that there are two companies in Cleveland, and the 600,000,000 output is what the two companies together sell. That one company actually sells much less gas than the Detroit company does, viz., less than 200,000,000. And yet this smaller company, as well as the larger one, sells gas at eighty cents straight, and pays 6½ per cent. of its gross receipts to the city. And these terms, it must be remembered, were proposed by the companies themselves and accepted by the city. Now, the ordinance which the Detroit company have declined to accept, was more liberal than the Cleveland ordinance. In Cleveland the companies must lay mains wherever ordered by the Common Council. In our ordinance it was provided that extensions might be ordered by the council if consumers to the extent of one to every 100 feet of required extension were secured. The Cleveland companies are required to pay 6½ per cent. of gross receipts, while the Detroit ordinance only required 5 per cent. The Cleveland ordinance fixes the price for only ten years, when the council again has the right to make a reduction. The Detroit ordinance fixed the price for fifteen years, during which time the council would have no control over it. Now the gas company says that the council committee conceded that the difference in the price of coal between Detroit and Cleveland would amount to four cents a thousand feet. But the company did not mention what the committee further ascertained, that the difference in the price of coke and other residuals in Detroit would counterbalance the difference in the price of coal between Detroit and Cleveland. I want also to call your attention to a part of our conference with Gen. Meyer in Cleveland. One of the aldermen recited the claim of the Detroit company that the fact that they only produced about 230,000,000 feet of gas per year did not make a comparison with Cleveland, where more gas is manufactured, a fair one. Gen. Meyer said: 'When I started in on this case (the Cleveland case), I went upon the proposition, and did it honestly, that with an output of 800,000,000 or 900,000,000 feet per year, they could afford to furnish the gas at a much lower rate than a concern with an output of only 200,000,000. But the testimony of their experts was to the effect that when the output of the company reached 100,000,000, from that time there was no difference whatever. The best experts in this country testified to that. The smaller company here—the one on the west side of the river—does not sell as much gas as your company in Detroit, yet they sell it at the same rates as the large company, eighty cents. The testimony in the case was clear and without a single exception to the effect that when the consumption reached 100,000,000, there is no more difference. I was particular to ask this of every witness, so as to prevent the smaller company afterward from taking advantage of the position that your company is evidently taking up now.'"

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SHORT RUNS

GAS, ELECTRIC AND WATER ASSOCIATIONS

AMERICAN GAS LIGHT ASSOCIATION.

ANNUAL MEETINGS.—Third Wednesday of October of each year. Next meeting will be held in Chicago. Officers for the current year: Pres't., A. E. Boardman, Macon, Ga.; Secretary and Treasurer, A. B. Slater, Jr., Providence, R. I.

THE MICHIGAN GAS ASSOCIATION.

ANNUAL MEETINGS.—Third Wednesday in February. President, S. Dean Owosso; Vice-President, Thomas D. Gilbert, Grand Rapids; Secretary and Treasurer Henry H. Hyde, Saginaw

NEW ENGLAND GAS ASSOCIATION.

ANNUAL MEETINGS.—Third Wednesday in February, in Boston. President William A. Wood, Boston, Mass.; Secretary and Treasurer, Chas. F. Prichard, Lynn Mass.

OHIO GAS LIGHT ASSOCIATION.

ANNUAL MEETINGS.—Third Wednesday in March. Next meeting Columbus. President, Irvin Butterworth, Columbus; Vice-President, J. W. R. Cline, Springfield; Secretary and Treasurer, A. P. Lathrop, Columbus.

WESTERN GAS ASSOCIATION.

ANNUAL MEETINGS.—Third Wednesday in May, Chicago. Officers for current year: E. H. Jenkins, President, St. Louis: A. W. Littleton, Secretary and Treasurer, Quincy, Ill.

PACIFIC COAST GAS ASSOCIATION.

ANNUAL MEETINGS.—Second Tuesday in July. Next meeting Sacramento. President, J. H. Crockett, San Francisco; Vice-President, J. L. Hallett, Portland. Secretary and Treasurer, J. A. Britton, Oakland, Cal.

THE GUILD OF GAS MANAGERS OF NEW ENGLAND.

ANNUAL MEETINGS.—Second Saturday in March, held in Boston. President Henry B. Leach, Taunton, Mass.; Secretary, Andrew K. Quinn, Newport, R. I.

AMERICAN WATER WORKS ASSOCIATION.

ANNUAL MEETINGS.—Next will be held in Minneapolis, Minn., 1894. Officers: James P. Donohue, President, Davenport, Ia.; Peter Milne, Secretary and Treasurer, New York.

NATIONAL ELECTRIC LIGHT ASSOCIATION.

SEMI-ANNUAL MEETINGS.—Time and place of next meeting not decided upon. President, E. A. Armstrong, Camden, N. J., Secretary, Geo. F. Porter, New York.

We understand that the Kansas City (Mo.) Gas Co. is experiencing a good deal of trouble with its mains due to electrolysis.

The People's Light & Construction Co. has been organized at Davenport, Iowa, and a franchise granted it for the operation of gas works in that city.

A contract is pending between the city of Minneapolis, Minn., and the Northwestern Globe Gas Light Co. for 2,000 gasoline lamps for outlying district lighting at Minneapolis. Price $14 per lamp per year.

Lindley Allen, of Alexandria, has brought suit against the Indianapolis (Ind.) Gas Co. for $10,000 damages. He claims that while his child was ill of diphtheria the company cut off the gas, which caused the death of the child.

The Charleston (S. C.) Gas Co. is making many improvements in their plant. A new three lift holder and much new 16-inch main pipe are among the betterments. The late cyclone produced between $12,000 and $15,000 damage to various parts of their plant.

The village trustees of Lansingburgh, N. Y., held a meeting a few days since at which the gas committee recommended that a contract be entered into with the Globe Gas Light Co., of Jersey City, for one year at $20.75 per light, a slight increase over last year, and it was so resolved.

The Port Huron (Mich.) Gas Light Co., it is said, will add a fuel gas plant to its illuminating works. It will be remembered that a new organization having an "Archer" plant will soon be ready to begin the supply of fuel gas in Port Huron, the new company's works now being about completed.

The Wheeling (W. Va.) Gas Co. is in a pickle owing to insufficient revenues, and there is just a hint that the price of gas may be raised in order to increase the income. Opinion is divided as to whether increase in price of gas should be made or a general tax levy issued to pay for electric lighting.

The Brookline (Mass.) Gas Light Co. held its annual meeting on the 27th ult. and elected the following named directors for the ensuing year: Robert Amory, F. W. Lawrence, Lucius B. Marsh, H. H. Rogers and Sidney Chase. Mr. Chase is of the firm of Chase & Barstow and takes the place of John C. Inches.

The penny-in-the-slot gas meters in Liverpool now number 8,000. The success of this ingenious contrivance has led to its introduction into London, Birmingham, Manchester, and elsewhere. The latest town to adopt it is Leeds. One penny in the slot at Leeds is to give 25 cubic feet of gas, or six hours' light with a No. 4 burner.

Mr. Emerson McMillin again set foot on his native shores on the 7th inst. after an absence of several months in Europe. Mr. McMillin traveled far, saw many new scenes, and if his appearance goes for anything he has thoroughly enjoyed every hour of every day since he sailed away from home. The day of his home coming found him ready and anxious to take up the threads of his many enterprises with the old time vigor and push.

Many improvements are under way at the works of the Macomb (Ill.) Gas & Electric Light Co. The hitherto separated electric light plant and the gas works are being brought together. An incandescent electric light plant will also be added, together with an entirely new power plant. As soon as this part of the work has been completed the company will overhaul the gas generating plant and introduce water gas. Probably a reduction in price will also follow.

Stockholders of the Woonsocket (R. I.) Gas Co. held their annual meeting on the 3d inst. and elected the following officers for the ensuing year: President, Joseph E. Cole; secretary and treasurer, R. G. Randall. Directors: Henry C. Kimball, John W. Ellis, Henry F. Lippitt, George M. Welles, Joseph E. Cole, James P. Ray, Frank Harris, Gilbert Darling, Joseph B. Aldrich. The treasurer's report showed increased business for the past year. The regular six per cent. semi-annual dividend is now payable.

The East River Gas Co. is pushing work on the street mains for that company's gas supply in the city of New York. Considerably over 100 miles of 6 inch and 8 inch mains are on the avenues and streets of the city, the larger size being used on avenues and the latter on intersecting thoroughfares. The running of services has also been begun. It certainly begins to look as though the Long Island enterprise would commence gas supply in New York long before the time set by many who were active in this undertaking.

The citizens of Philadelphia, Pa., seem to be in great earnest in an effort to secure a lower gas rate than now prevails in that city and for the most part the local press seems to be thoroughly in accord with the movement. The people want "dollar gas" and it seems probable that the rate may be fixed at that figure ere long. If so it is possible that the upshot of the whole matter will be the purchase on the part of the city of the Philadelphia Gas Improvement Co.'s plant, from which the city has been buying very largely during the past few years.

The gas situation in Brooklyn, N. Y., seems to be in *statu quo*. The floating straws here and there no doubt give some reasonable evidence of an early war of rates, but this has been the rumor for some time. However, the lines appear to be tightening. Gangs of men are pushing pipe laying on the part of the Williamsburg Company in the Fulton Municipal Company's district, while the Fulton Municipal Company is engaged in a like undertaking in the district of the Williamsburg Company. It is said, but we cannot guarantee the report, that the several companies involved are making concessions to induce changes of consumers from one company to the other. It is but fair to state that these assertions are denied by those in interest.

The people of Belgium on May 1, 1893, put their clocks back seventeen minutes to conform to the time of the Greenwich, N. F., meridian. A Belgian who used to seek his couch punctually at 8 P.M. Belgian time now hops into bed at 8 P.M. Greenwich time. But 8 P.M. Greenwich time is 8.17 P.M. Belgian time; so that the Belgian really goes to bed seventeen minutes later than he did before. The change of clocks made no difference to the sun and, as a result, the gas bill of the nation has increased $1,000,000 in fifteen months, the nation sitting up so much later at night. When the truth is known there will doubtless be a movement for going back to the old time, in the interest of economy. The gas companies, it is said, will forcibly resist and are suspected of being at the bottom of the time-changing business, not only in Belgium but elsewhere.

FINANCIAL

WALL STREET, October 31, 1893.

The repeal of the silver purchasing clause of the Sherman law, promised by the action of the Senate, has had the same effect on the general stock market as did the passage of the repeal bill by the House some weeks ago. There has been a general boom in values, and the entire market has assumed a marked feeling of confidence. Chicago Gas shows a gain of about 6 points since our last review was penned, while General Electric has had an advance of 4 points recorded.

Confidence has been shown equally by the securities that have only a private market as by those that are dealt in on the New York Stock Exchange. This is particularly the case with the Brooklyn properties. This was due largely to the rumor that the Equity Gas Light Company was to be placed in the hands of a receiver. The rumor was vigorously denied. At present B. L. H. Trask owns a controlling interest in the $2,000,000 of stock and the $1,000,000 of the bonds of the company. The interest upon its bonds has always been met with promptness until last July, when the payments upon the coupons were suspended. Under the law governing the case it had 90 days in which to make payments. During that 90 days a committee was appointed to look out for the interests of bondholders other than Mr. Trask. Judgments were secured on August 1 against the Equity Company for interest due on some bonds. Within the last few weeks there was an effort made to sell the Equity Co. to the Fulton Municipal Co., and officials from the latter corporation visited the Equity works on Newtown Creek and after careful investigation concluded that the price asked was too high.

The advance in General Electric was the result of a definite announcement by the board of directors concerning the sale of its treasury securities, which, it is declared, have a nominal value of twelve million dollars. These securities have been sold to a syndicate for an amount understood to be four million dollars, and this money will be used to take up the floating debt. Under the terms of the sales to the syndicate, however, it was agreed that an opportunity should be given to stockholders to subscribe to the purchase price as accepted by the syndicate and this opportunity is set forth in a circular just issued. The delay in its issue is explained on the ground that the syndicate waited for better general financial conditions, so that the stockholders, to whom the offer of the subscription is now made, should have no ground for complaint. According to the circular a security company has been formed to be known as the Street Railway & Illuminating properties, with the General Electric securities in its treasury. Against these are issued 45,000 shares of preferred stock of the new company and 45,000 shares of common stock. The twelve million securities are bonds and stocks of local street railways and illuminating companies which the General Electric Company has received in payment for plants and royalties. Many of these securities are paying dividends, and the syndicate estimates that these dividends will be equal to a six per cent. dividend on the $4,500,000 preferred stock by the new company, or $270,000 and "substantial sums on the common stock." The syndicate consists of well-known men, namely, Samuel Spencer, Chas. E. Cutting, Edwin Packard, C. S. Tuckerman and Frank G. Webster. It is hoped that when better times come the securities can be sold for enough to redeem the preferred stock and leave something to be divided among the common stockholders. The shares of the Street Railway & Illuminating properties are offered to the General Electric stockholders in blocks, each to consist of one common and one preferred share. The price for each block will be $100, and all stockholders of record at the close of business Oct. 27 holding eight shares are permitted to subscribe for one such block. The payments are to be made in installments: 30 per cent. Nov. 15; 40 per cent. Dec. 15, and 30 per cent. Jan. 15. The circular contains the list of securities that have been purchased.

Following are closing prices for active electric and gas stocks:

	Closed Friday.	Range Sales 1893.	Range Sales 1892.
Chicago Gas.....	67½@ 68	39 @ 94½	71½@ 99½
Consolidated Gas.....	135 @137	108 @144	102 @128
General Electric Co....	49½@....	30 @114¼	104½@119¾
Citizens' Gas (Brooklyn)	58 @ ...	99¾@109	94¼@114½
Edison Electric Illum..	100 @102	71¼@131	79¾@115½
Laclede Gas.....	17 @ 17¼	9¼@ 26	17½@ 27¼
Laclede preferred	65 @ 70	48 @ 74¼	57½@ 74½

The closing quotations at leading brokers' offices of inactive gas stocks are appended:

Gas Companies.	Bid.	Asked.	Gas Companies.	Bid.	Asked.
Brooklyn Gas Light.....	.....	102	Williamsburgh..... ..	120	125
Jersey City & Hoboken	180	....	Bonds, 6s	107	109
Metropolitan—Bonds..	105	110	Metropolitan (B'klyn)	100	120
Mutual (N. Y.).....	138	145	Fulton Municipal....	125	.....
Nassau (Brooklyn)....	140	150	Bonds, 6s.....	105	.....
Scrip.....	.....	100	Equitable.....	170	180
People's (Brooklyn) ...	67	75	Bonds, 6s..... ..	106	108

A new ordinance has been introduced in the Kalamazoo, Mich., City Council whereby it is provided that the Kalamazoo Gas Light Co. shall sell gas at $1 per thousand cubic feet and pay to the city 5 per cent. of the gas company's receipts.

The works of the Nassau Gas Co., in Brooklyn, N. Y., sustained considerable damage by an explosion which occurred on the morning of the 18th inst., followed by a fire which resulted in damage estimated at about $3,000. Fortunately no one was seriously injured.

At a recent meeting of the directors of the Portsmouth (Va.) Gas Co. it was decided to reduce the price of gas for the purpose of materially encouraging the introduction of gas stoves. Our informant, however, fails to state the figure at which gas will be sold in that city hereafter.

In a notice concerning the contracts and operation of the Economical Gas Apparatus Construction Co., of Toronto, which appeared in our last number, the type made us say that with the use of but 30.42 lbs. of coal per thousand was the result attained at Toronto with the Merrifield-Westcott-Pearson apparatus. The 30.42 lbs. of coal covers only the generator fuel, which is certainly a more than satisfactory result at the present time. Any gas maker will, of course, understand that the former statement was incorrect, in view of the fact that it is impossible to get more out of a thing than is in it.

WANTED.

A gentleman who has for the last 10 years had charge and the general management, including collections, office work and construction, of a coal gas works and a water works plant in a town of 8,000, would like position as superintendent of either a gas or water works in a larger city. Would prefer a water works plant. Best of reference given. Address "Gas and Water," care PROGRESSIVE AGE.

POSITION WANTED.

A young man of technical education, five years' experience and thoroughly acquainted with the gas business in all details, desires another situation as Superintendent or Manager. Address METER, care PROGRESSIVE AGE.

LUTHER & LEDERHOS,

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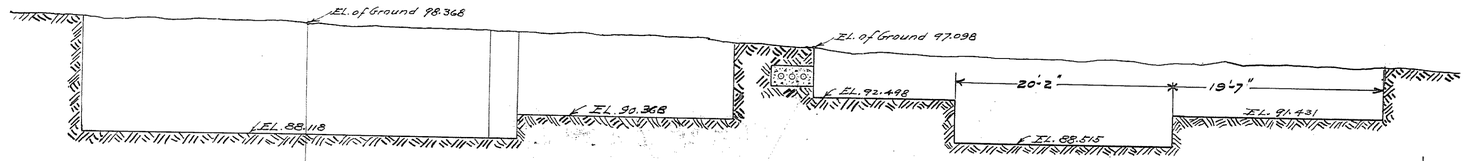
MILTON ST.
NOBLE ST.
OAK ST.
CALYER ST.
QUAY ST.
NEWELL ST.
ECKFORD ST.
LEONARD ST.
LORIMER ST.
GUERNSEY ST.
CLIFFORD PL.
DOBBIN ST.
BANKER ST.
GEM ST.
N. FIFTEENTH ST.
N. FOURTEENTH ST.
N. THIRTEENTH ST.
N. TWELFTH ST.
N. ELEVENTH ST.
N. TENTH ST.
N. NINTH ST.
N. EIGHTH ST.
MESEROLE AVE.
NORMAN AVE.
MASSAU AVE.
WYTHE AVE.
KENT AVE.
OLD WOOD POINT
OAKLAND ST.
NEWELL ST.
ECKFORD ST.
LEONARD ST.
DIAMOND ST.
JEWELL ST.
HUMBOLDT ST.
MANHATTAN AVE.
BROOME ST.
GRAHAM AVE.
MEEKER AVE.
ENGERT AVE.
LORIMER ST.
JANE ST.
NEWTON ST.
BAYARD ST.
UNION AVE.
RICHARDSON ST.
BERRY ST.
BEDFORD AVE.
DRIGGS AVE.
ROEBLING ST.
CLATE SANFORD ST.
BUSHWICK INLET
E. R I V E R

1 D 36



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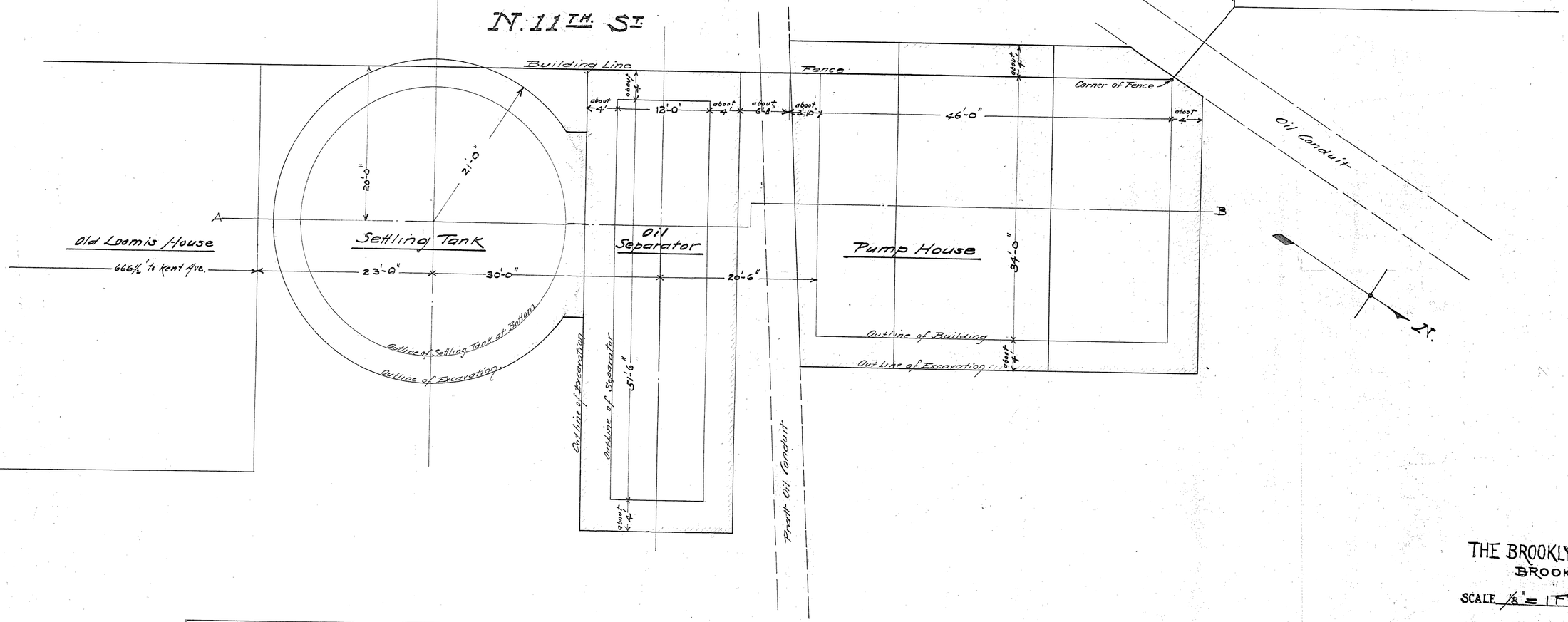

Machine Shop.

EXCAVATION PLAN
For
PUMP HOUSE, SETTLING TANK AND OIL SEPARATOR
WILLIAMSBURG WORKS, EXT. No 2

THE BROOKLYN UNION GAS CO.
BROOKLYN, N. Y.

SCALE 1/8" = 1 FT. DATE Nov. 9/08

Drawn by W. M. W. Checked by W. J. Jack.

APPROVED
Chief Engineer.
approved C. Stetson.

Not carried out

1 D 36

1G122

1.G-122

THE BROOKLYN UNION GAS CO.
BROOKLYN, N.Y.

WILLIAMSBURGH WORKS
SMALL PROPERTY PLAN

SCALE 1 in. = 120 ft.	DATE June 23, 1909 Oct. 5, 1939, retraced
Drawn by F.H. Sewall	Approved
Traced by F.H. Sewall	
Checked by W.M. Moeller	Construction Engineer

CORRECTED TO AUG. 5 1943.

Lot 1, Block 2282 leased to Navy Dept, U.S.A. for the period from June 1 1945 to June 30 1946 with privilege of renewal for year to year but not to extend more than 6 months after termination of present war. U.S. reserves right to cancel on 30 days notice. See letter from C.T. Voorhees, Asst. Sec, dated Dec. 22, 1943.

Above Lease cancelled June 30, 1946.

BROOKLYN EASTERN DISTRICT TERMINAL

SOLD TO ~~HARRIS~~ Kent Industrial Corp. 1946 (Formerly Harris Ind. Corp.)

NORTH 11TH ST.

EAST

RIVER

PIER See Sub Plan

BLOCK 2287 LOT 1

400'

200'

917'-0" to actual dock line

917.21 to 1917 Bulkhead Line.

1917 Bulkhead Line

Actual Dock Line

988.5' to 1917 Bulkhead Line

993'-0" to actual dock line

Lot 1, Block 2287, leased to Navy Dept. of the U.S. of America for the period from July 1 1945 to June 30 1946 with privilege of renewal from year to year but not to extend more than 6 months after termination of the war. See letter from H.H. Cuthrell dated May 4 1945.

No. 59 No. 43 No. 41 No. 39 No. 35 No. 1

No. 80 No. 68 No. 66 No. 2

KENT AVE.

200'

BLOCK 2288 LOT 1

CONCRETE TANKS

NORTH 12TH ST.

No. 3 Yard 200' x 200' was under contract of sale dated May 21 1946 to Arkell Safety Bag Co. provided they could obtain railroad connection to the property. Title was to be passed Nov 29, 1946. See letter Mr. Loomis Mar. 29, 1946 & Mr. Genz May 27, 1946.

The Arkell Co. was unable to obtain a r.r. siding and the contract of sale was cancelled. See letter Mr. Genz to Mr. Paterson dated Sept 19, 1946.

STANDARD OIL COMPANY

NORTH 11TH ST. EAST

253'-6"

RR PIER

240'-5"

42'-6"

MEAN HIGH WATER LINE

RIVER

SUB PLAN

WARD 14 SECT. B VOL. 5

W. WILLIAMSBURGH WORKS 1G122 SCALE 1" = 120 FT.

1G122

OIL PLANT EXPLODES; TWENTY MEN BURNED

Part of the Pratt Works of Standard Oil Company Destroyed in Williamsburg.

WATERFRONT IS SHAKEN

Workmen Rush from the Building with Their Clothing Ablaze — Hard Work to Save Big Tanks.

The water front of Williamsburg was shaken by a violent explosion at 9 o'clock yesterday morning, followed by half a dozen others, from the Pratt plant of the Standard Oil Company, which occupies a water front block between North Twelfth and North Thirteenth Streets. Before the fire which followed had been put out twenty employes of the company, working in the canning and filling department, had been removed from the building badly burned, and two hours of desperate fire fighting had been put in to prevent the spread of the flames, which threatened not only the rest of the plant but the crowded factory section which surrounds it.

While it is known that a score of men were hurt, some of them were removed to nearby homes, and the police were unable to get their names. In all cases the injuries sustained were the same, a bad burning about the head, shoulders, arms and hands, and upper body. Here is a list of those who were known to have been injured:

CALDWELL, ROBERT, 61 Heyward Street.
DANIELS, CHARLES, 186 North Tenth Street.
DAVIS, WILLIAM, 597 Manhattan Avenue.
MALONE, THOMAS, 301 Eckford Street.
O'CONNOR, DANIEL, 78 North Tenth Street.
PETERS, CONRAD, 1,068 Myrtle Avenue.
PITRI, R., 1,068 Myrtle Avenue.
RASCH, JACOB, 208 Wyckoff Avenue.
WENTZ, GEORGE, 110 North Eighth Street.

The canning and filling department, where the fire occurred, is the most dangerous building in the plant. Only a year ago it was burned to the ground. The present structure is a brick building about 200 feet long, situated for greater safety on the water front, where it is most removed from the rest of the plant. The work that is done there is the filling and soldering of cans of oil for shipment. The oil comes into the shed through pipes and is put in cans, most of them of five gallons capacity, which are then soldered down. It is supposed that the fire was caused by a hot soldering iron dropping into a can of oil.

Seventy-five Men Trapped.

The explosion which alarmed the neighborhood came at a time when there were seventy-five men at work in the canning building. Almost immediately a burst of flame shattered the windows on the water front side. The men at once realized that the always dreaded and always expected fire was again on them.

Scarcely had the half-dazed crowd of men begun to fight their way out of the burning building, most of them with their oil-soaked clothes afire, when the hands in the other parts of the plant dropped their tasks and came to the rescue. In a jiffy the emergency hoses were coupled to the plugs and streams of water were poured on the men, most of whom were almost blinded by the flames and dizzy from the fumes of combustion. Those who did not have presence of mind enough to roll on the rain-soaked ground to put out the flames which enveloped them were seized and wrapped in coats or had their burning clothing torn from them.

When the city fire fighters arrived, Battalion Chief Houck turned in a second alarm, and when Chief Lally appeared he made it a third. In answer to this came Deputy Fire Commissioner O'Keefe and Police Inspector Holohan, with Deputy Police Commissioner Reynolds. While the men from the Fire Department attacked the flames from all sides, the fireboats David A. Boody, Seth Low, and New Yorker worked from the river.

Ambulances from the Williamsburg and the Eastern District Hospitals arrived, and the surgeons improvised a ward in a building across the street and treated the injured men as fast as they were brought to them. Five of the most seriously injured were rushed to the hospitals. Some of the men were taken to near-by drug stores to have their burns dressed, and others were taken home by friends.

By this time the canning building was a huge caldron, out of which a solid body of flame roared upward. The mass of black smoke and soot which accompanies the burning of oil poured out onto the river, and added to the gloom of the overcast morning. The firemen resorted to the usual tactics in fight an oil fire.

A Hard Blaze to Fight.

As it was not only useless but dangerous to pour a stream on it, as this would only scatter the oil and spread the blaze, the firemen confined their efforts to keeping the fire to the building where it started. If it spread to the six immense tanks of refined oil near by or to the storing sheds, where thousands of gallons of naphtha and gasoline were kept, explosions were threatened which might have wiped out not only the entire plant, but all the fire fighters as well.

While the blaze itself was left to burn freely constant streams of water from every available source were kept playing on the oil tanks and the rest of the buildings. Several tank steamers and barges were anchored in the creek, which runs along the north side of the plant. These were all ordered out onto the river for safety, and the fireboats proceeded up the creek, where some of the buildings which they were trying to save could be reached to greater advantage.

Across the narrow street to the south of the Standard Oil plant are the Williamsburg works of the Brooklyn Union Gas Company. One wall of the canning department abuts on this street, and the gas company had its men out ready for instant work if any of the sparks carried across.

After an hour and a half of unceasing vigilance in preventing the flames from spreading, they had burned themselves out sufficiently to allow of a direct attack being made on the canning building itself, and the water was turned into it. This made short work of the blaze, and a squad of firemen was rushed in at the first possible moment to see whether any of the employes had been unable to make their escape. No one was found. The building was completely burned out, only the brick walls and a few charred edges of roof beams remaining. The flames had also made a slight impression on the 400-foot pier which projects out into the East River. The damage was estimated at $40,000.

A few hours after the fire had been put out, the remainder of the plant was again in active working condition, the men seeming to think nothing about the experience they had gone through. The general feeling was summed up by one veteran when he said:

"There's no danger working in an oil plant if you're fire-proof. I've been baked twice and I'm here yet."

The New York Times
Published: May 10, 1910
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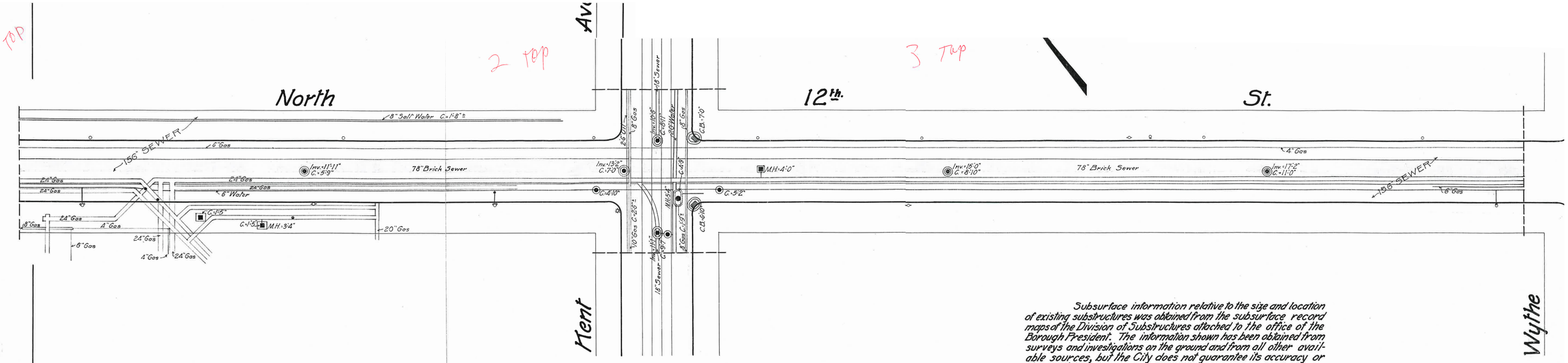
1 Top 2 Top 3 Top



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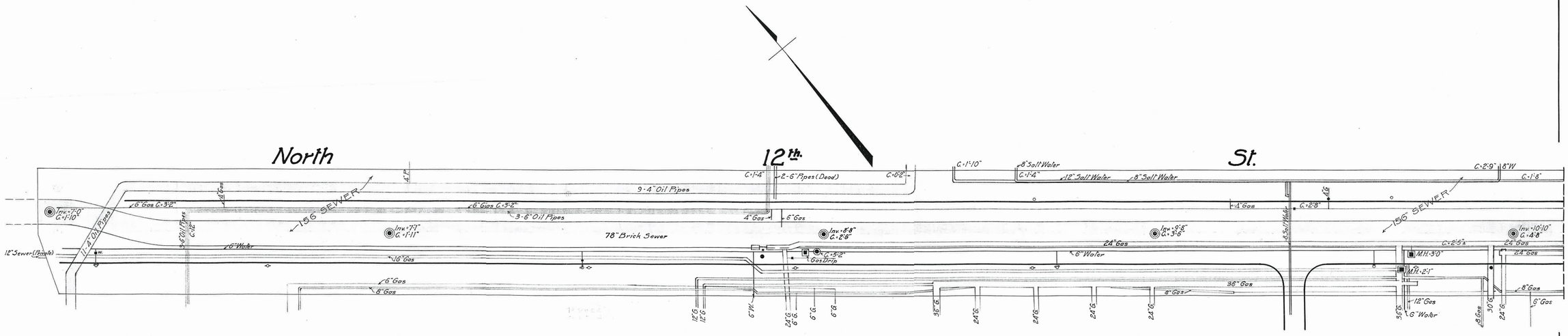


Subsurface information relative to the size and location of existing substructures was obtained from the subsurface record maps of the Division of Substructures attached to the office of the Borough President. The information shown has been obtained from surveys and investigations on the ground and from all other available sources, but the City does not guarantee its accuracy or its completeness.

This Plan is Dated April 24, 1912.

Scale 1 in. = 20 ft.

55291.

NORTH 12TH. ST.

BRICK WALL

ENGS IN. 2½

TO BRICK WALL. 99:9¼

FT. IN. 4:0¼

WIRE FENCE.

FT. IN. 4:0¼

100

FT. IN. 4:0½

44:4

13±

12:6 TANK.

CLEAR IN 9½

3 STORY IRON

75.

WIRE FENCE

75.

KENT AVE.

CLEAR 2IN.

FT. IN. 3:10½

100.

ENGS 1 FT. 3 IN.

FT. IN. ENGS 1:4¼

FT. IN. 4:1

9:9

CORNICE.

CORNICE 2 FT. 3 IN.

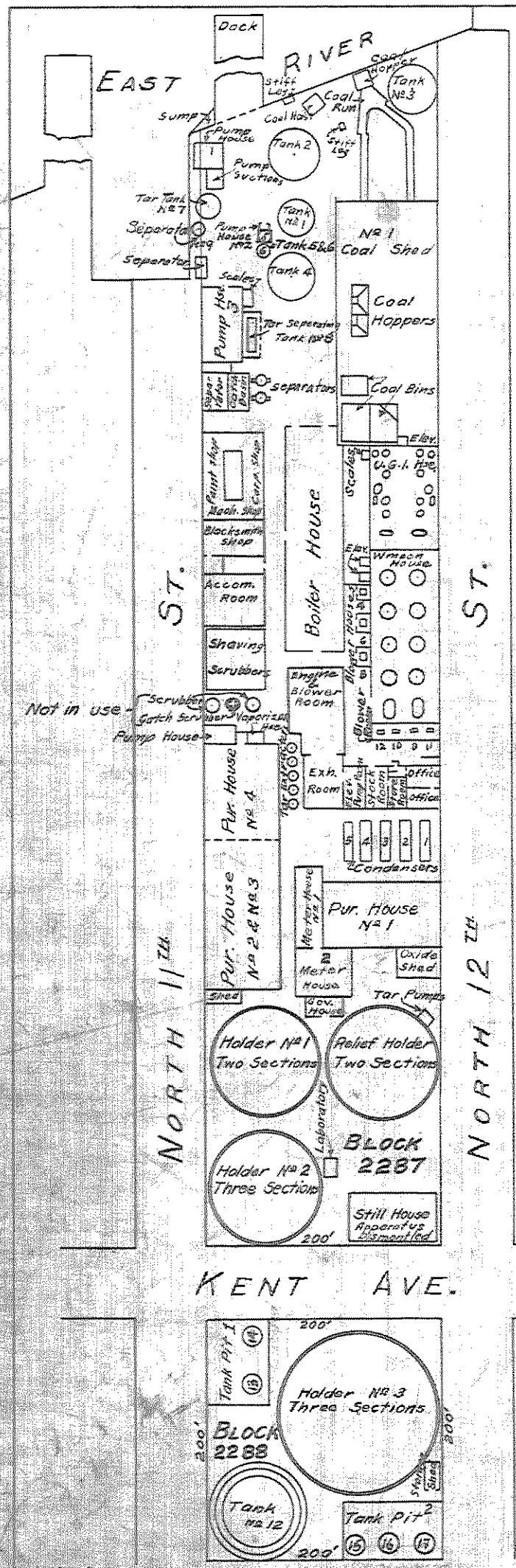
CORNICE 2 FT.

18 F. 1 STORY IRON.

LOTS. 75-76-77.
BLOCK. — 2287.
SECTION. — 8.

This survey is made for
CHEMICAL EQUIPMENT CORPORATION.
SEPT. 10TH. 1920.

WILLIAMSBURGH BRIDGE PLAZA
215-217 FLATBUSH AVE. EXT.
BROOKLYN
ESTABLISHED 1907



		Inside Dimen.	Height
Accom. Room	Brick	50'x41'-8" x	24'-2"
Boiler House	"	46'x191'-5¾" x	23'-0"
Blacksmith Shop	"	50'x27'	33'-0"
Blower House No. 4	Galv. iron	14'-11½"x9'-11½"	
" " " 6&8	" "	16'-2"x9'-11½"	
Coal Hoist	" " & Wood	15'x15'	15'-0"
" Hopper	Wood -	14'-6"x12'-6"	16'-0"
" Runway	"		
" Shed	Brick	83'-10"x197'-8"	24'-0"
Engine & Blower Room	"	45'-8"x68'-11"	20'-0"
Exhauster "	"	31'-5"x44'-9"	36'-6"
Generator House	" & Galv. Iron	56'-10"x244'-6"	52'-0"
Governor "	"	16'-6"x27'-4"	17'-4"
Laboratory	Galv. Iron	20'x14'	12'-0"
Meter House No. 1	Brick	65'-8¾"x44'-6"	19'-2"
" " " 2	"	38'-0"x44'-6"	19'-2"
Oil Room	"	18'-6"x14'-10"	33'-0"
Oxide Shed	"	36'-2"x23'-3"	22'-6"
Pump House No. 1	Galv. Iron on Wood	25'-6"x22'-0"	11'-0"
" " " 2	Brick	10"x10'	20'-3"
" " " 3	Concrete	34'-6"x63'-2"	20'-0"
" " " 4	Galv. Iron	25'-0"x14'-4"	30'-5"
Purifying House No. 1	Brick	53'-5"x99'-2"	37'-4"
" " " 2&3	"	61'-6"x119'-0"	26'-8"
" " " 4	"	78'-0"x61'-6"	30'-5"
Shops (Paint, Mach, Carp.)	"	50'x70'-10"	33'-0"
Shaving Storage	"	32'x14'-10"	33'-0"
Still House	Galv. Iron & Steel	70'x42'	44'-0"
Storage Shed	Wood	27'-3"x14'-2"	
Tar Pump House	Brick	15'-8"x6'-3"	7'-4"
Tank Pit No. 1	Concrete	45'x48'	
" " " 2	"	50'x60'	

	Diameter	
Gas Oil Tank No. 1	30'-0"	30'-0"
" " " " 2	44'-0"	30'-0"
" " " " 3	40'-0"	30'-0"
Tar " " 4	40'-0"	24'-6"
" " " 5	10'-6"	10'-0"
" " " 6	10'-6"	10'-0"
" " " 7	22'-0"	8'-0"
" Seperating " 8	8'-0"	30'-6"
Seperator " 9	6'-0"	6'-0"
Gas Oil Storage Tank No. 12	54'-0"	40'-0"
Gas Oil Tank No. 13	16'-0"	15'-0"
" " " " 14	16'-0"	15'-0"
" " " " 15	16'-0"	15'-0"
" " " " 16	16'-0"	15'-0"
" " " " 17	16'-0"	15'-0"

2-G-130

THE BROOKLYN UNION GAS CO.

WILLIAMSBURGH WORKS

SCALE 1"=120 Ft.

July 27, 1921.

2-G-130

APPROVED RESOLUTION NO. 41

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

Joint application of

STANDARD OIL COMPANY OF NEW YORK, INC.

and

SOCONY VACUUM CORPORATION

for permission to install, maintain and use a pipe over and across North 11th Street, at a point about 669 feet west of Kent Avenue, and over and across North 12th Street, at a point about 697 feet west of Kent Avenue, Borough of Brooklyn.

See Minutes, January 15, 1932; May 6, 1932.

WHEREAS,

The Standard Oil Company of New York, Inc. and Socony-Vacuum Corporation, have presented a joint petition dated December 23, 1931 to the Board of Estimate and Apportionment requesting permission to install, maintain and use a 6 inch pipe over and across North 11th and North 12th Streets, in the Borough of Brooklyn, at points respectively 669 feet 9½ inches and 697 feet west of the westerly line of Kent Avenue, and 19 feet 3 inches above the street surface of North 11th Street and 16 feet 1½ inches above the street surface of North 12th Street, said pipe to be used to convey steam between the plants of the petitioners situated on the southerly side of North 11th Street and the northerly side of North 12th Street, the pipe to pass overhead across the property of the Brooklyn Union Gas Company, situated on the block between North 11th and North 12th Streets, Kent Avenue and the East River, now, therefore, be it

RESOLVED,

That the consent of the Corporation of the City of New York be and the same is hereby given to the Standard Oil Company of New York, Inc. and the Socony-

Vacuum Corporation, to install, maintain and use a 6 inch pipe over and across North 11th Street, at a point 669 feet 9⅝ inches west of the westerly line of Kent Avenue and over and across North 12th Street, at a point 697 feet west of the westerly line of Kent Avenue with a clearance of 19 feet 3 inches above the street surface of North 11th Street and 16 feet 1⅝ inches above the street surface of North 12th Street, the pipe to pass over the block between North 11th and North 12th Streets, occupied by the Brooklyn Union Gas Company with the consent of that Company, the pipe to be used for the conveyance of steam between the plants of the grantees for their sole and exclusive benefit, the pipe to be as shown upon a plan entitled:

"Plan showing location of Proposed Overhead Steam Pipe Line to be constructed in North 11th and North 12th Streets, Borough of Brooklyn, to accompany application dated December 23, 1931 of the Standard Oil Co. of New York, Inc. to the Board of Estimate and Apportionment, City of New York"

a copy of which is attached hereto and made a part hereof upon the following terms and conditions:

1. This consent shall continue only during the pleasure of the Board of Estimate and Apportionment and shall be revocable upon sixty (60) days' notice in writing to the grantee, but in no case shall it extend beyond a term of ten (10) years from the date of its approval by the Mayor and thereupon all rights of the grantee in said street, by virtue of this consent, shall cease and determine.

2. The grantee shall pay into the treasury of The City of New York, as compensation for the privilege hereby granted, and for expenses in connection with the examination and granting of the petition and in connection with the regulation, supervision and inspection necessary because of the structure the sum of five hundred dollars ($500) per annum. Such payments shall be made in advance on November 1 of each year, provided, however, that the first payment shall be made within thirty (30) days after the date of approval by the Corporation Counsel of the agreement accepting this consent, hereinafter provided for, and shall be only such proportion of the annual charge as the time between the approval of this consent by the Mayor and November 1 following bears to a whole year.

Such rate of compensation shall continue up to the date of the restoration of the street pavement after the removal of the structure from the street.

Such payments shall not be considered in any manner in the nature of a tax, but shall be in addition to any and all taxes of whatsoever kind or description now or hereafter required to be paid under any ordinance of The City of New York, or by any law of the State of New York.

3. Upon the removal of the grantee from either of the premises to be connected by the structure, or upon the revocation or termination by limitation of this consent, the grantee shall cause the structure hereby authorized to be removed and all of said street affected by this permission to be restored to its proper and original condition, if required so to do by The City of New York or its duly authorized representatives, and the entire cost of such work shall be borne by the said grantee. If this consent

be not renewed or if the structure hereby authorized shall not be required to be removed, it is agreed that it shall become the property of The City of New York.

4. This consent is for the exclusive use of the grantee and shall not be assigned either in whole or in part, or leased or sublet in any manner, nor shall title thereto, or right, interest or property therein pass to or vest in any other person, firm or corporation whatsoever, either by the acts of the grantee or by operation of law, without the consent in writing of The City of New York, acting by the Board of Estimate and Apportionment.

5. The grantee shall pay the entire cost of all work, labor and material in connection with the structure hereby authorized, and particularly—

(*a*) Its construction, maintenance and removal.

(*b*) The protection of all structures which shall in any way be disturbed by its construction or removal.

(*c*) All changes in sewers or other subsurface structures necessitated by its construction or removal, including the laying or relaying of pipes, conduits, sewers or other structures.

(*d*) The replacing or restoring of the pavement in said street which may be disturbed during its construction or removal.

(*e*) Each and every item of the increased cost of the installation of any future structures or repairs or alterations to any existing or future structures caused by its presence in the street.

(*f*) The inspection of all work during its construction or removal as herein provided, which may be required by the President of the Borough and the Commissioner of Water Supply, Gas and Electricity.

6. Before the construction or removal shall be begun, the grantee shall obtain permits to do the work from the President of the Borough and from the Commissioner of Water Supply, Gas and Electricity. The grantee shall perform all the duties which may be imposed by those officials as conditions of such permits, provided such conditions are not inconsistent with the provisions of this consent. The grantee shall submit to those officials working plans which shall include and show in detail the method of construction of the structure hereby authorized and the mode of protection or changes in all structures required by the construction or removal of the same.

Upon the completion of the work, the grantee shall furnish to the President of the Borough a plan of such character as he may direct, showing accurately and distinctly the location, size and type of construction, and complete dimensions of the structure erected or installed under this consent; also the location and dimensions of all substructures encountered during the progress of the work. The depth below the street surface of the new structure and of the substructures encountered must be shown; also their location with reference to the nearest curb-line and the nearest curb-line intersection.

If so ordered by the Borough President, all work in connection with the installation, repair or removal of the structure hereby authorized shall be carried on only at night or continuously for twenty-four (24) hours each day.

It is made a particular condition of this consent that the grantee shall obtain the approval of the Bureau of Buildings to the plans of the pipe and supports. It is also made a particular condition of this consent that the grantee shall file with the Board of Estimate and Apportionment the consent of the Brooklyn Union Gas Company to the installation and maintenance of the said pipe across the said streets.

7. The grantee shall allow to The City of New York a right of way through, under or above any part of the structure hereby authorized for any and all structures which are now or may be hereafter placed in said street by The City of New York.

If at any time it shall become necessary to replace or alter any structure in said street, the City shall have the right to break through or remove all or any portion of the structure hereby authorized and the grantee shall pay to the City the expense incurred by such removal.

8. The structure hereby authorized and any fixtures laid therein shall be constructed, maintained and operated subject to the supervision and control of the proper authorities of The City of New York. It shall be open at all times to the inspection of all the authorities who have jurisdiction in such matters under the Charter of The City of New York.

9. This consent is subject to whatever right, title or interest the owners of abutting property or others may have in and to said street.

10. Said grantee shall be liable for all damages to persons or property, including the street and structures therein and thereunder, by reason of the construction and operation or maintenance of the structure hereby authorized, and it is a condition of this consent that The City of New York assumes no liability to either person or property on account of this consent.

11. This consent is granted on the further and express condition that all laws or ordinances now in force, or which may hereafter be adopted, shall be strictly complied with.

12. This consent is upon the express condition that within thirty (30) days after the date of approval by the Corporation Counsel of the agreement accepting this consent, hereinafter provided for, and before anything is done in exercise of the rights conferred hereby, the grantee shall deposit with the Comptroller of The City of New York the sum of two thousand dollars ($2,000.), either in money or in securities to be approved by him, which fund shall be security for the performance of the terms and conditions of this consent. In case of default in the performance by said grantee of any of such terms and conditions the City of New York shall have the right to cause the work to be done and the materials to be furnished for making the necessary changes or repairs, after ten (10) days' notice, and shall collect the reasonable cost thereof from the said fund without legal proceedings, or in case of default in the payment of the annual charge, shall collect the same, with interest, from such fund after ten (10) days' notice in writing to the said grantee.

In case of any drafts so made, upon the security fund the said grantee shall, upon thirty (30) days' notice in writing, pay to the Comptroller of The City of New York a sum of money sufficient to restore the said fund to the original amount of two

thousand dollars ($2,000.), and in default of the payment thereof, the consent hereby given may be cancelled and annulled, at the option of the Board of Estimate and Apportionment of The City of New York, acting on behalf of said City. No action or proceeding or rights under the provisions of this section shall affect any other legal rights, remedies or causes of action belonging to The City of New York.

13. Said grantee shall give notice, in writing, to the President of the Borough and to the Commissioner of Water Supply, Gas and Electricity of its intention to begin the work hereby authorized at least forty-eight hours before such work commences. The grantee shall also give to the Board of Estimate and Apportionment notice in writing, of the date on which the work is commenced and also the date on which the same is completed, not later than ten (10) days after such dates.

14. Said grantee shall commence the construction of the structures hereby authorized and complete the same on or before July 1,, 1933, otherwise this consent shall be forfeited forthwith and without any proceedings, either at law or otherwise, for that purpose; provided, however, that such time may be extended by the Board of Estimate and Apportionment.

15. This consent shall be null and void unless said grantee shall duly execute an instrument in writing, wherein said grantee shall accept this consent and shall promise, covenant and agree to conform to, abide by and perform all the terms, conditions and requirements in this consent fixed and contained and file said instrument with the Board of Estimate and Apportionment of The City of New York within sixty (60) days after the approval of this consent by the Mayor; provided, however, that such time may be extended by the Board of Estimate and Apportionment.

And said grantee shall promise, covenant and agree in said instrument to hold The City of New York harmless from all damages to persons or property which may result from the construction, use, maintenance or operation of the structure hereby authorized.

A true copy of resolution adopted by the Board of Estimate and Apportionment May 6, 1932.

PETER J. McGOWAN,
Secretary.

The foregoing resolution is hereby approved.

JAMES J. WALKER,
Mayor.

Dated, New York, May 20, 1932.

WHEREAS,

The President of the Borough of Brooklyn and the Department of Water Supply, Gas and Electricity advised that the said conduit had been removed on July 22, 1937, now, therefore, be it

RESOLVED,

That the aforesaid consent be and the same is hereby rescinded, and be it further

RESOLVED,

That the Comptroller or the Department of Finance as the case may be is hereby authorized and directed to return to the owner thereof the security now held on deposit under the terms and conditions of the said consent upon the payment of compensation at the rate of two hundred and fifty dollars ($250) per annum for the period from November 1, 1936 to July 22, 1937, and be it further

RESOLVED,

That this resolution shall not become effective unless and until the said Brooklyn Fire Brick Works shall execute an instrument in writing releasing the City of New York from any and all claims of any kind, character or description whatsoever held or claimed to be held under the terms and conditions of the aforesaid consent and agreeing to quitclaim, waive and surrender to the City of New York any and all rights and privileges in or under said street held or claimed to be held under or by virtue of the said consent and file said instrument with the Board of Estimate of the City of New York.

A true copy of resolution adopted by the Board of Estimate January 20, 1938.

PEARL BERNSTEIN,
Secretary.

The foregoing resolution is hereby approved.

F. LAGUARDIA,
Mayor.

Dated, New York, February 3, 1938.

BOARD OF ESTIMATE
CITY OF NEW YORK

Rescinding consent granted

STANDARD OIL COMPANY OF NEW YORK
and
SOCONY-VACUUM CORPORATION

to maintain a 6 inch pipe over and across North 11th and North 12th Streets, Borough of Brooklyn, and authorizing the return of security deposited under said consent and the proportionate part of the annual charge paid in advance for the period from June 15th, 1937 to November 1, 1937.

See Minutes, May 28, 1937; January 20, 1938.

WHEREAS,

By resolution adopted by the Board of Estimate and Apportionment on May 6, 1932 and approved by the Mayor on May 20, 1932, consent was jointly granted to the Standard Oil Company of New York, Inc. and Socony-Vacuum Corporation to install, maintain and use a 6 inch pipe over and across North 11th and North 12th Streets, in the Borough of Brooklyn, at points respectively 669 feet 9½ inches and 697 feet west of the westerly line of Kent Avenue and 19 feet 3 inches above the street surface of North 11th Street and 16 feet 1½ inches above the street surface of North 12th Street, the said pipe to be used to convey steam between plants of the petitioners situated on the south side of North 11th Street and the northerly side of North 12th Street, the pipe to pass overhead across the property of the Brooklyn Union Gas Company situated on the block between North 11th and North 12th Streets, Kent Avenue and the East River, and the grantee duly accepted the consent and complied with the terms and conditions thereof including the maintenance of security in the sum of two thousand dollars ($2,000) on deposit with the Comptroller for the faithful performance of its terms and conditions and the payment of compensation in the sum of five hundred dollars ($500) per annum up to November 1, 1937, and

WHEREAS,

The Socony-Vacuum Oil Company, Incorporated, presented a petition dated May 15, 1937 to the Board of Estimate and Apportionment reciting therein that Socony-Vacuum Corporation changed its name to Socony-Vacuum Oil Company, Incorporated and the Standard Oil Company of New York, Inc., was duly merged on June 30, 1934 with the Socony-Vacuum Oil Company, Incorporated, and requesting the recission of the above mentioned consent and the return of security maintained on deposit with the Comptroller for the faithful performance of the terms and conditions of the consent, and

WHEREAS,

The President of the Borough of Brooklyn, in a communication dated July 9, 1937, advised that the work in connection with the removal of the said pipes was completed on June 15, 1937; and

WHEREAS,

Section 2 of the consent provides in part that the rate of compensation shall continue up to the date of the restoration of the street pavement after the removal of the structure from the street; now, therefore, be it

RESOLVED,

That the resolution adopted May 6, 1932, approved by the Mayor May 20, 1932, be and it is hereby rescinded; and be it further

RESOLVED,

That the Comptroller, or the Department of Finance as the case may be, of the City of New York be and it, or he, hereby is authorized and directed to return to the owner thereof the security now held on deposit under the terms and conditions of the said consent and refund that part of the annual compensation paid in advance to November 1, 1937, for the period from June 15, 1937, to November 1, 1937; and be it further

RESOLVED,

That this resolution shall not become effective unless and until the said Socony-Vacuum Oil Company, Incorporated, shall execute an instrument in writing releasing The City of New York from any and all claims of any kind, character or description whatsoever, held or claimed to be held under the terms and conditions of the aforesaid consent and agreeing to quitclaim, waive and surrender to the City of New York any and all rights and privileges in or over said street held or claimed to be held under or by virtue of the said consent and file the said instrument with the Board of Estimate of the City of New York.

A true copy of resolution adopted by the Board of Estimate January 20, 1938.

PEARL BERNSTEIN,
Secretary.

The foregoing resolution is hereby approved.

F. LaGUARDIA,
Mayor.

Dated, New York, February 3, 1938.

BOARD OF ESTIMATE
CITY OF NEW YORK

Application of

BROOKLYN TRUST COMPANY, TRUSTEE,

to continue to maintain and use a 6-inch pipe under and across the public boardwalk and beach at Brighton Beach, at a point about 130 feet west of Parkway Court, Borough of Brooklyn.

See Minutes, April 30, 1937; January 20, 1938.

WHEREAS,

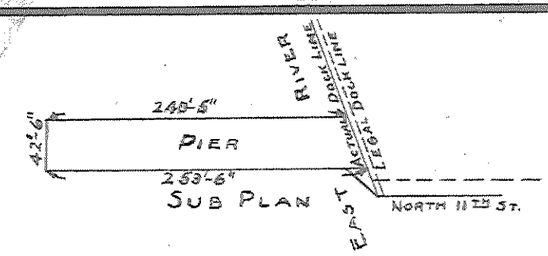
By resolution adopted by the Board of Estimate and Apportionment on January 20, 1927 and approved by the Acting Mayor on February 1, 1927, consent was granted to Realty Associates to install, maintain and use a six inch pipe under and across the public boardwalk and beach at Brighton Beach, Borough of Brooklyn, at a point about 130 feet west of the westerly line of Parkway Court, connecting the bathing establishment of the grantee with the Ocean, in order to obtain salt water for use in the bathing establishment and the grantee accepted the consent and complied with the terms and conditions thereof including the maintenance of security in the sum of $750 on deposit with the Comptroller and the payment of compensation in the sum of $450 per annum up to the date of expiration of the consent on February 1, 1937; and

WHEREAS,

The Brooklyn Trust Company, as trustee of all the property constituting the trust estate in a certain proceeding entitled "In the Matter of a Readjustment, etc., of the rights of the holders of investments in a certain mortgage covering premises located on the Boardwalk between the Railroad Right of Way and Parkway Court, Borough of Brooklyn, County of Kings, City and State of New York, guaranteed by Bond and Mortgage Guaranteed Company, and designated as Guarantee No. 186077", requested the renewal of the consent for a period of three years; now, therefore, be it

1G122

WARD 14
SECT. 8
VOL. 5



STANDARD OIL COMPANY

NORTH 12TH ST.

No. 1
593'-0" to actual dock line
588.59' to 1917 Bulkhead Line
ACTUAL DOCK LINE
LEGAL DOCK LINE
1917 BULKHEAD LINE
RIVER
SOLD DEC 2, 1946
BLOCK 2287
LOT 1
This prop. under contract of sale to Havemeyers & Elder, Inc. Date set for closing is Dec. 31, 1946, but is expected to be extended to Feb. 15, 1947. See letter from Mr. Genz dated Nov. 27, 1946.
PIER
See Sub Plan
517.21' to 1917 Bulkhead Line
517'-0" to actual dock line
No. 1
No. 66
No. 36
No. 30
No. 41
FOREIGN PROPERTY
FORMER GAS CO. PROPERTY
SOLD JAN 30, 1946
200'
400'

KENT AVE.

No. 68 200' No. 80
No. 35
No. 49
No. 43 200' No. 59
BLOCK 1288
LOT 1
SOLD MAY 27 [illegible]
CONCRETE TANKS
200'

EAST

NORTH 11TH ST.

BROOKLYN EASTERN DISTRICT TERMINAL

STANDARD NOTED

WILLIAMSBURGH WORKS
1G122
SCALE 1"=120FT.
CORRECTED TO [illegible]

THE BROOKLYN UNION GAS CO.
BROOKLYN, N.Y.

WILLIAMSBURGH WORKS
SMALL PROPERTY PLAN

SCALE: 1 in. = 120 ft.	DATE: Retraced July 16, 1946
Drawn by F.H. Sewall	Approved _____
Traced by P.H. Albers	_____ Construction Engineer
Checked by _____	

1G122

Flow chart of batch operations at Pratt Oil Refinery ca. 1871, producing kerosene from petroleum

from F. Williamson and A. R. Daum, The American Petroleum Industry, Evanston, Northwestern University Press, 1959

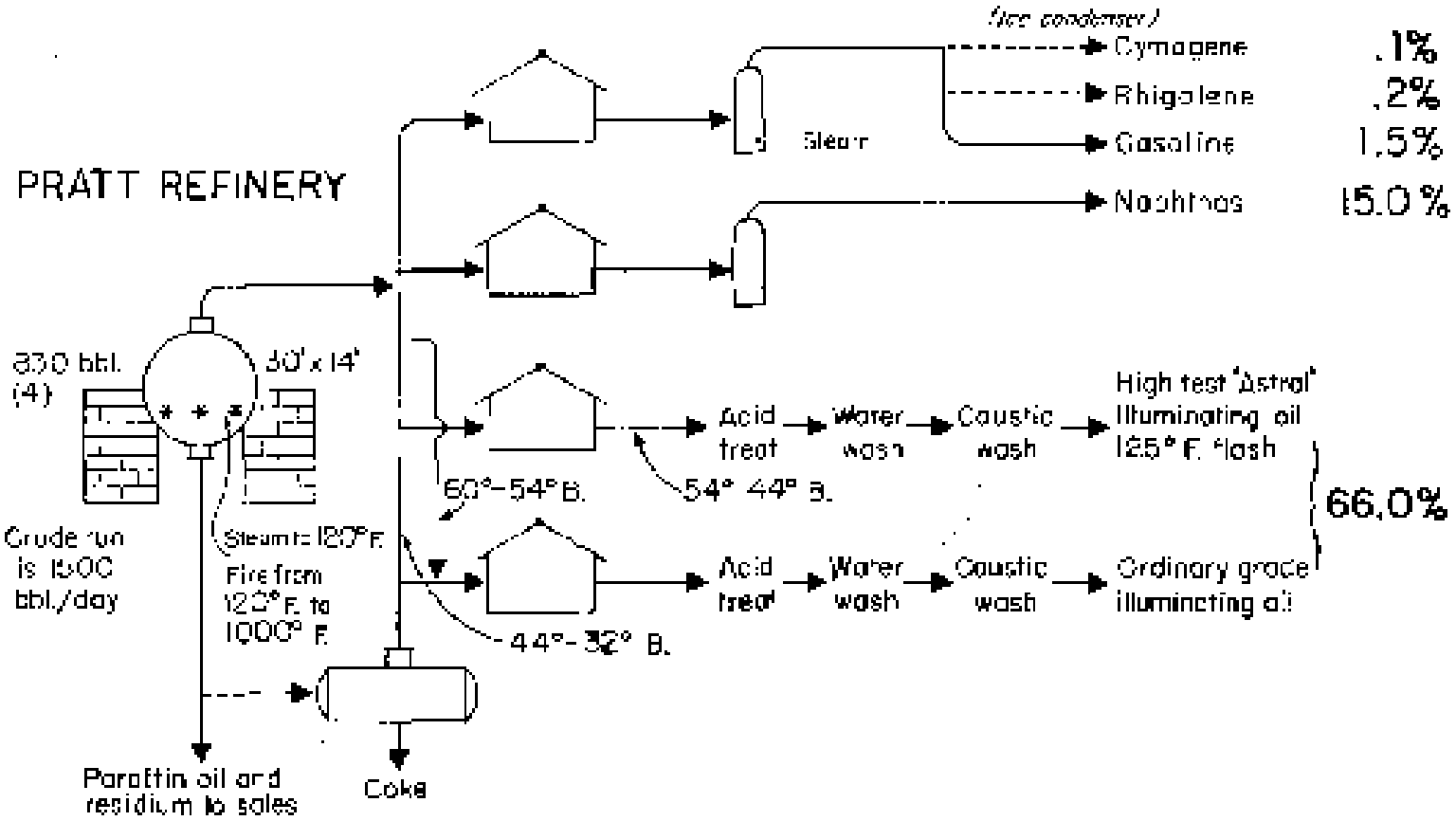


FIGURE 11: 16. *Flow sheet of batch operation.*

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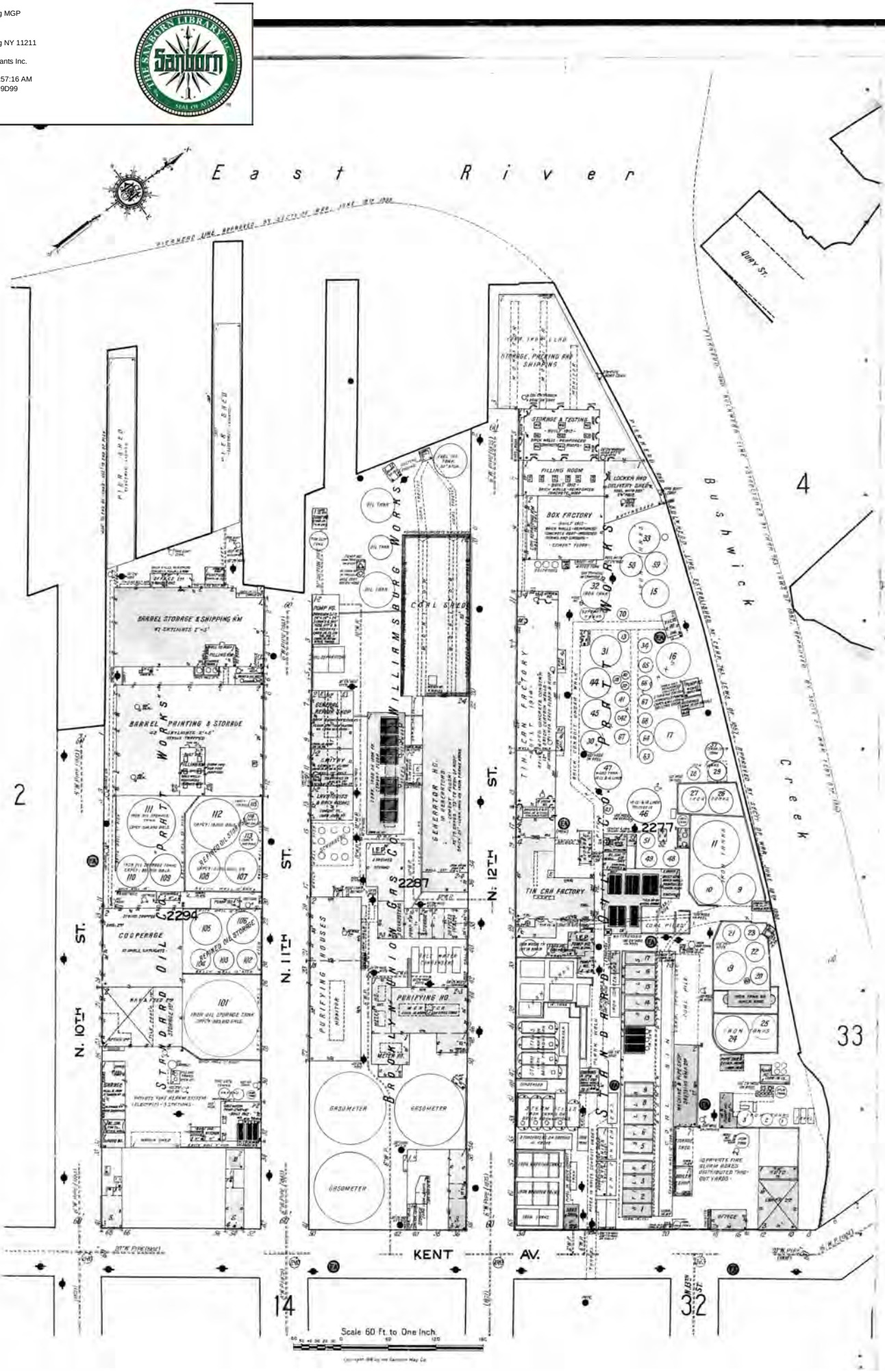

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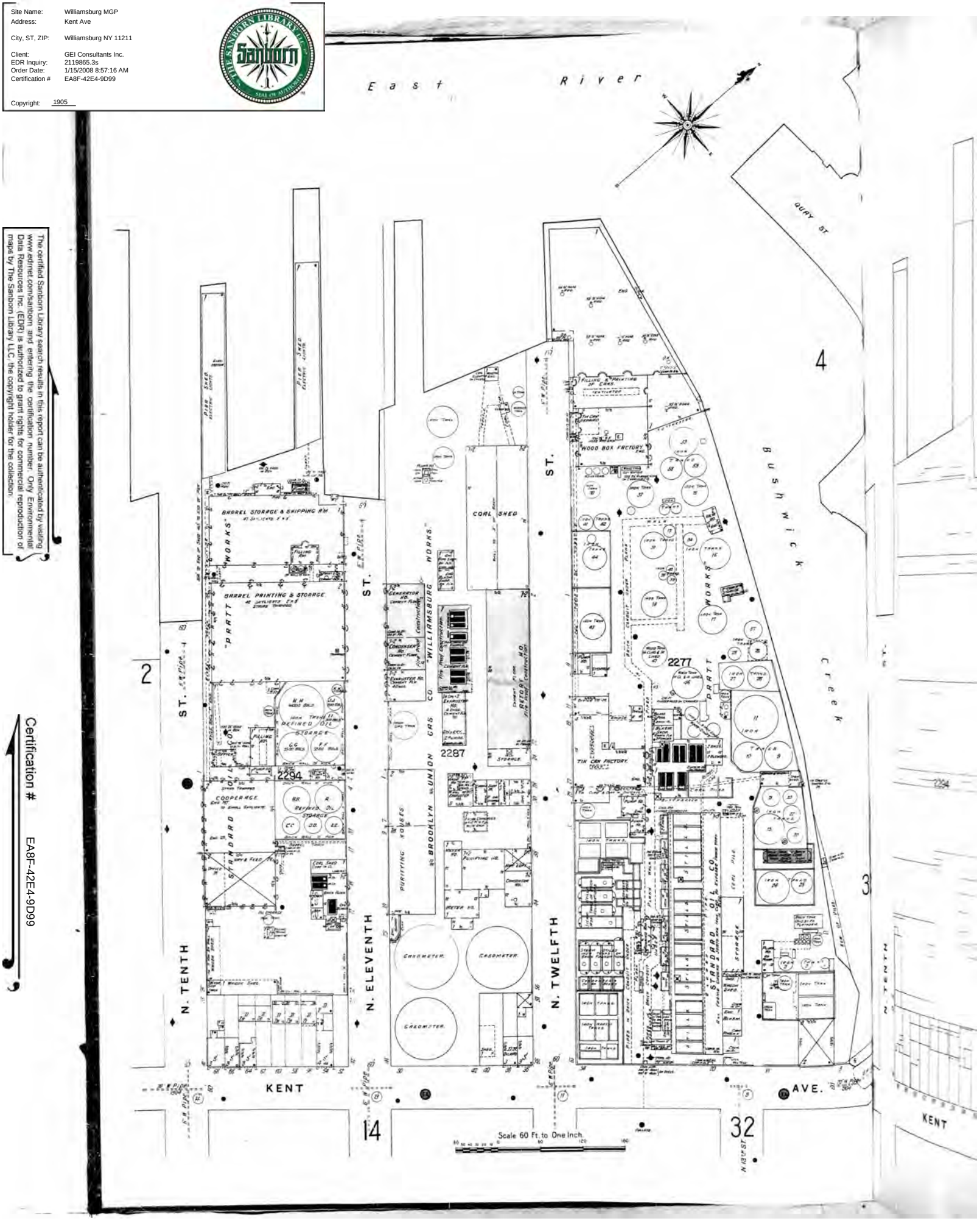

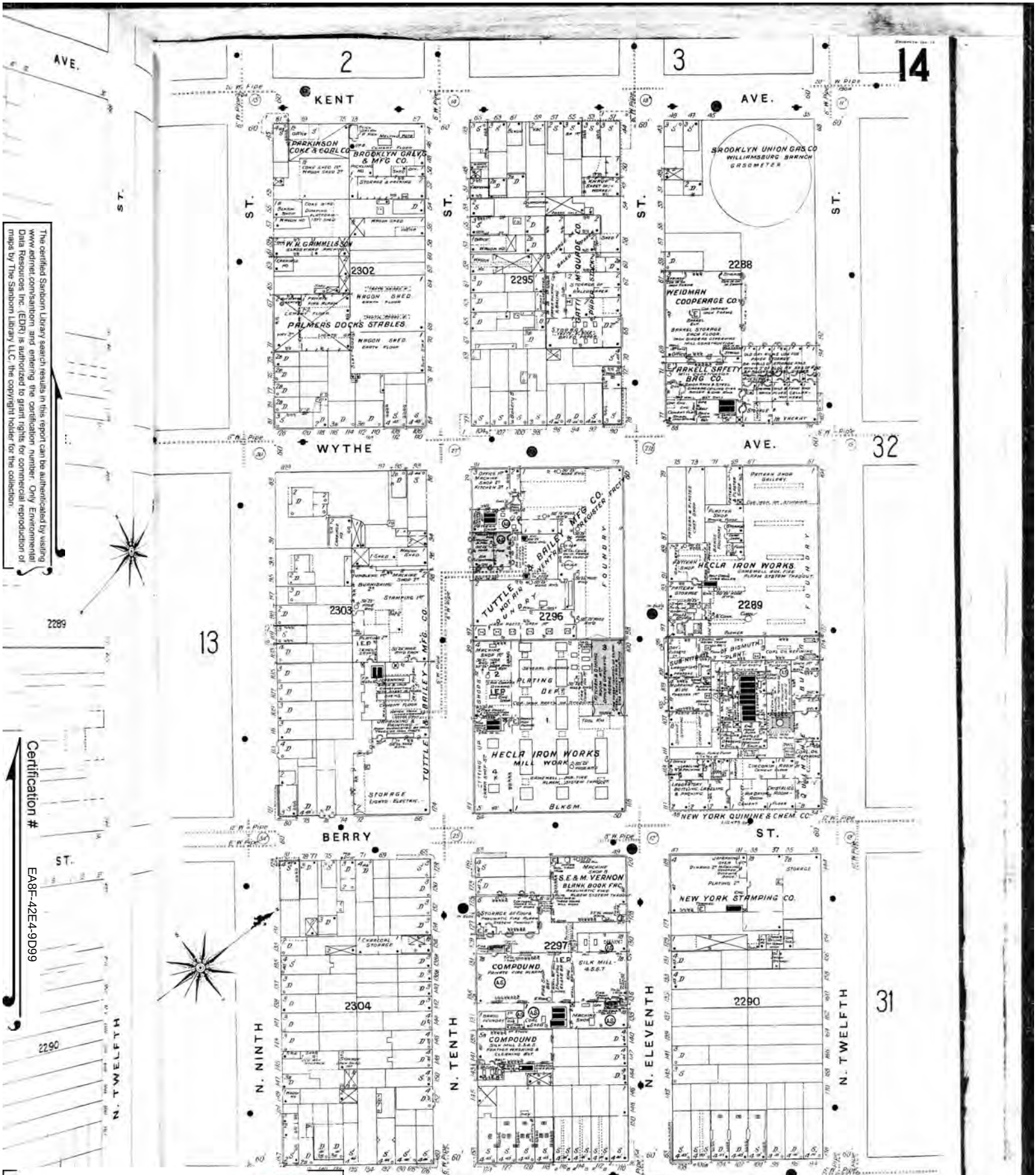

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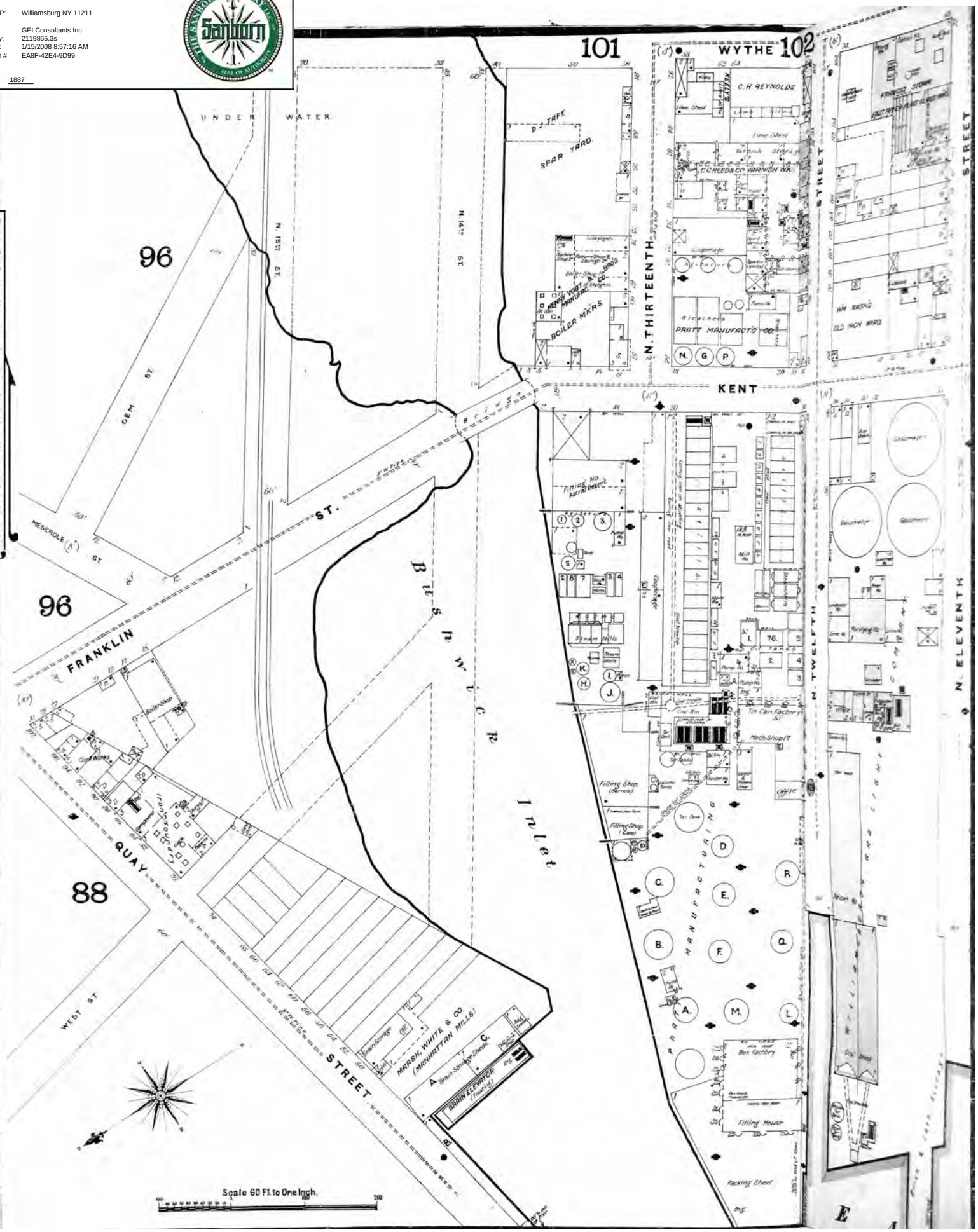

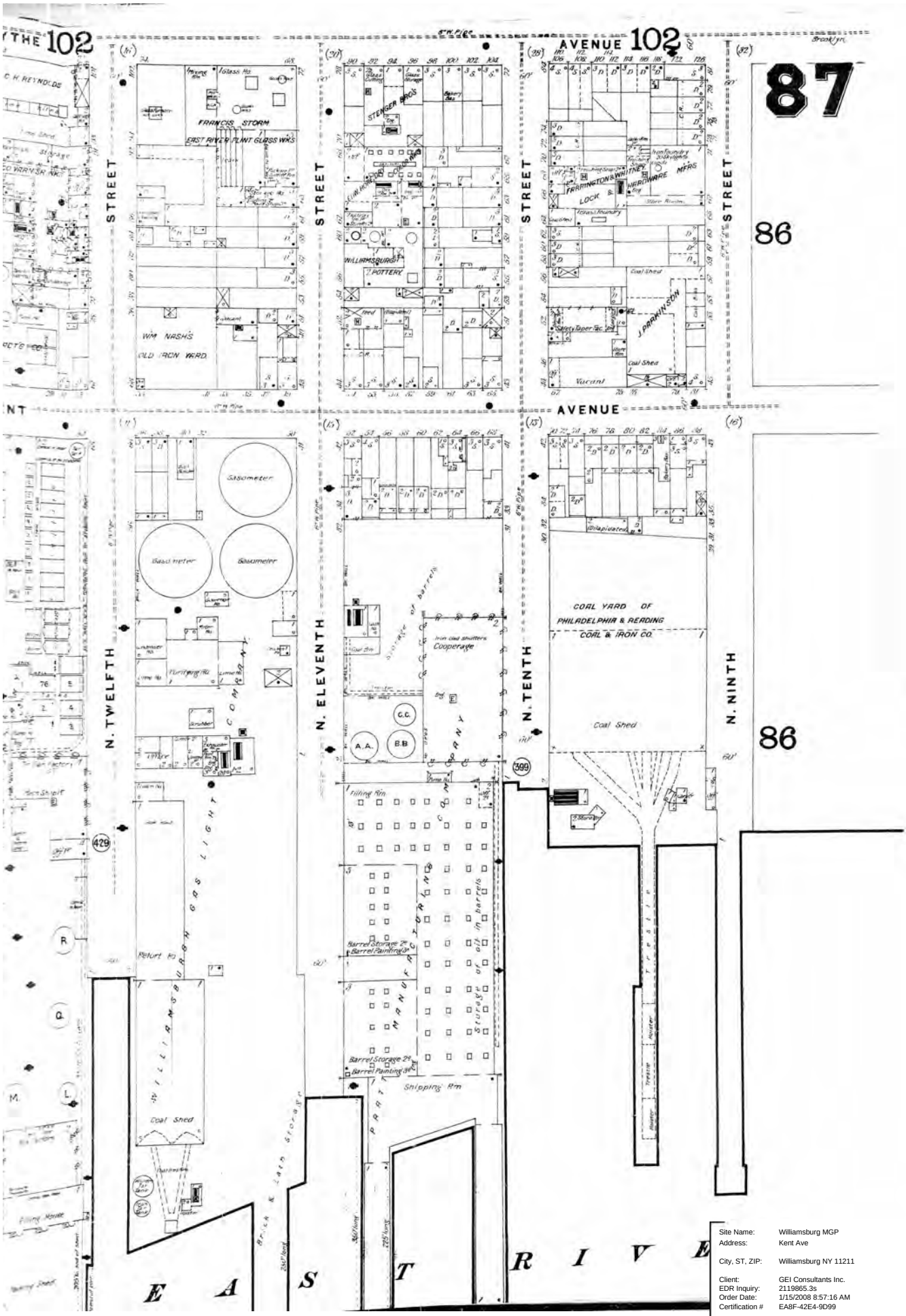

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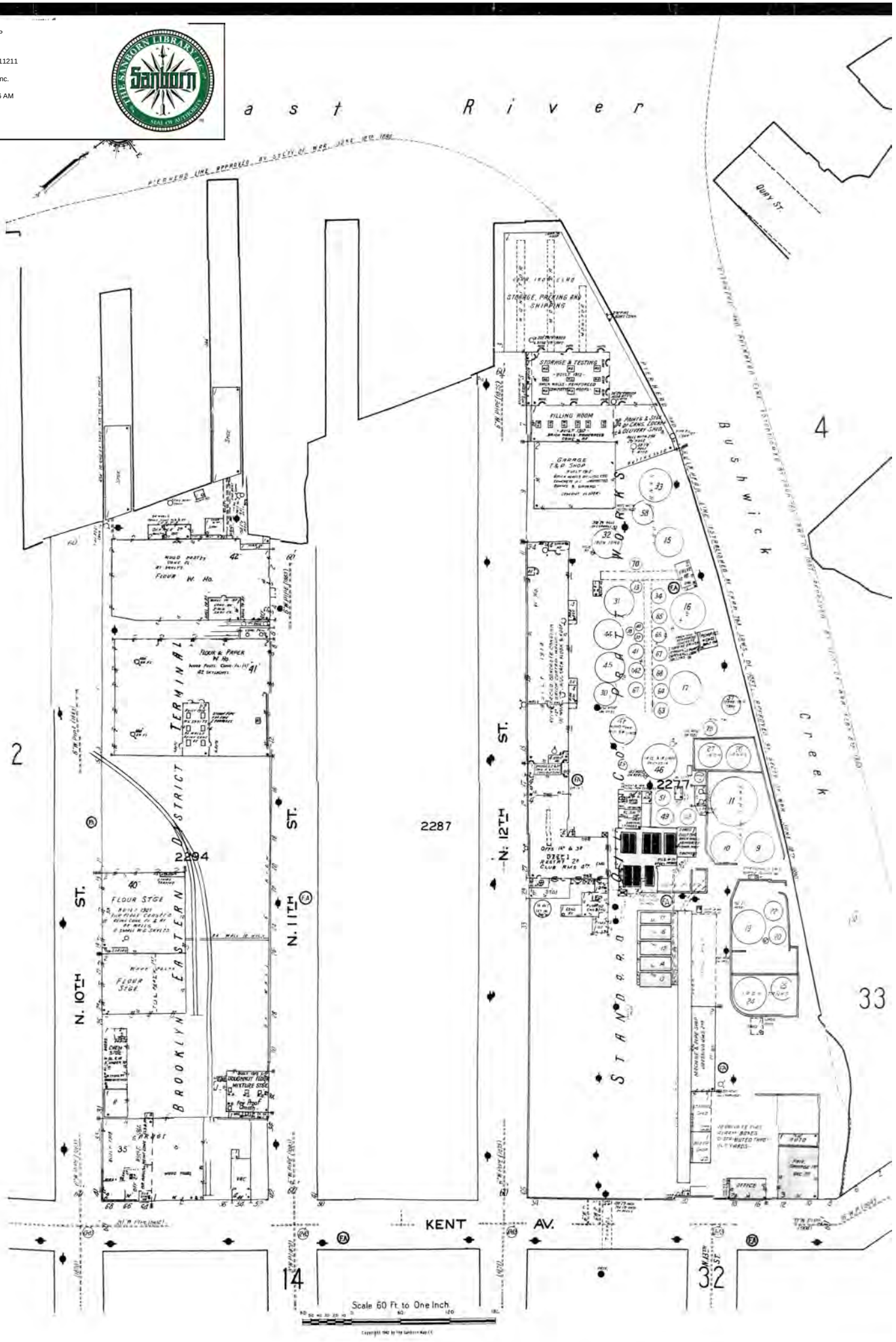

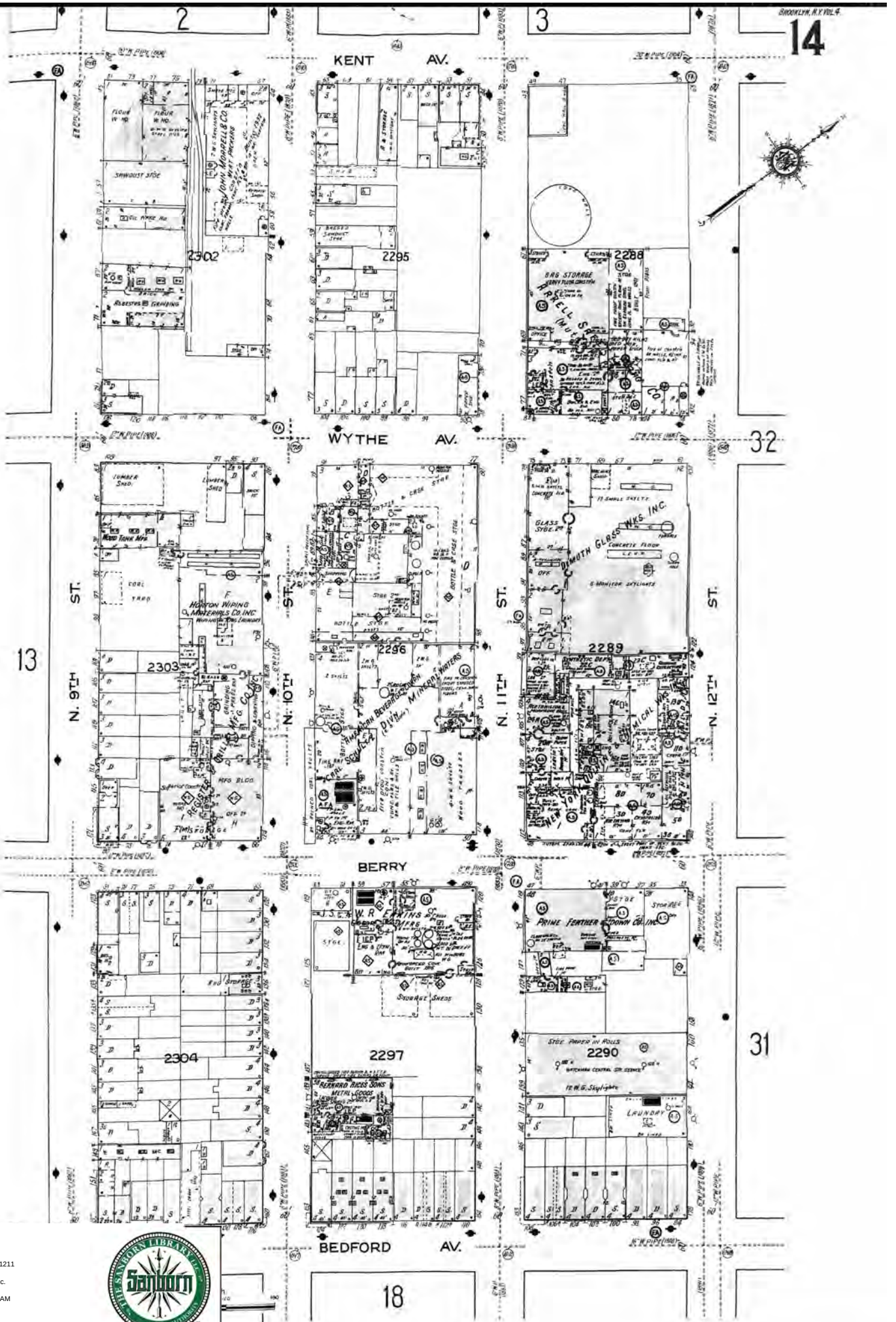

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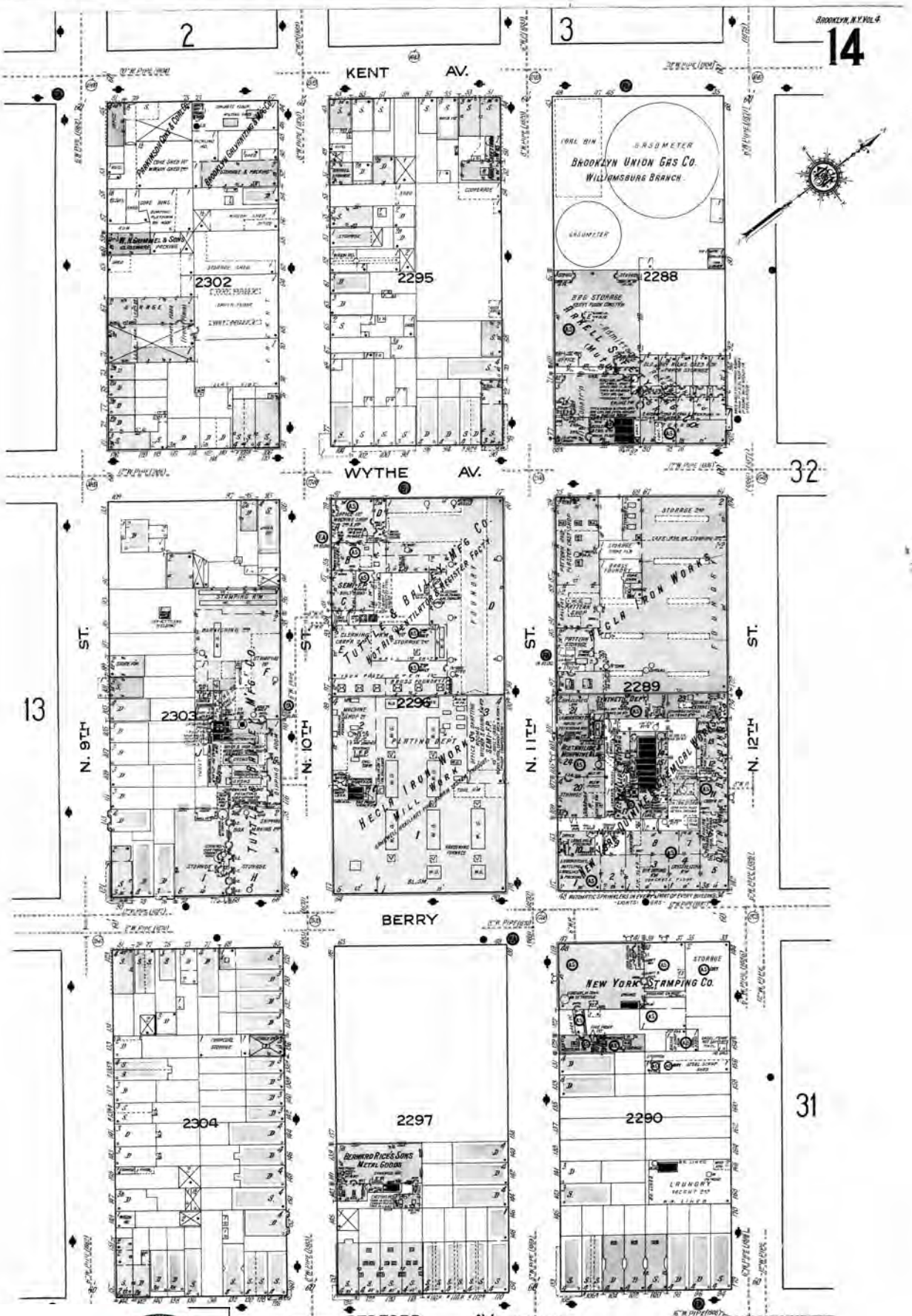

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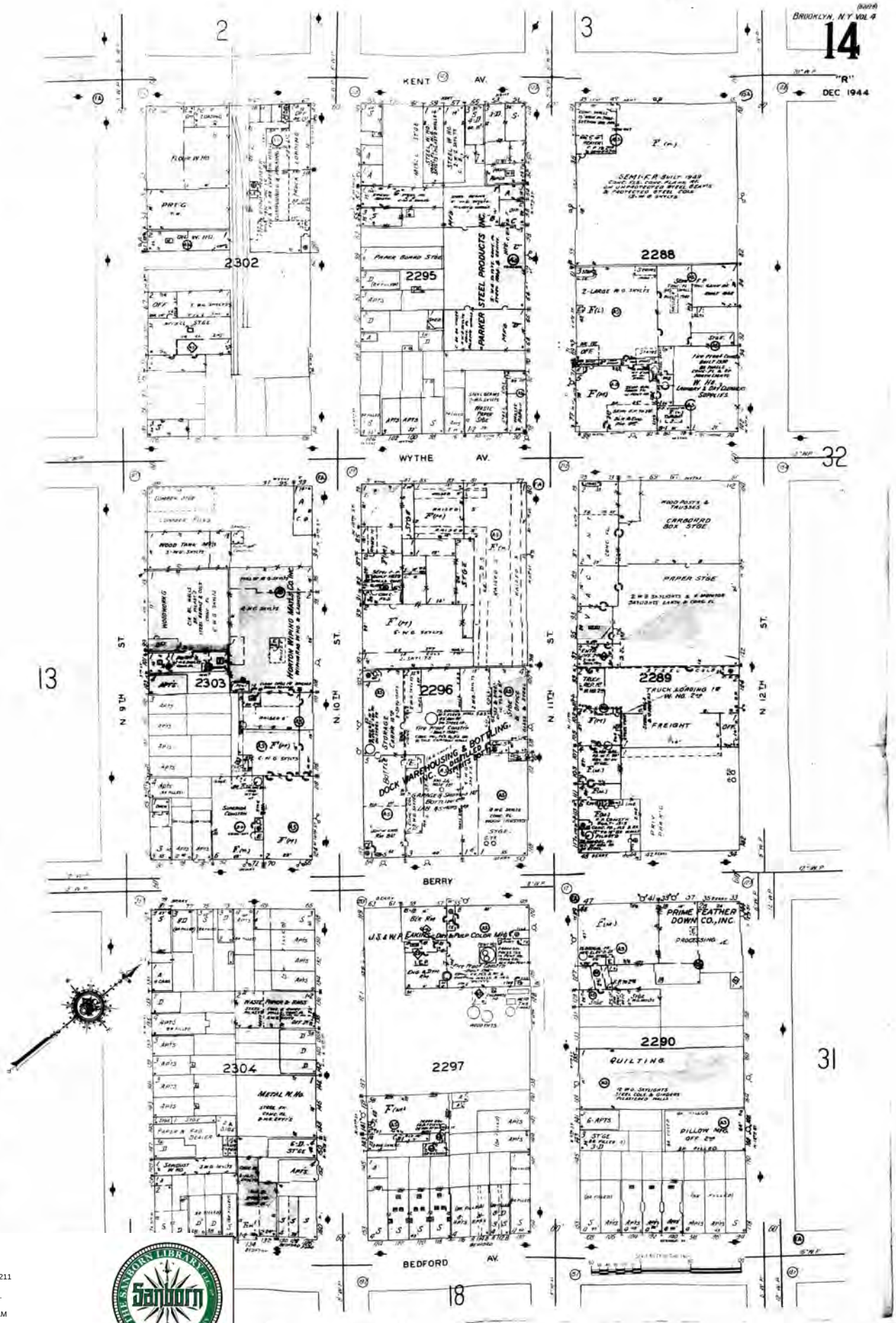

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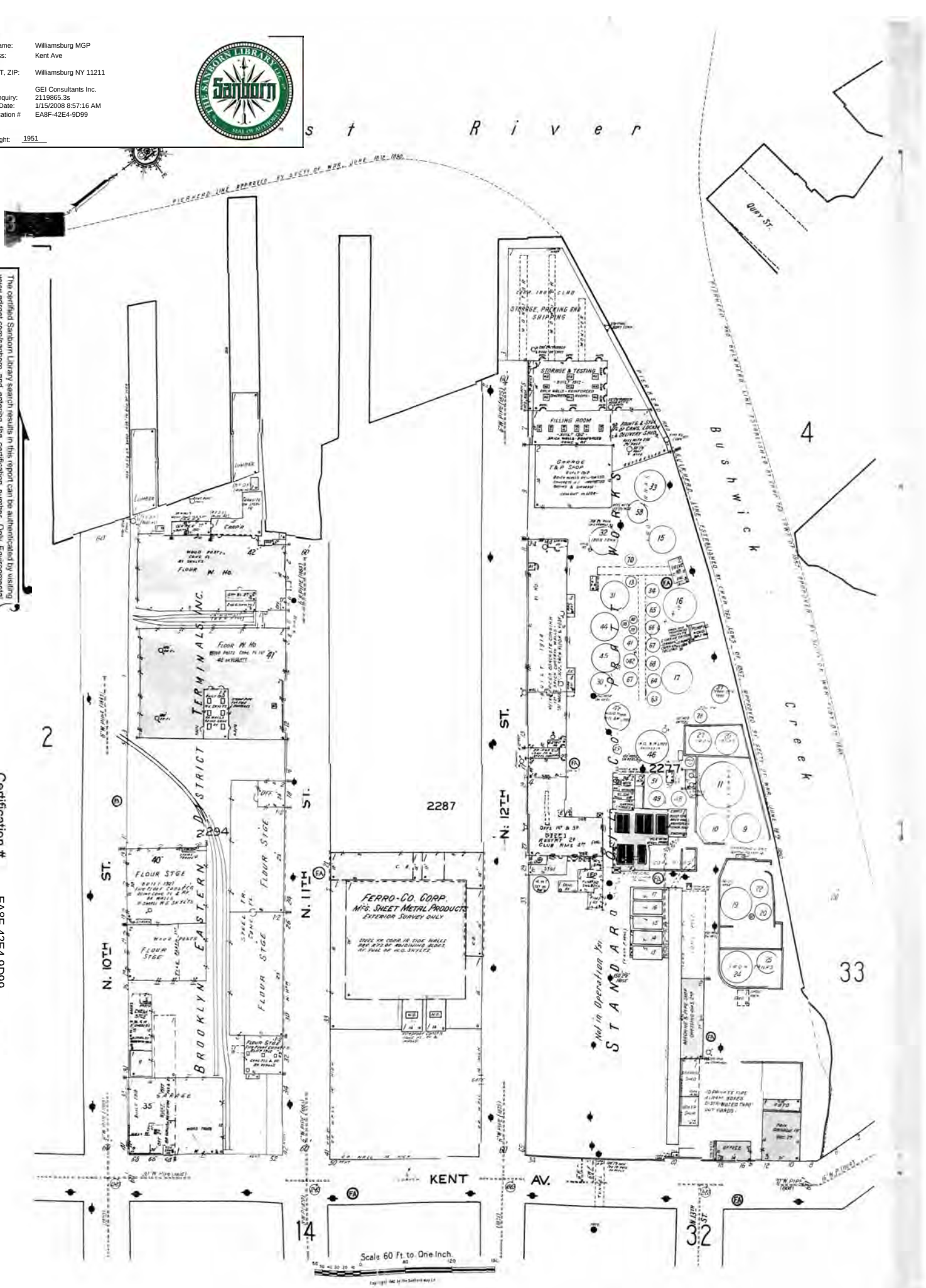

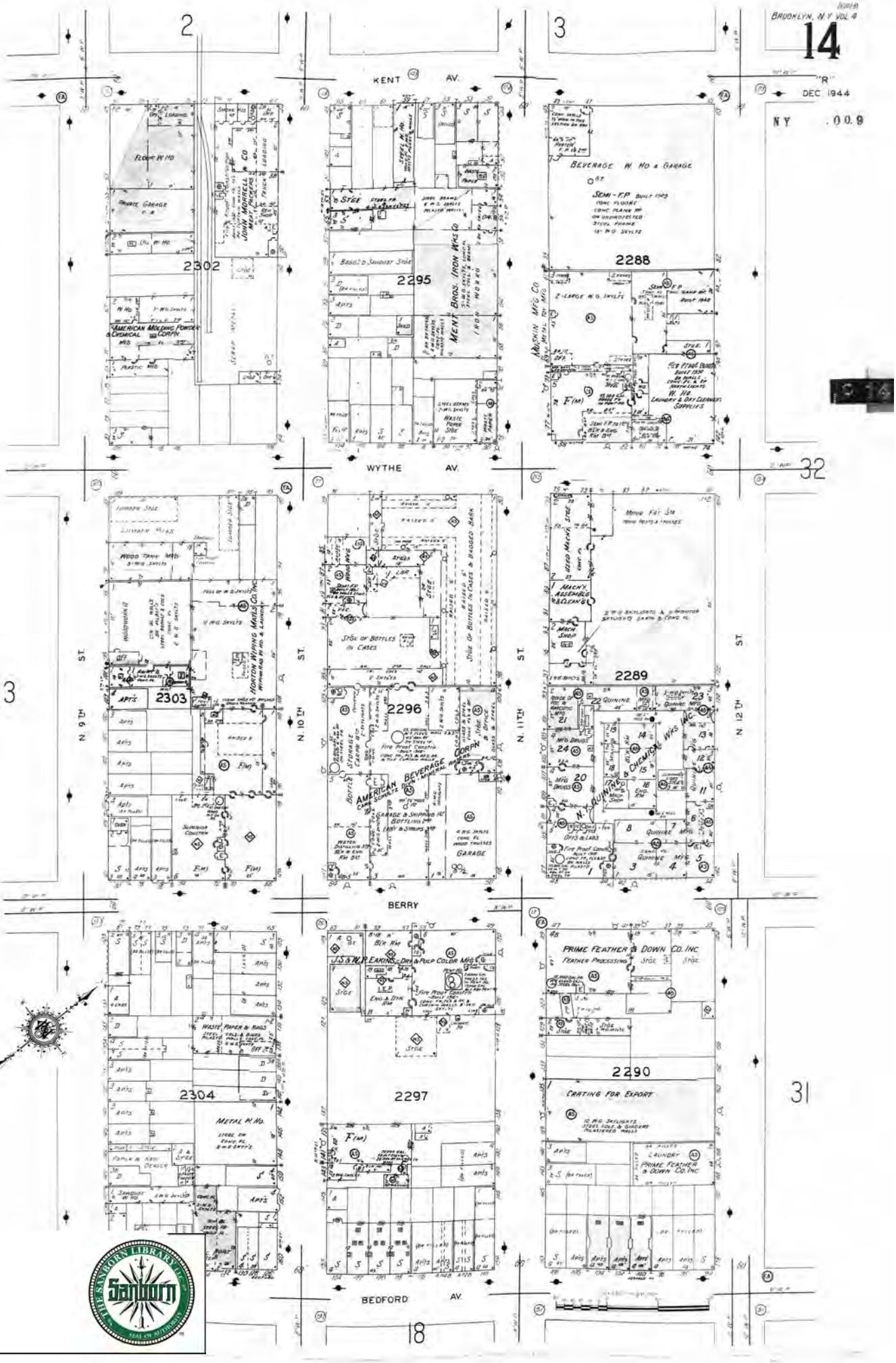

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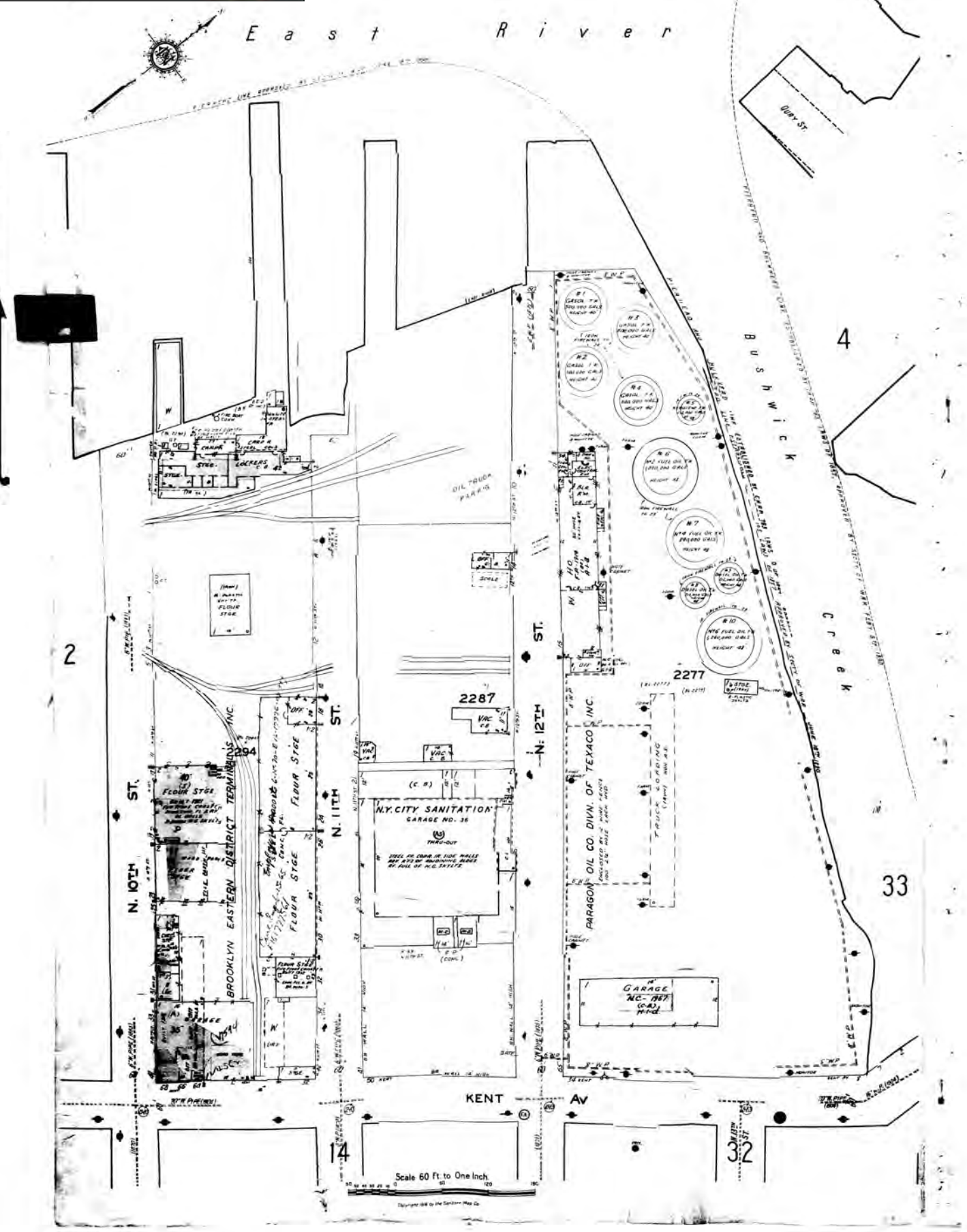

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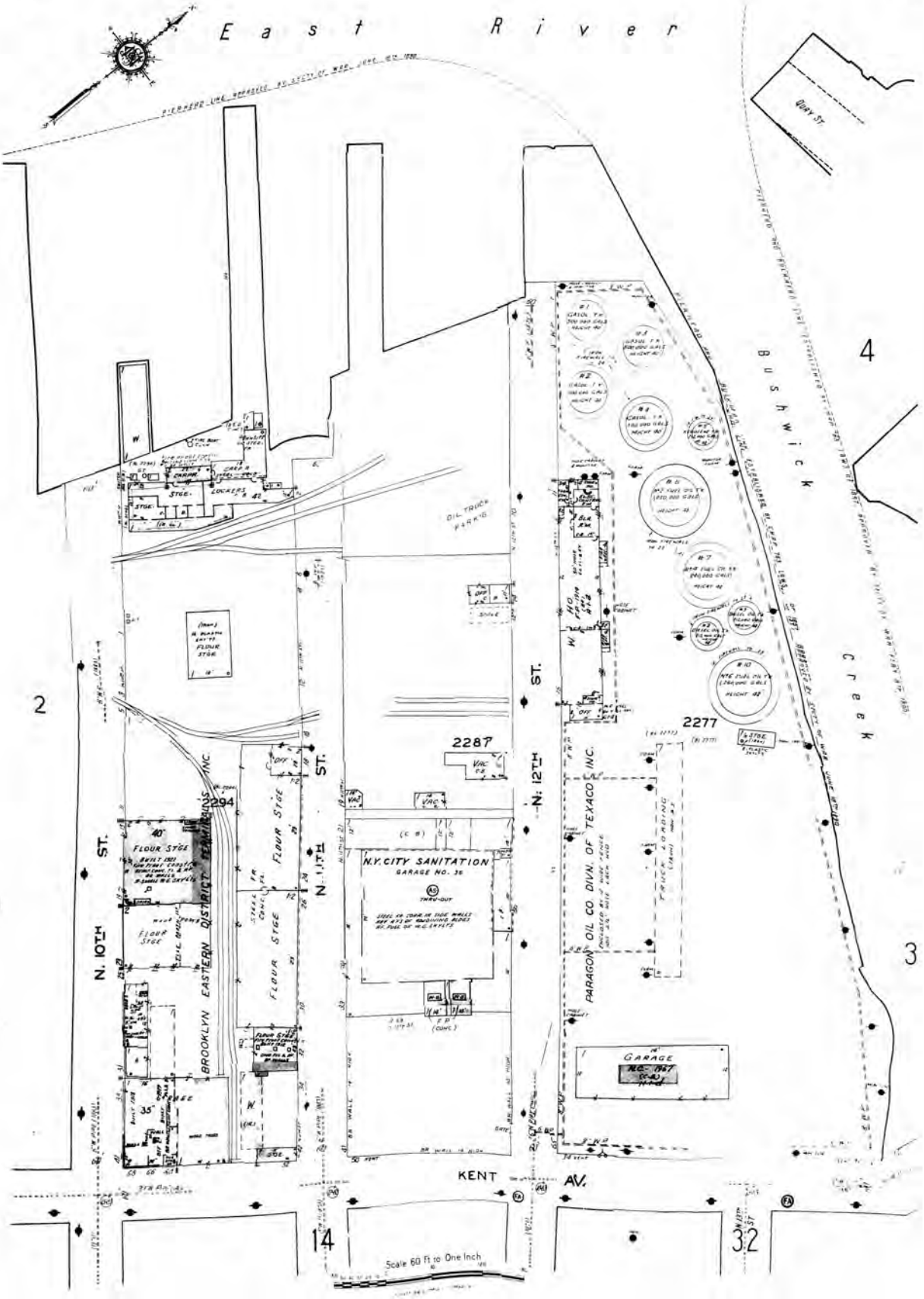

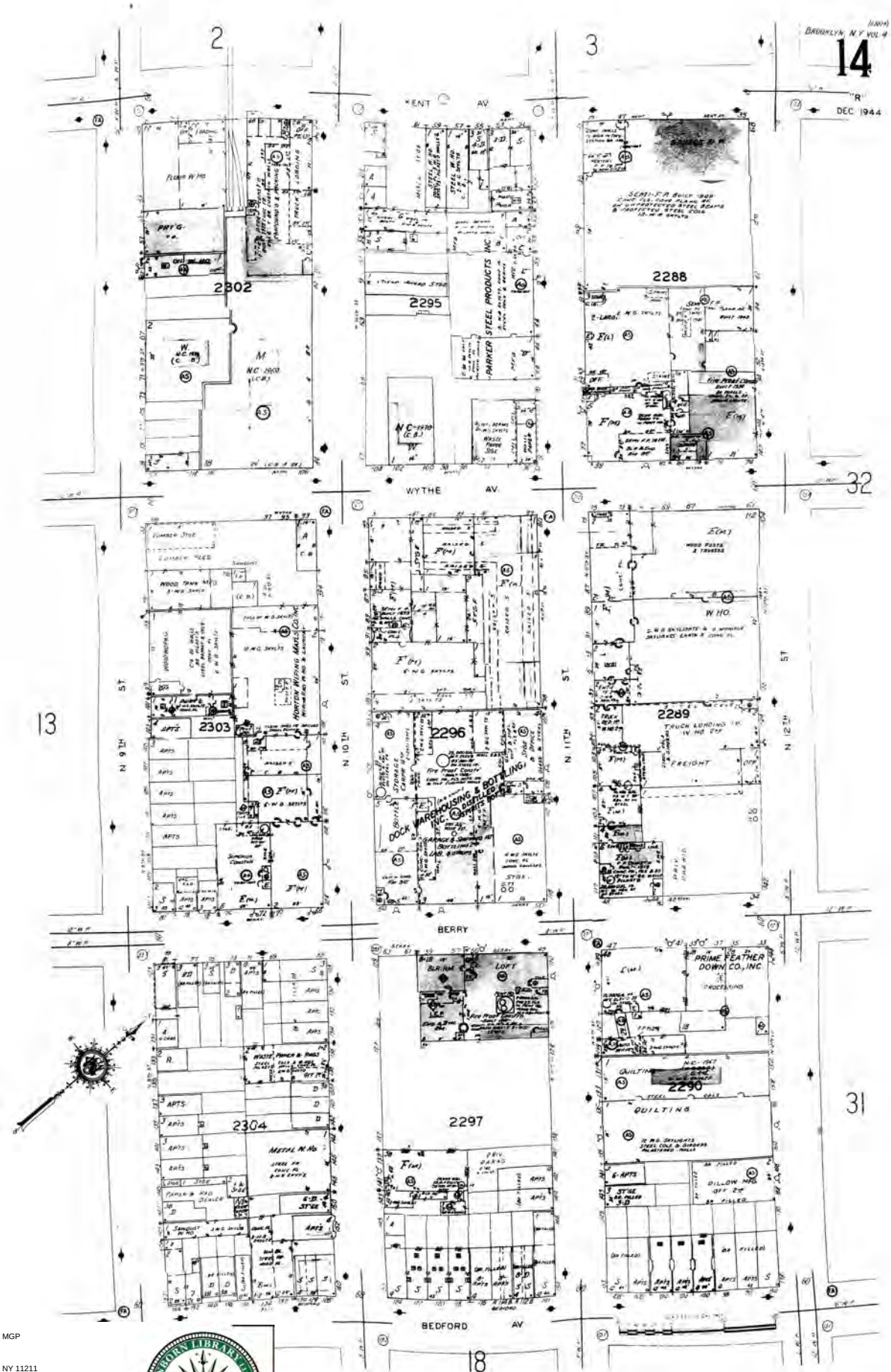

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City, ST, ZIP:	Williamsburg NY 11211
Client:	GEI Consultants Inc.
EDR Inquiry:	2119865.3s
Order Date:	1/15/2008 8:57:16 AM
Certification #	EA8F-42E4-9D99

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Site Name: Williamsburg MGP
Address: Kent Ave

City, ST, ZIP: Williamsburg NY 11211

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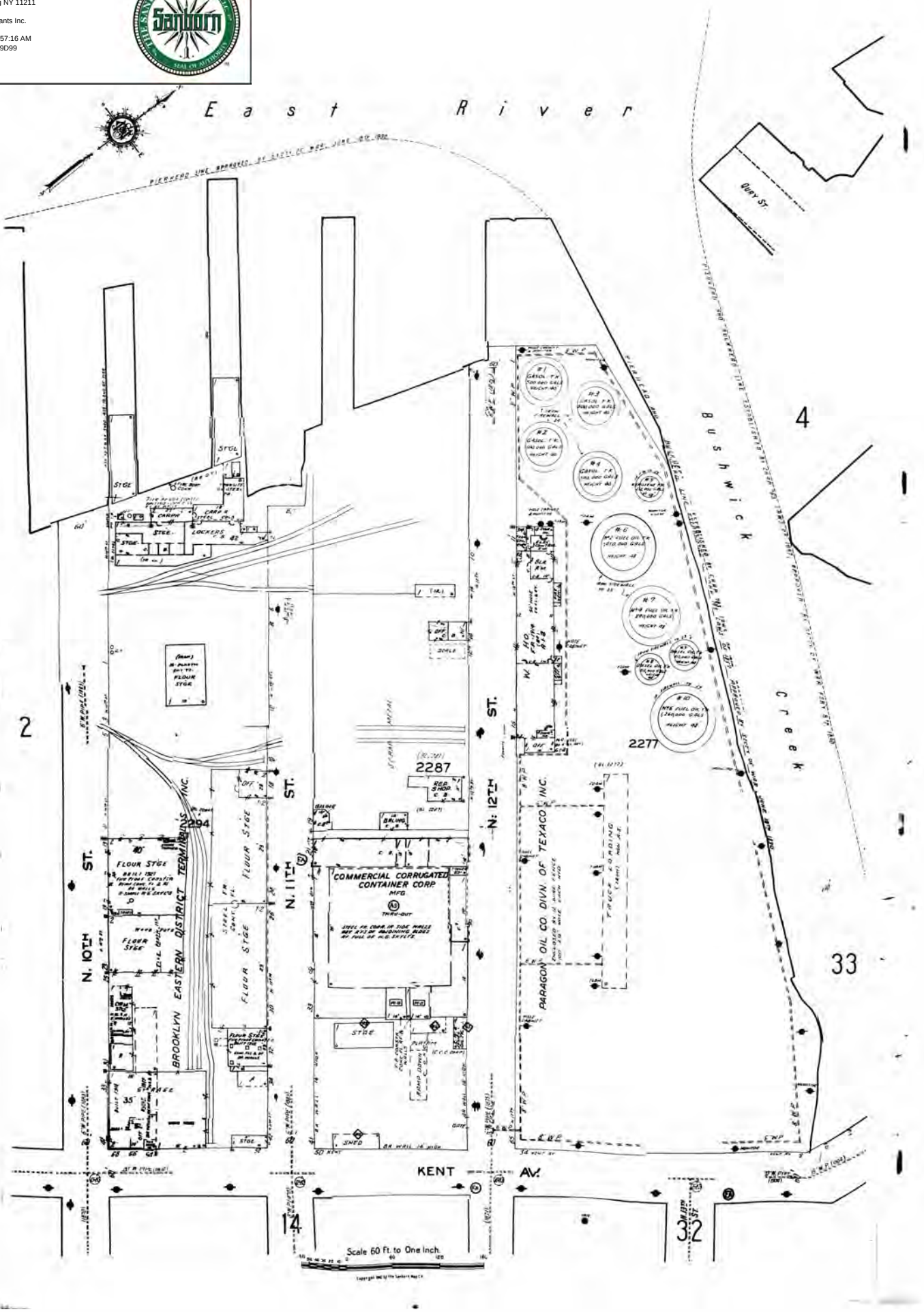

Certification # EA8F-42E4-9D99

Certified Sanborn® Map Report

Sanborn® Library search results
Certification # EA8F-42E4-9D99

Williamsburg MGP
Kent Ave
Williamsburg, NY 11211

Inquiry Number 2119865.3s

January 15, 2008

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Milford, Connecticut 06461

Nationwide Customer Service

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1/15/08

Site Name:
Williamsburg MGP
Kent Ave
Williamsburg, NY 11211

EDR Inquiry # 2119865.3s

Client Name:
GEI Consultants Inc.
455 Winding Brook Drive
Glastonbury, CT 06033

Contact: Melissa Felter

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by GEI Consultants Inc. were identified for the years listed below (selected maps only*). The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Williamsburg MGP
Address: Kent Ave
City, State, Zip: Williamsburg, NY 11211
Cross Street:
P.O. # NA
Project: Williamsburg
Certification # EA8F-42E4-9D99

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Site Name: Williamsburg MGP
Address: Kent Ave

City, ST, ZIP: Williamsburg NY 11211

Client: GEI Consultants Inc.
EDR Inquiry: 2119865.3s
Order Date: 1/15/2008 8:57:16 AM
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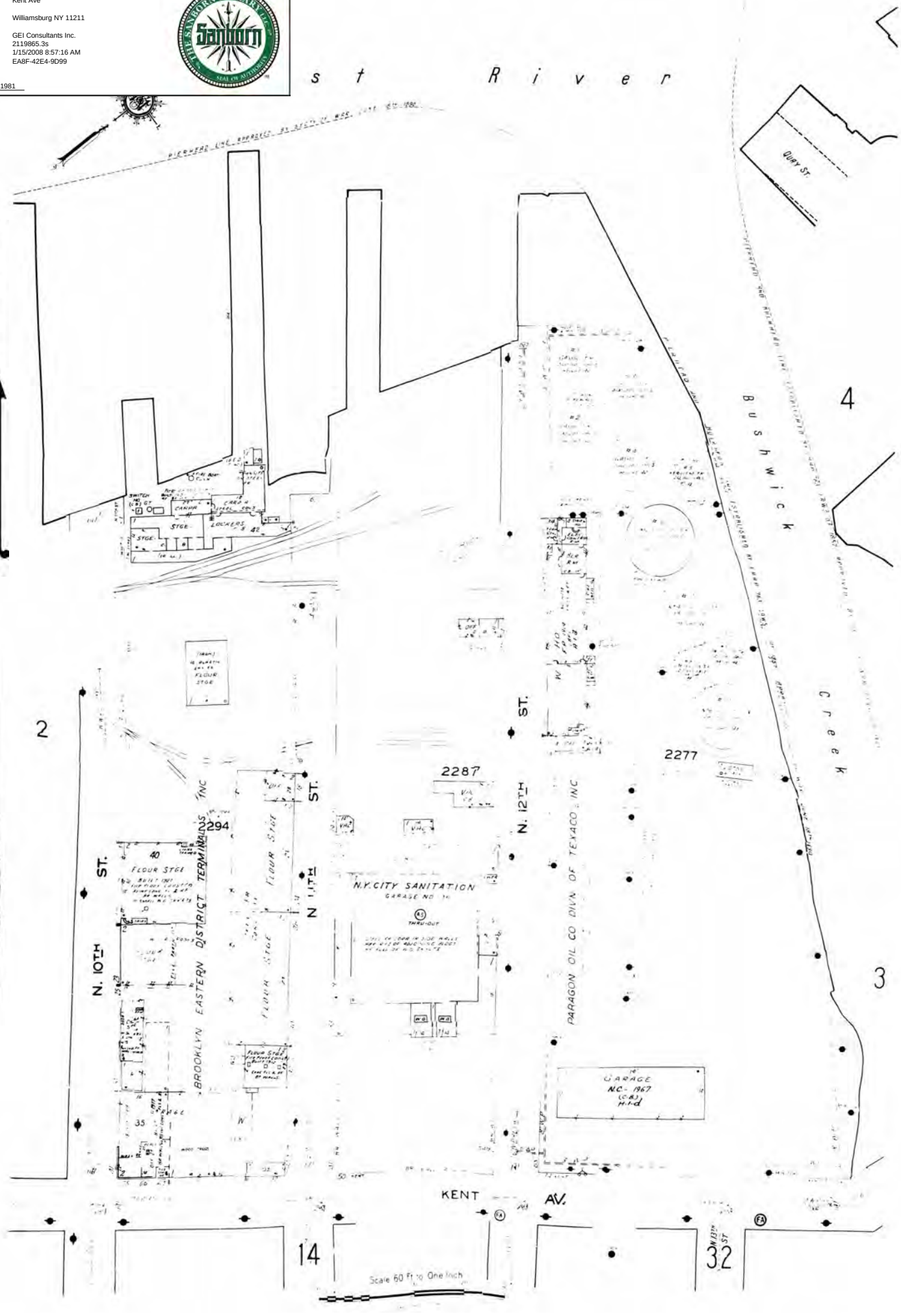

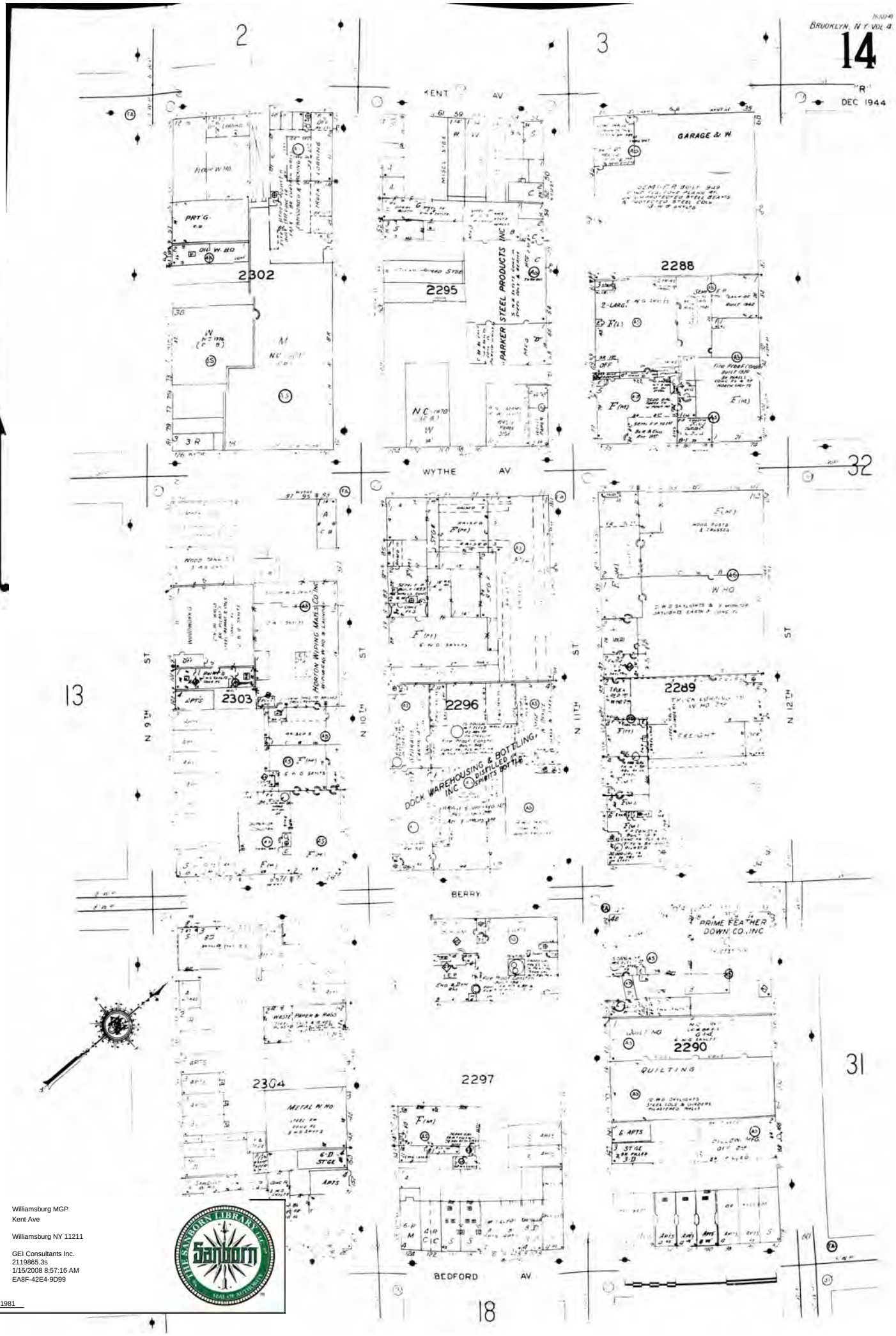

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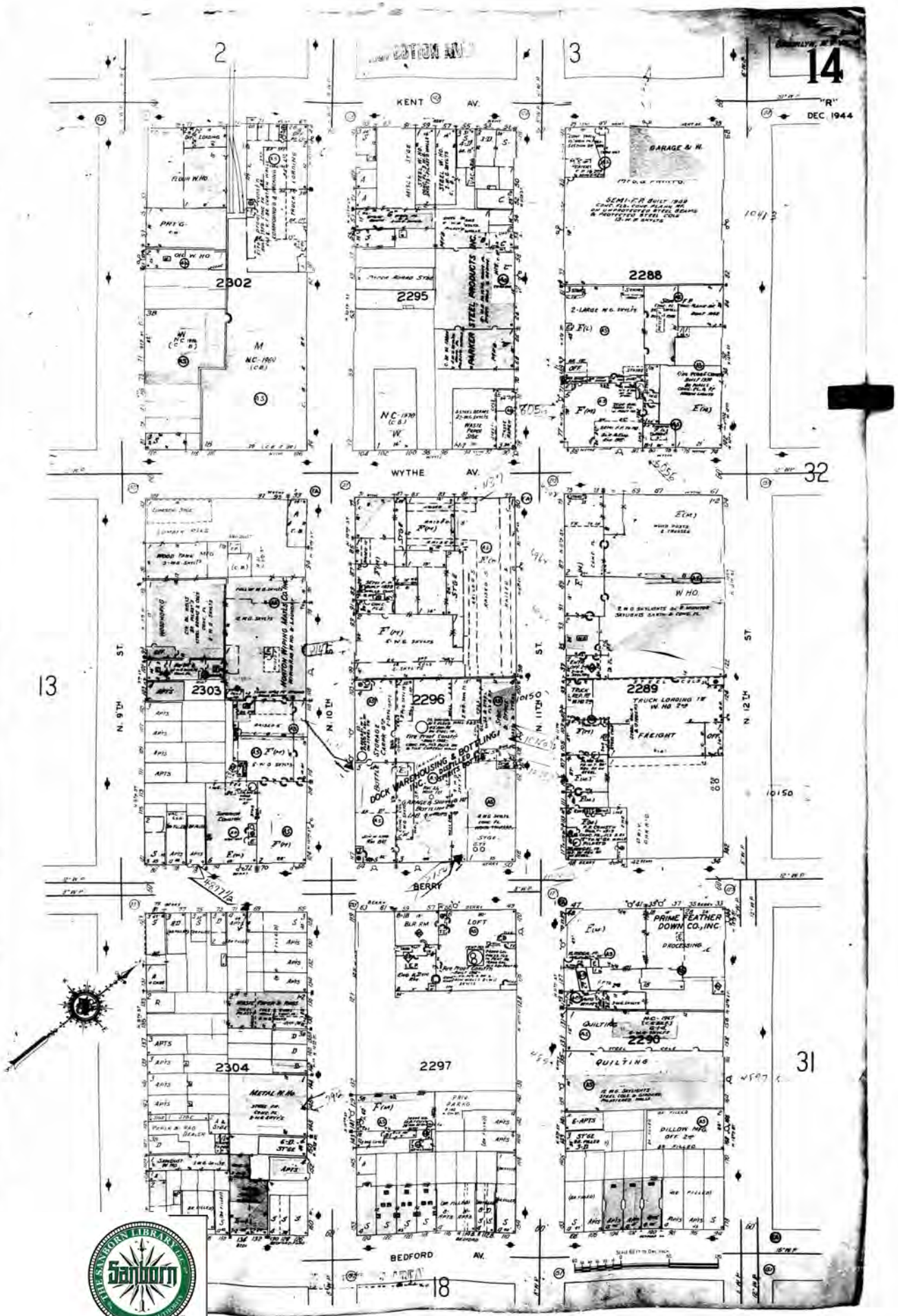

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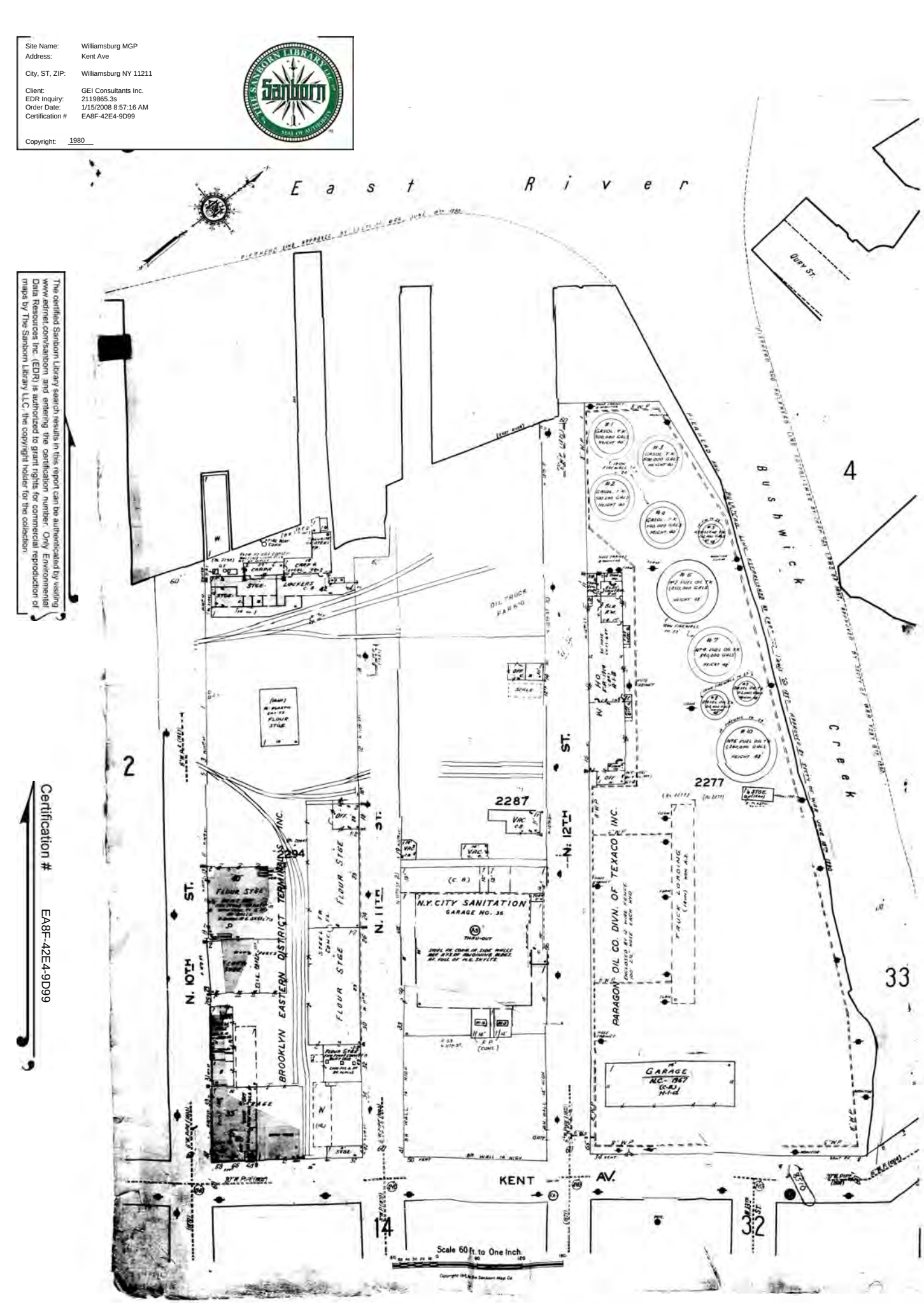

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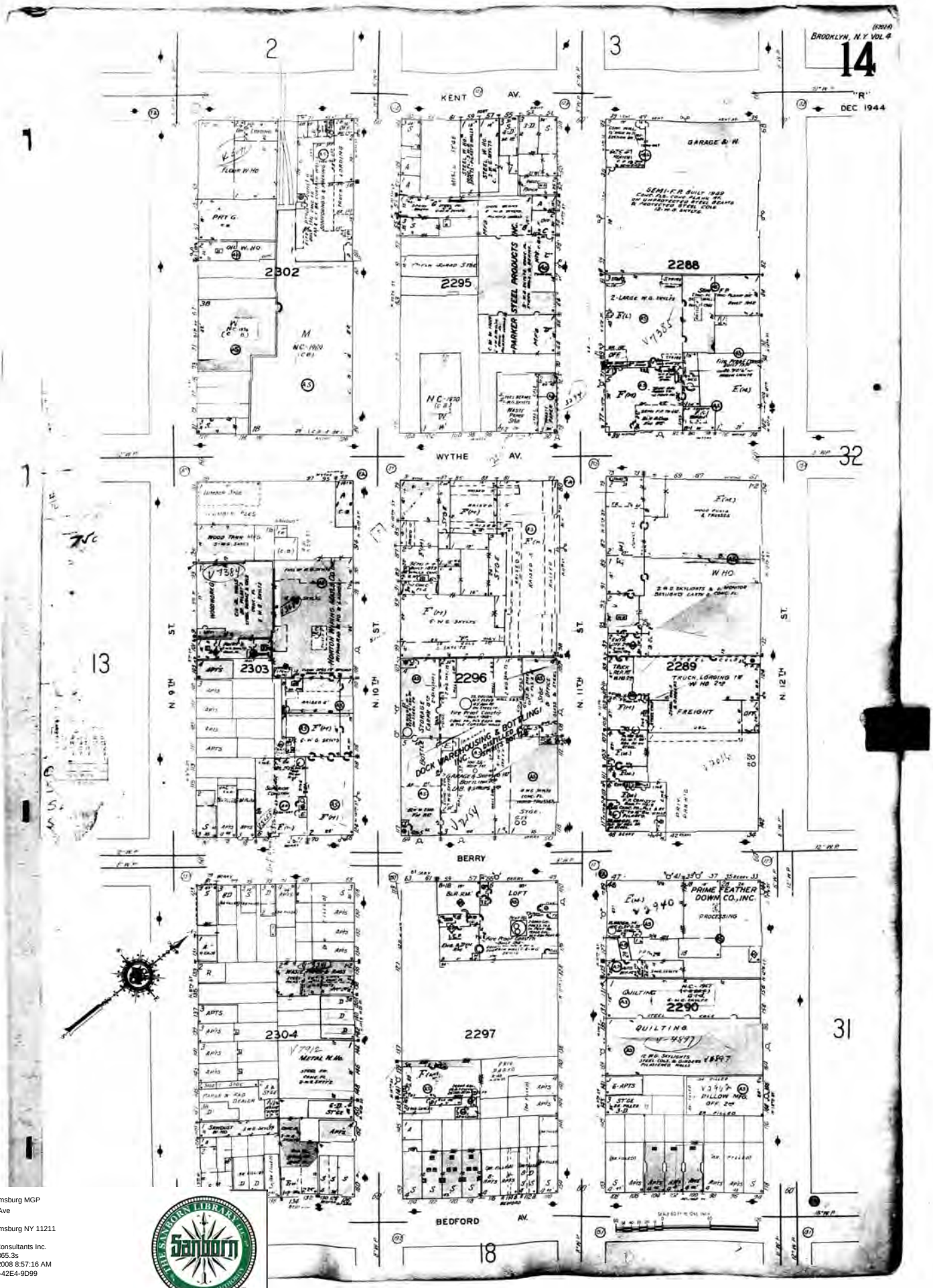

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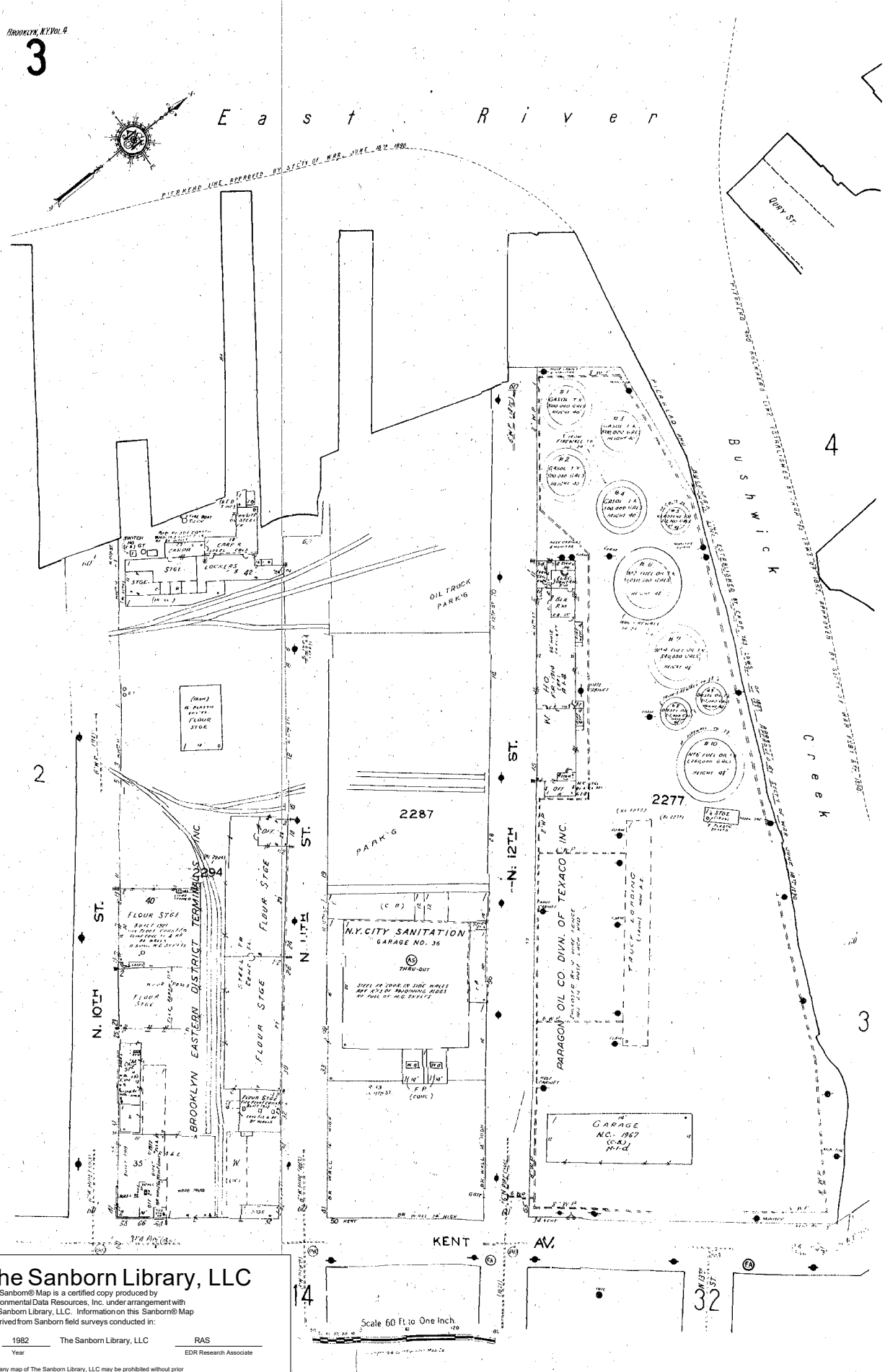

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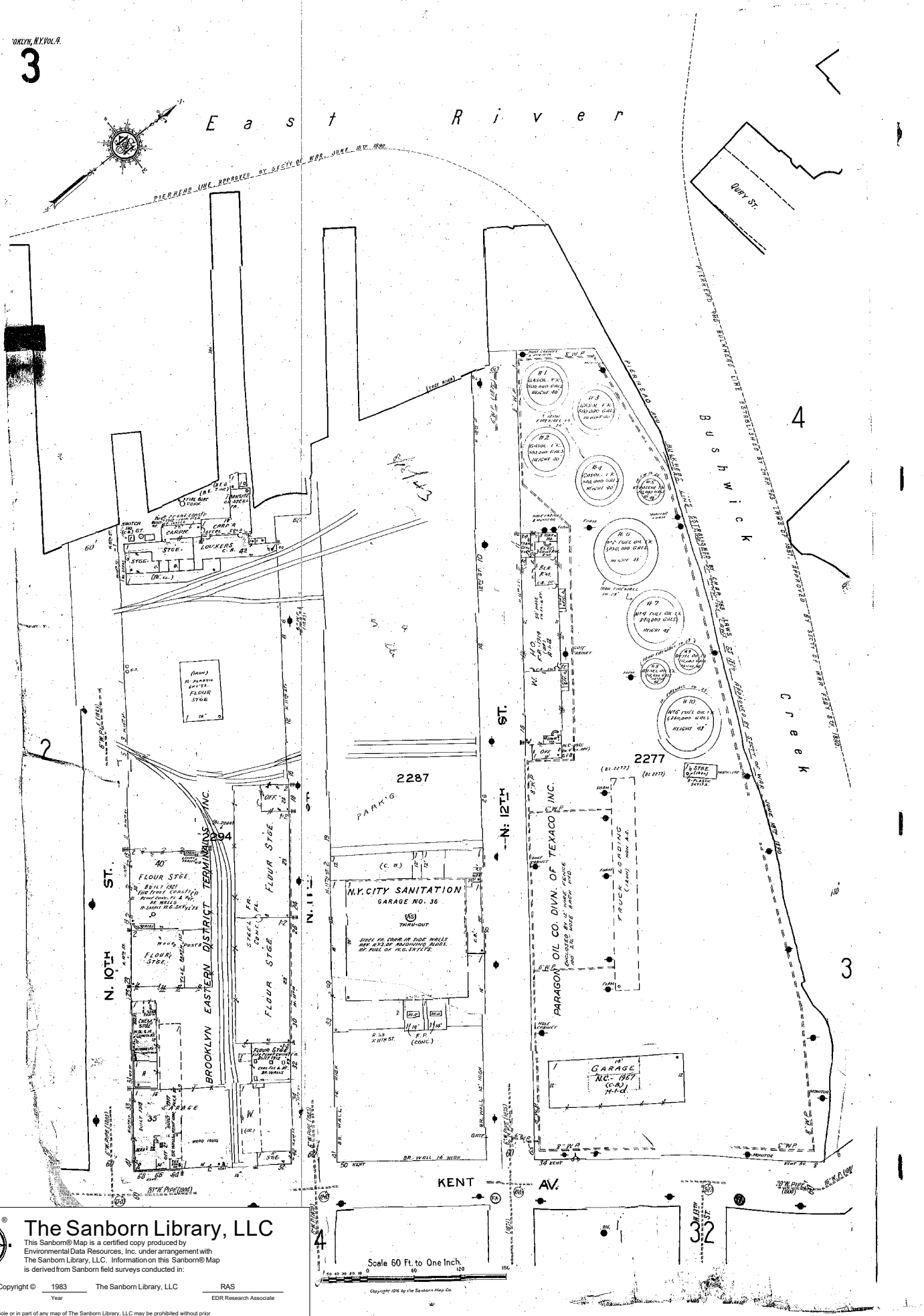

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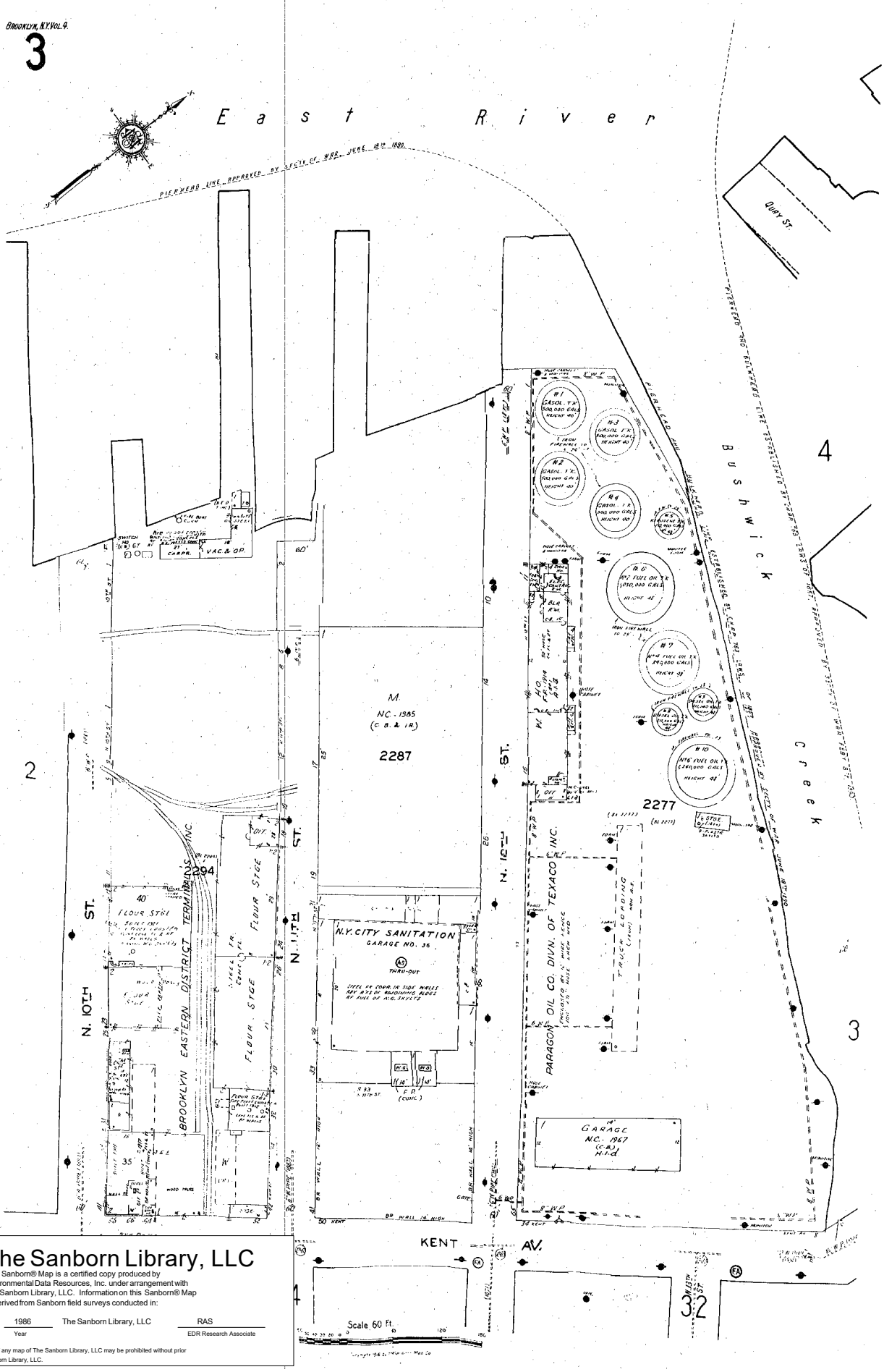

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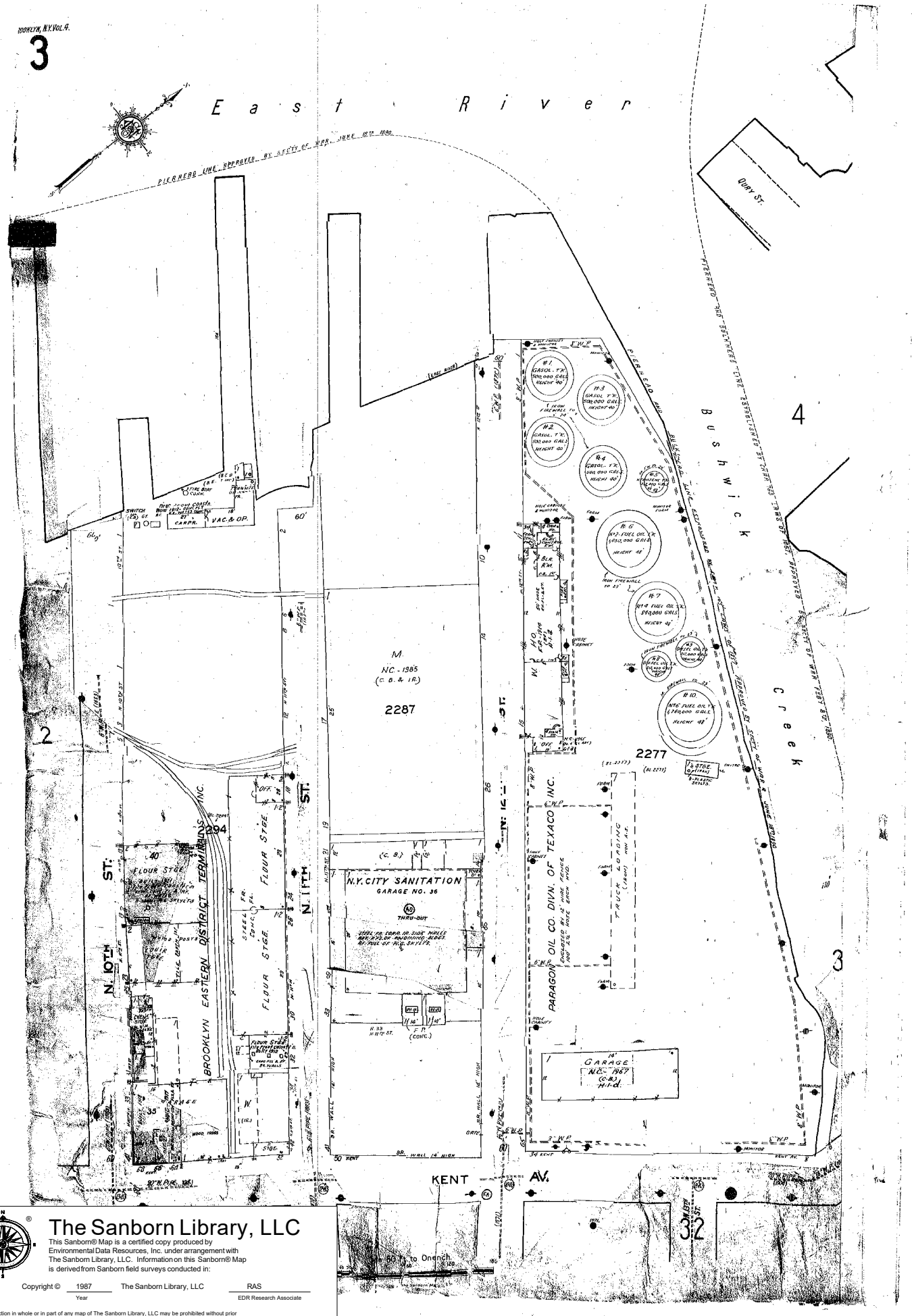

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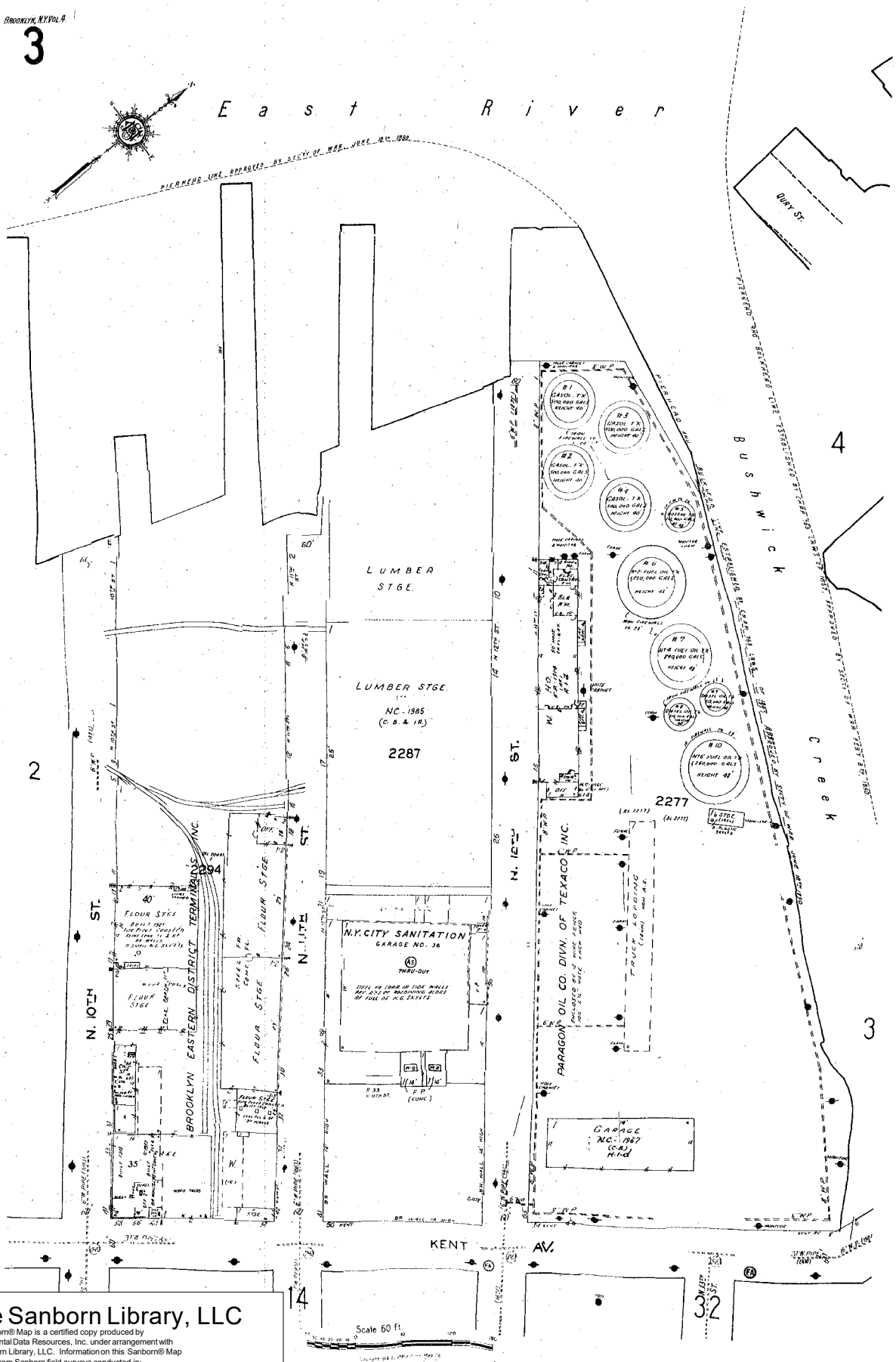

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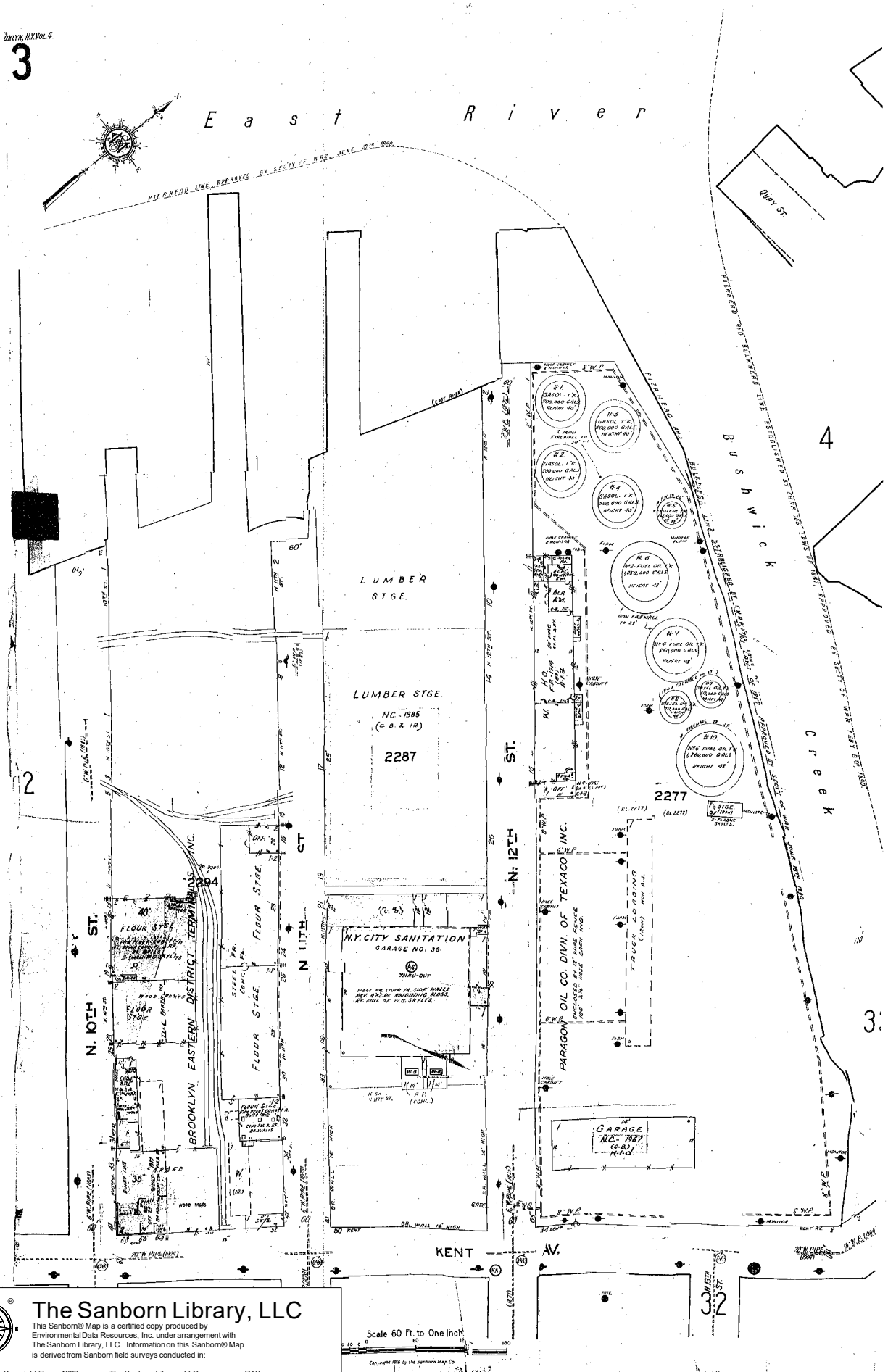

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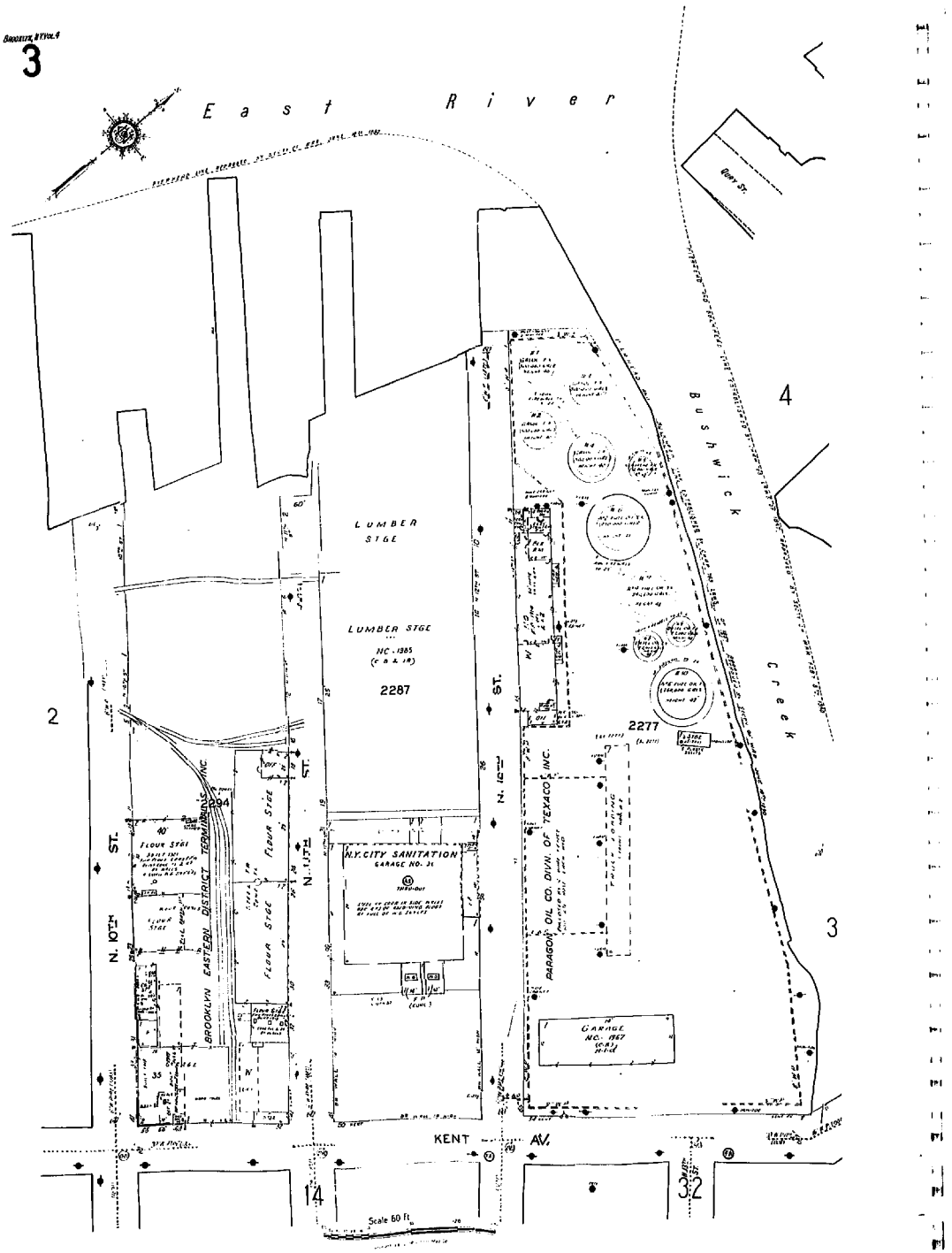

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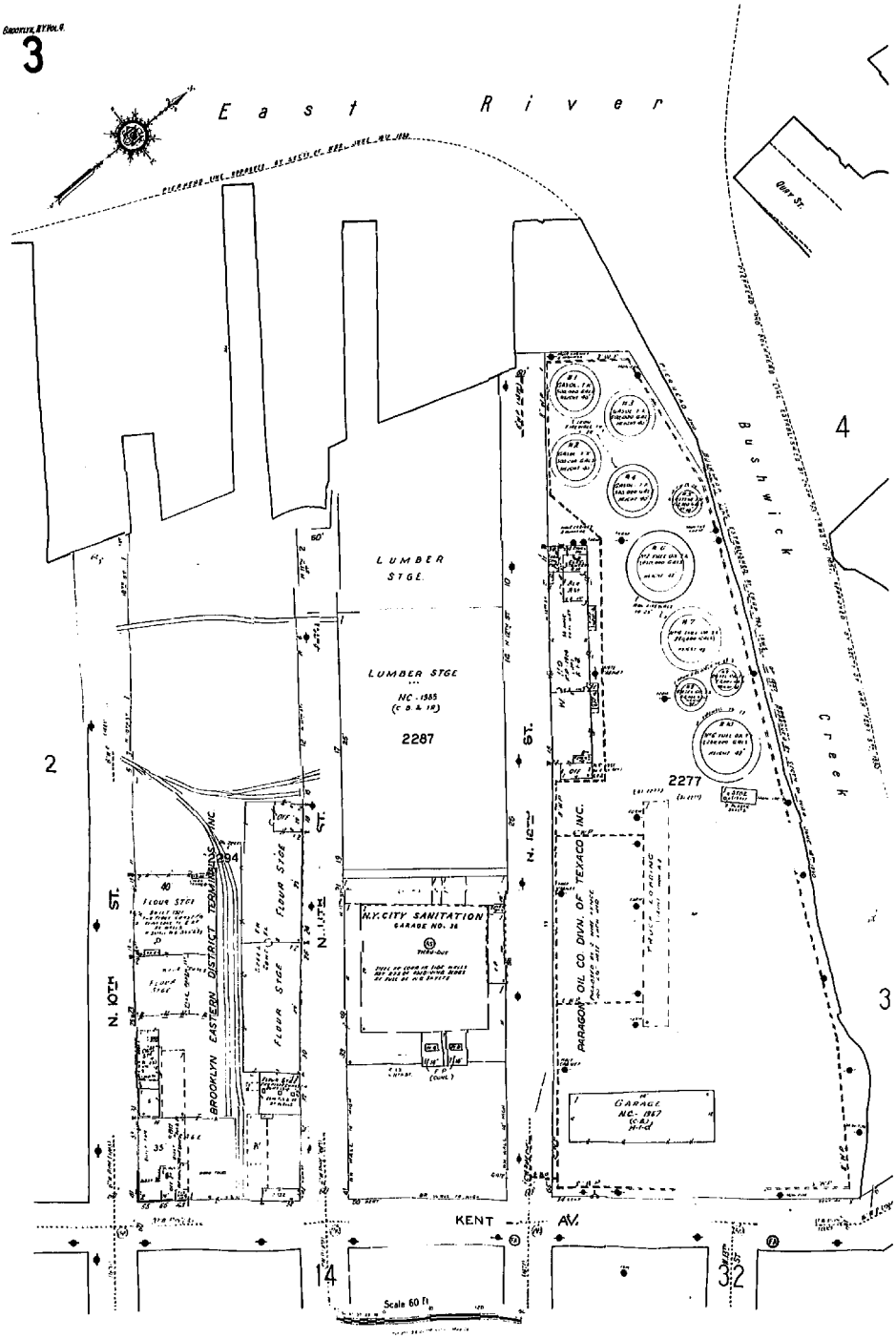

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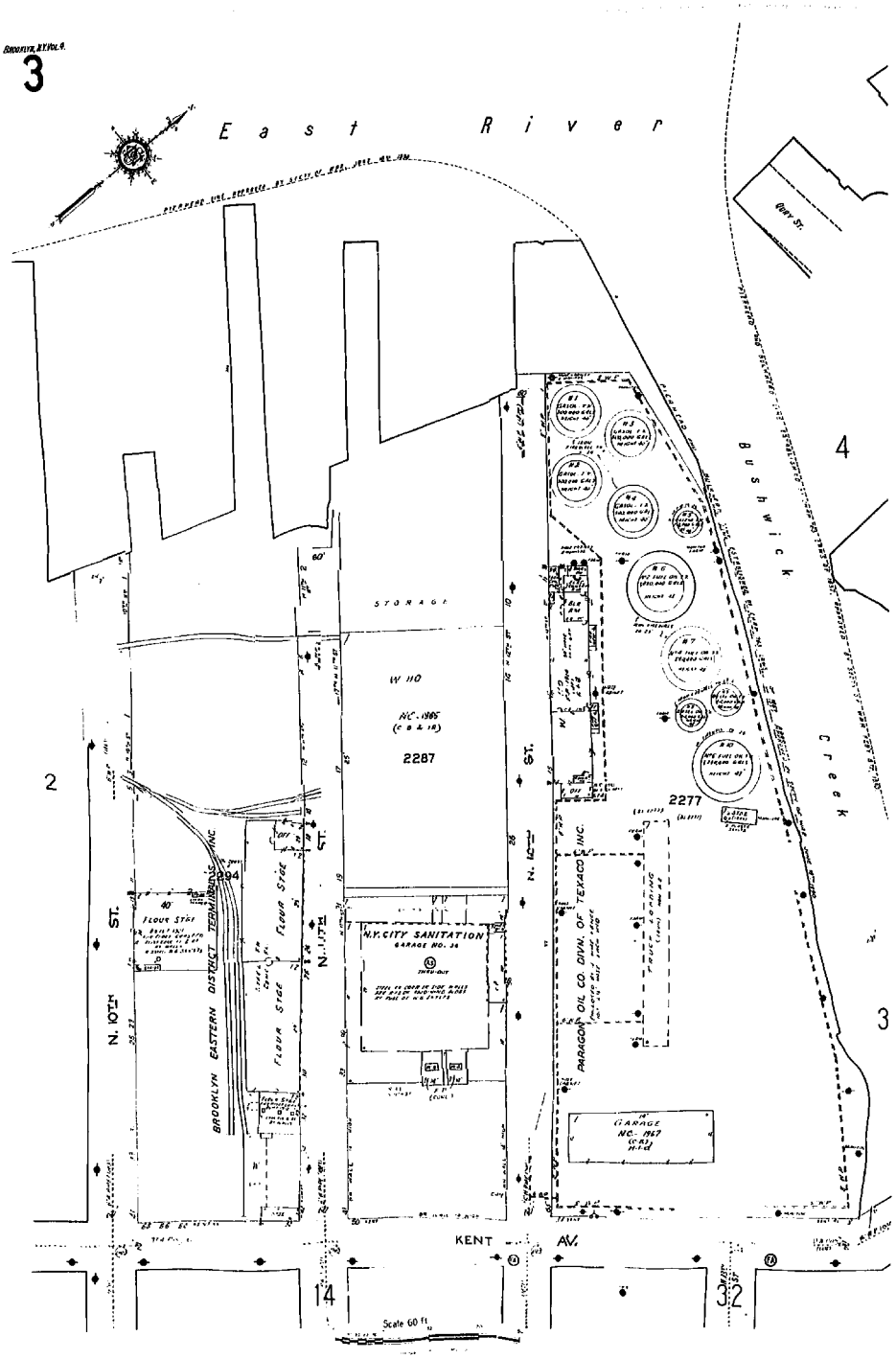

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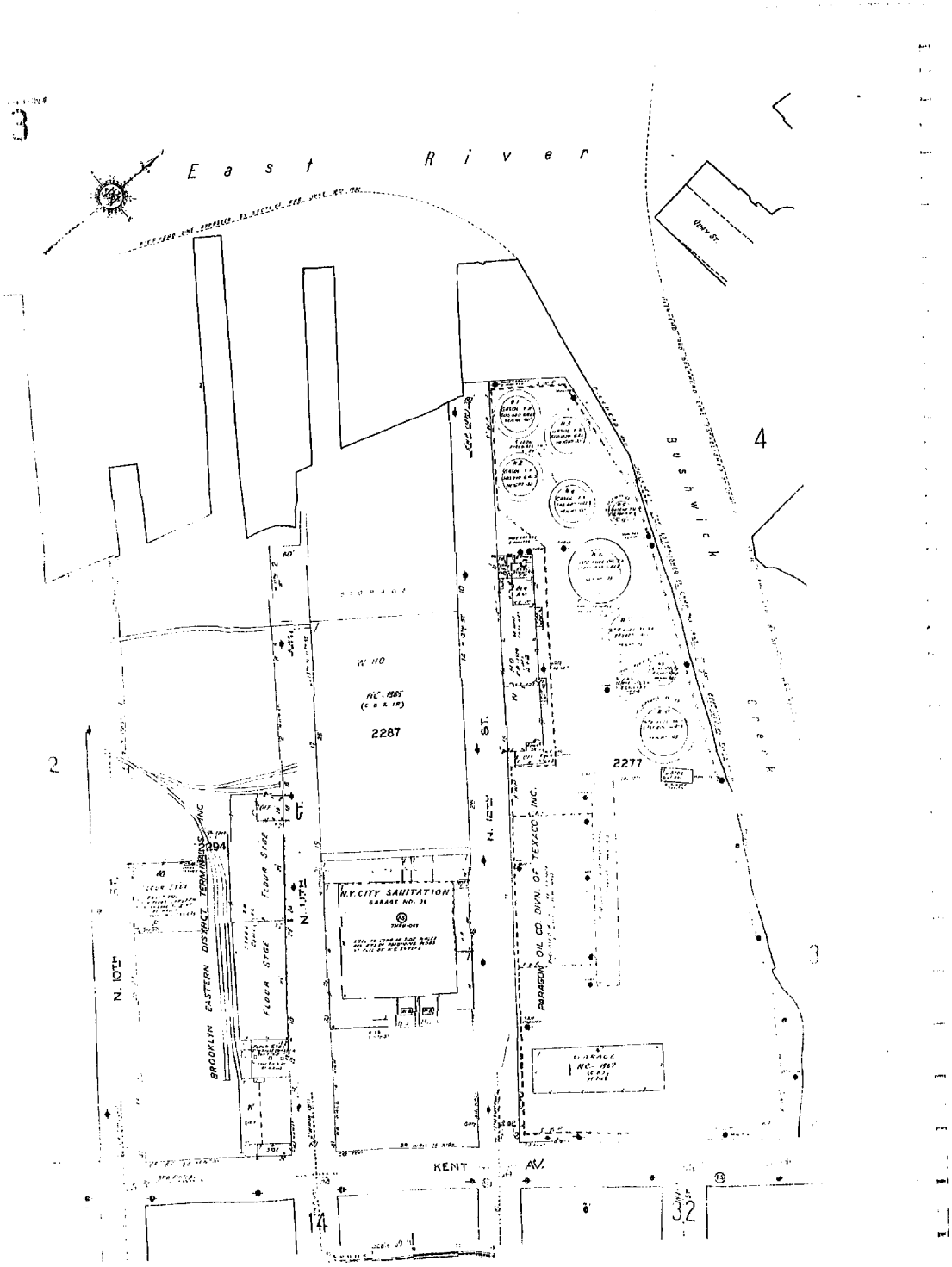

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau C
625 Broadway, 12th Floor, Albany, NY 12233-7014
P: (518) 402-9662 I F: (518) 402-9679
www.dec.ny.gov

Transmitted Via Email Only

August 25, 2021

Donald Campbell
Project Manager
Site Investigation & Remediation
287 Maspeth Avenue
Brooklyn, NY 11211

Re: Site No. 224055 Williamsburg Works Former MGP
Remedial Investigation Work Plan Addendum - Parcels 3 and 4
Portion of Williamsburg Works Site

Dear Mr. Campbell:

The New York State Department of Environmental Conservation (the Department) and Department of Health (DOH) have reviewed the Remedial Investigation Work Plan Addendum, dated July 2021, for the Williamsburg Former Manufactured Gas Plant Site. The Agencies hereby approve the workplan.

If you have any questions, please contact me at the above phone number or gerald.pratt@dec.ny.gov.

Sincerely,

Gerald Pratt PG
Division of Environmental Remediation

ec: J. Brown (NYSDEC)
G. Pratt (NYSDEC)
D. Eaton (NYSDEC)
Arunesh Ghosh (NYSDOH)
Scarlett McLaughlin (NYSDOH)
Donald Campbell (National Grid)
William Ryan (National Grid)
D2

GEI Consultants

Consulting Engineers and Scientists

April 12, 2022
Project 093060

VIA EMAIL: gerald.pratt@dec.ny.gov

Mr. Gerald Pratt, P.G.
Division of Environmental Remediation
Section C Bureau C
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7014

Dear Mr. Pratt:

Re: Addendum to Remedial Investigation Work Plan Addendum – Parcels 3 and 4
Portion of K – Williamsburg Works Site
Brooklyn, New York
Site No. 224055
Index No. CO 2-20200901-300

The *Remedial Investigation Work Plan Addendum – Parcels 3 and 4, July 2021* (Work Plan) for a portion of the K – Williamsburg Works Site was approved by NYSDEC in a letter dated August 25, 2021. This Work Plan includes installing and sampling six shallow monitoring wells (WW-MW-200 through WW-MW-205). Pursuant to your email to Donald Campbell at National Grid on February 11, 2022, groundwater from three of these newly installed monitoring wells will be sampled and analyzed for Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537.1 to characterize the upgradient onsite and downgradient conditions of the Investigation Area:

- WW-MW-204, the monitoring well on the upgradient side of the Investigation Area.
- WW-MW-200, a monitoring well located onsite in the center of the Investigation Area.
- WW-MW-201, a downgradient monitoring well in the Investigation Area.

The sample locations are shown in Plate 1 of the Work Plan. The sample rationale table (Table 1) has been updated with the additional analyses.

If you have any questions, please feel free to contact Donald Campbell at 347-452-5973.

Sincerely,

GEI CONSULTANTS, INC.

Melissa J. Felter, P.G., LEP
Project Manager

Jeffery Parillo, P.E.
Project Engineer

MJF/JP:bdp
Attachment: Table 1. Sample Location Rationale
c: Mr. Donald Campbell

H:\WPROC\Project\NationalGrid\Williamsburg\Remedial Investigation\P3 and 4 Work Plan Addendum\Williamsburge RIWPA Addendum_2022-04-12.docx

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-200	Lot 16	Evaluate soil quality within the footprint of the former purifying house	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-201	Lot 16	Evaluate soil quality within the footprint of the former scrubbers	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-202	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-203	Lot 16	Evaluate soil quality within the footprint of the iron gas tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-204	Lot 16	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X	X	X	X	X
WW-SB-205	Lot 16	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-206	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
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Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-207	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-208	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-209	Lot 30	Evaluate soil quality within the footprint of former oil separators.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-210	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-211	Lot 30	Evaluate soil quality within the footprint of a former tar separating tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-212	Lot 30	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-213	Lot 30	Evaluate soil quality within a former separator.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-214	Lot 30	Evaluate soil quality within a former tar tank.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-215	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-216	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-217	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-218	Lot 30	Evaluate soil quality within a former tar tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-219	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-220	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-221	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-222	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-223	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-224	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X	X	X	X	
WW-SB-225	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-226	Lot 30	Evaluate soil quality within a former gas oil tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-227	Lot 30	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-228	Lot 30	Evaluate soil quality within a former iron tar tank	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-229	Lot 30	Evaluate soil quality within a former iron tar tank	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-230	Lot 30	Evaluate soil quality within a former wooden tar tank	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-231	Lot 30	Evaluate soil quality within a former wooden tar tank	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-232	Lot 30	Evaluate soil quality within the footprint of the Site.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-233	Lot 30	Evaluate soil quality within the footprint of the Site.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-234	Lot 30	Evaluate soil quality within the footprint of the former coal shed.	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				X

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-235	Lot 30	Evaluate soil quality within the footprint of the former coal shed.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-236	Lot 16	Evaluate soil quality within the footprint of the former retort/ generator house	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-237	Lot 16	Evaluate soil quality within the footprint of the former retort/ generator house	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-238	Lot 16	Evaluate soil quality within the footprint of the former retort/ generator house	4	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				
WW-SB-239	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X
WW-SB-240	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-241	Lot 16	Evaluate soil quality within the footprint of the Site.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the water table and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-242	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-243	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-244	N 12th Street	Evaluate soil quality offsite.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-245	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-246	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-247	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-248	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	

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			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-SB-249	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-250	N 12th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-251	Lot 30	Evaluate soil quality at oil pipes.	3	0	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-252	Lot 30	Evaluate soil quality at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-SB-253	N 11th Street	Evaluate soil quality offsite at oil pipes.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X		X	X	X	
WW-SB-254	Lot 16	Evaluate soil quality within the footprint of the iron gas tank.	3	0	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-200	Lot 16	Evaluate soil quality within the Site boundary. Evaluate shallow groundwater flow and quality within the Site boundary.	4	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X	X				X[6]

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Soil Borings and Monitoring Wells																				
WW-MW-201	Lot 30	Evaluate soil quality within the Site boundary. Evaluate shallow groundwater flow and quality within the Site boundary.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X[6]
WW-MW-202	Lot 30	Evaluate soil quality within the Site boundary. Evaluate shallow groundwater flow and quality within the Site boundary.	3	1	0	Top of clay layer, anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-203	Lot 30	Evaluate soil quality within the Site boundary near an off-site NAPL plume. Evaluate shallow groundwater flow and quality within the Site boundary and near an off-site NAPL plume.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
WW-MW-204	Lot 16	Evaluate soil quality within the footprint of the Site. Evaluate shallow groundwater flow and quality within the Site boundary and near an off-site NAPL plume.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					X[6]
WW-MW-205	Lot 30	Evaluate soil quality within the footprint of a former settling tank. Evaluate shallow groundwater flow and quality within the Site boundary.	3	1	0	At least 30 feet, or 10 feet beyond visually impacted soil. Boring will not be advanced through the clay layer anticipated at 60 feet	1. Greatest impacts from 0-5' 2. If the fill wedge is observed from 0-5' an additional sample will be collected from the top 5' below the fill wedge 3. Greatest impacts between the shallow fill and completion depth of the boring, if no apparent impacts the observed groundwater table 4. Beneath impacts, if present, or at the completion of the boring		X	X	X	X	X	X	X					
Test Pits																				
WW-TP-200	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X						X	X	X	
WW-TP-201	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X						X	X	X	

Table 1. Sample Location Rationale
Remedial Investigation Work Plan Addendum
Williamsburg Works Site Lots 16 and 30
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples			Target Boring Depth	Soil Sample Target Depths	VOCs and Naphthalene (TO-15)	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[2]	Herbicides (EPA 8151A)[3]	PCBs (EPA 8082)[3]	Pesticides (EPA 8081A)[3]	TPH (EPA 418.1)[4]	Alkylated PAHs (EPA 8270D SIM)[5]	N-alkanes and Isoprenoids (EPA 8015D)[5]	EPH (NJDEP EPH)[5]	PFAS (EPA 537)[3,5]
			Soil[1]	GW	Soil Vapor															
Test Pits																				
WW-TP-202	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X					X	X	X	
WW-TP-203	Lot 30	Evaluate the location, depth, configuration, contents, and soil quality of a former oil conduit.	1	0	0	Groundwater table or practical extent of the equipment, which is approximately 15 feet	1. Greatest impacts, if no apparent impacts the bottom of the test pit		X	X	X	X					X	X	X	
Soil Vapor Points																				
WW-SV-200	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-201	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-202	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-203	Lot 16	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-204	Lot 30	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													
WW-SV-205	Lot 30	Evaluate the subsurface soil vapor concentrations	0	0	1	5 feet, or 1 foot above the water table if the water table is shallower than 6 feet		X													

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA - Environmental Protection Agency
EPH - extractable petroleum hydrocarbon
PAH - polycyclic aromatic hydrocarbon
PCBs - polychlorinated biphenyls
PFAS - per- and polyfluoroalkyl substances
SVOC - semivolatile organic compounds
TAL - target analyte list
TPH - total petroleum hydrocarbons
VOC - volatile organic compounds
1 - Four soil samples will be collected from 11 borings where the fill wedge is present
2 - Soils will be analyzed by Free Cyanide, water will be analyzed by Total Cyanide
3 - One soil sample of the fill in each boring will be sampled for PCBs, pesticides, herbicides, and PFAS
4 - TPH will only be collected from the fill wedge
5 - Only soils will be analyzed for Alkylated PAHs, N-alkanes and Isoprenoids, EPH, and PFAS. If four samples are collected from a boring due to the fill wedge being sampled, only the shallowest soil sample will be analyzed for PFAS and the fill wedge will not be analyzed for forensic analyses.
6 - Only groundwater will be analyzed for PFAS.

GEI Consultants

Consulting Engineers and Scientists

December 7, 2022
Project 093060

Via email: gerald.pratt@dec.ny.gov

Mr. Gerald Pratt, P.G.
Division of Environmental Remediation
Section C Bureau C
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7014

Dear Mr. Pratt:

Re: Addendum to Remedial Investigation Work Plan Addendum – Parcels 3 and 4
Portion of K – Williamsburg Works Site
Brooklyn, New York
Site No. 224055
Index No. CO 2-20200901-300

The *Remedial Investigation Work Plan Addendum – Parcels 3 and 4, July 2021* (Work Plan) for a portion of the K – Williamsburg Works Site was approved by NYSDEC in a letter dated August 25, 2021. Eight shallow monitoring wells (WW-MW-200 through WW-MW-207) were installed on Parcels 3 and 4 in accordance with the approved-work plan. Pursuant to your email to Donald Campbell and Jessica Phillips at National Grid on September 14, 2022, non-aqueous phase liquid (NAPL) has been observed at multiple wells on Parcels 3 and 4 of the Site. DNAPL was observed at three locations (WW-MW-200, 201, and 202) and LNAPL was observed at WW-MW-205 (Table 1).

The eight newly installed monitoring wells will be gauged for the presence and thickness of DNAPL and LNAPL monthly for 6-months starting in October 2022. NAPL gauging will be performed using a weighted tape. The thickness of LNAPL will be measured with a bailer. The depth to the bottom of the well and the thickness of NAPL will be measured to the nearest 0.1 foot at each recovery well during each gauging event. If no measurable NAPL is identified in a recovery well during the monthly gauging events throughout a 6-month time frame, then a recommendation will be made to stop monthly gauging. If the DNAPL accumulates to greater than 1-ft in thickness within the well sump, the DNAPL will be removed from the well. If the DNAPL accumulates to greater than 2 ft in thickness within the well sump, then the DNAPL gauging, and recovery frequency will be increased. An oil-absorbent monitoring well skimming sock will be installed in WW-MW-205 for passive LNAPL recovery. The sock will be replaced as needed.

Drums generated during NAPL gauging and recovery will be picked up the same day they are generated.

The monitoring well locations are shown in Fig. 1.

GEI Consultants, Inc.
455 Winding Brook Drive, Suite 201, Glastonbury, CT 06033
860.368.5300

If you have any questions, please feel free to contact Donald Campbell at 347-452-5973.

Sincerely,

GEI CONSULTANTS, INC.

Melissa J. Felter, P.G., LEP
Project Manager

Jeffery Parillo, P.E.
Project Engineer

MJF/JP:bdp
Attachment: Table 1. NAPL Observations
Fig. 1 - Monitoring Well Locations

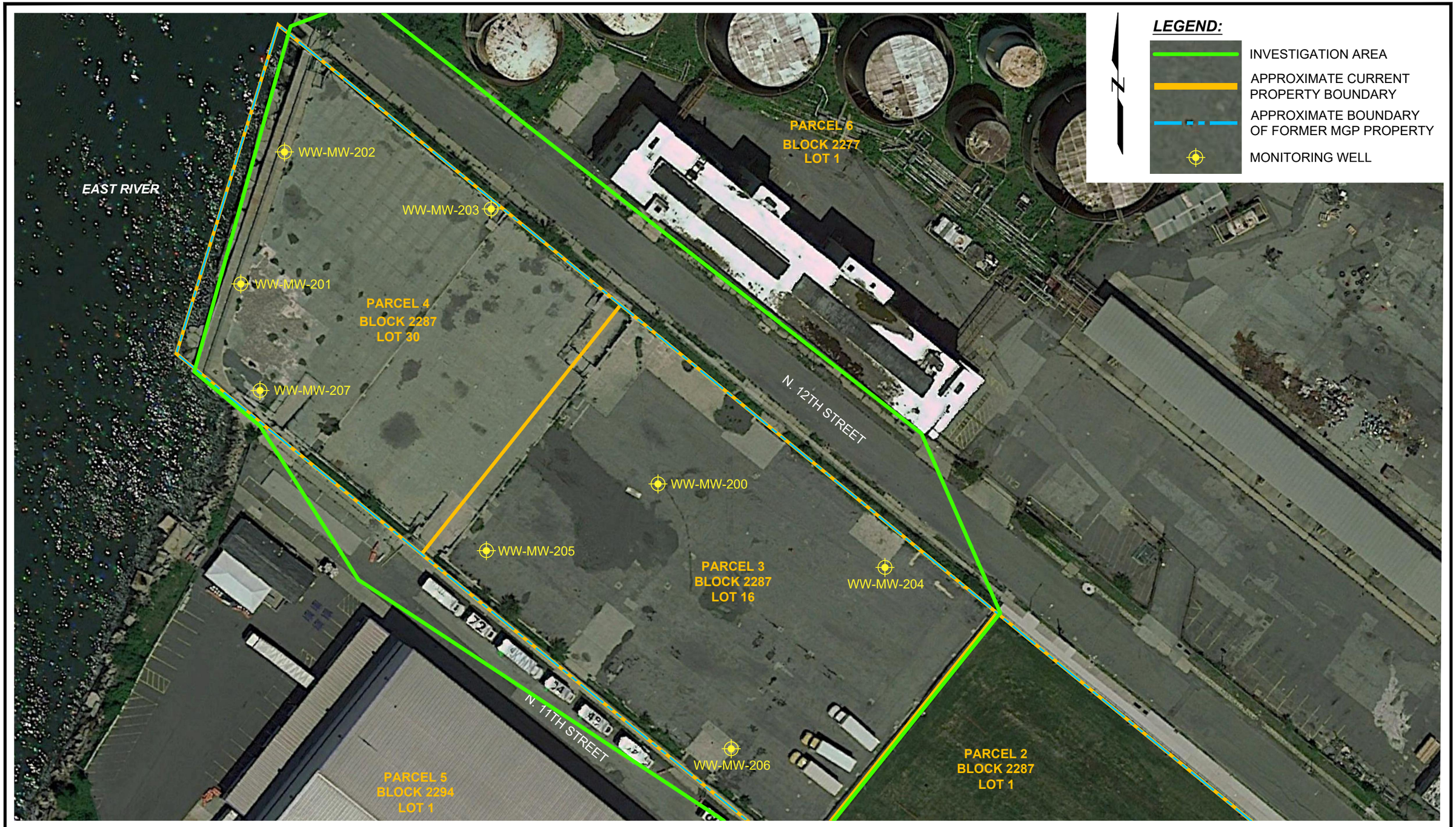
c: Mr. Donald Campbell

H:\WPROC\Project\NationalGrid\Williamsburg\Remedial Investigation\NAPL Rec Addendum to RIWPA December 2022\Williamsburg RIWPA Addendum_NAPL 2022-12-07.docx

Table 1. NAPL Observations
Addendum to Remedial Investigation Work Plan Addendum - Parcels 3 and 4
Portion of K - Williamsburg Works MGP Site
Brooklyn, NY

	Date and NAPL Observations						
Well ID	9/6/2022	9/8/2022	9/13/2022	9/16/2022	9/20/2022	10/27/2022	11/2/2022
WW-MW-200	1 foot DNAPL[1]	NM	DNAPL Stringers	Strong Odor	Strong Odor	None	NM
WW-MW-201	DNAPL Stringers	NM	NM	DNAPL Stringers	DNAPL Stringers	Odor	NM
WW-MW-202	Strong Odor	NM	0.7' DNAPL	1.25' DNAPL	1.25' DNAPL	NM	0.55' DNAPL
WW-MW-203	None	NM	NM	None	None	NM	NM
WW-MW-204	None	NM	NM	None	None	NM	NM
WW-MW-205	LNAPL[2]	0.25" LNAPL	LNAPL[2]	LNAPL[2]	NM	0.08' LNAPL	NM

Notes
NM - Not Measured
1 - Likely misrecorded measurement of WW-MW-202
2 - LNAPL observed, thickness not measured



SOURCE:

AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, © 2020 GOOGLE LLC., IMAGERY DATE: 6/15/2018, ACCESSED ON 6/8/2020.

0 60' 120'

SCALE: 1" = 60'

Addendum to Remedial Investigation WorkPlan Addendum
Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

nationalgrid

GEI Consultants

MONITORING WELL LOCATIONS

Project 093060 | December 2022 | Fig. 1

HERIOT, PAULA I:\Project\National Grid\Williamsburg\00_CAD\Figures\ARIWPA\093060_ARIWPA_WELLS.dwg - 10/7/2022

Felter, Melissa

From: Phillips, Jessica <Jessica.Phillips@nationalgrid.com>
Sent: Monday, January 9, 2023 9:01 AM
To: Felter, Melissa
Cc: Campbell, Donald
Subject: [EXT] FW: [EXTERNAL] RE: Williamsburg NAPL gauging/recovery plan

EXTERNAL EMAIL

Hi Melissa,

Please see below email from DEC. The NAPL recovery plan has been accepted. Please put together a CN for the NAPL recovery work and start planning the first event.

Jessica

From: Mustico, Richard P (DEC) <richard.mustico1@dec.ny.gov>
Sent: Monday, January 9, 2023 8:56 AM
To: Phillips, Jessica <Jessica.Phillips@nationalgrid.com>; Pratt, Gerald H (DEC) <gerald.pratt@dec.ny.gov>
Cc: Campbell, Donald <Donald.Campbell@nationalgrid.com>
Subject: RE: [EXTERNAL] RE: Williamsburg NAPL gauging/recovery plan

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Hi Jessica,

DEC has no comments on the plan and finds the plan acceptable.

Let me know if you have further questions, Richard.

Richard P. Mustico
he/him/his
Assistant Engineer (Environmental), Division of Environmental Remediation

New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-7016
P: 518-402-9647| F: 518-402-9627| richard.mustico1@dec.ny.gov

www.dec.ny.gov | | | |

NEW YORK STATE | Department of Environmental Conservation

From: Phillips, Jessica <Jessica.Phillips@nationalgrid.com>
Sent: Friday, January 6, 2023 2:15 PM

To: Mustico, Richard P (DEC) <richard.mustico1@dec.ny.gov>; Pratt, Gerald H (DEC) <gerald.pratt@dec.ny.gov>
Cc: Campbell, Donald <Donald.Campbell@nationalgrid.com>
Subject: FW: [EXTERNAL] RE: Williamsburg NAPL gauging/recovery plan

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Hi Richard,

I'm writing to follow up on the revised NAPL recovery plan for Parcels 3&4 at the Williamsburg site (attached). Please let me know if the plan is acceptable.

Jessica

From: Phillips, Jessica
Sent: Thursday, December 8, 2022 1:49 PM
To: Pratt, Gerald H (DEC) <gerald.pratt@dec.ny.gov>; Mustico, Richard P (DEC) <richard.mustico1@dec.ny.gov>
Cc: Campbell, Donald <Donald.Campbell@nationalgrid.com>
Subject: RE: [EXTERNAL] RE: Williamsburg NAPL gauging/recovery plan

Hi Gerry and Richard,

Please see attached revised NAPL recovery plan. We have included a table showing the gauging results from September through Nov, as you will see the results show monthly monitoring is an appropriate gauging/recovery frequency and states the frequency will be increased in the DNAPL accumulates to greater than 2 ft within the sump.

After approval of this plan, we are prepared to start NAPL recovery the first week of January 2023.

Jessica Phillips
Project Scientist - Contractor
Site Investigation & Remediation
nationalgrid
1-516-581-7313 (Mobile)
jessica.phillips@nationalgrid.com
Hicksville Office, Main Office Building 2nd Floor
175 East Old Country Road, Hicksville NY 11801
nationalgridus.com | Twitter | LinkedIn | Facebook

From: Pratt, Gerald H (DEC) <gerald.pratt@dec.ny.gov>
Sent: Friday, October 21, 2022 1:35 PM
To: Phillips, Jessica <Jessica.Phillips@nationalgrid.com>
Cc: Campbell, Donald <Donald.Campbell@nationalgrid.com>
Subject: [EXTERNAL] RE: Williamsburg NAPL gauging/recovery plan

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Hi Jessica,
DEC offers the following comment.

The recharge rate for WW-MW-202 should be determined first prior to determining an appropriate recovery frequency for all wells. This is based on the observed thickness on 9/13/22 of 0.7ft and 9/16/22 of 1.25 ft which seems to be the well with the most accumulation and already exceeding the sump depth.

Thanks,
Gerry

Gerald Pratt, P.G.
Division of Environmental Remediation
Section C Bureau C Geologist
New York State Department of Environmental Conservation
625 Broadway 12th Fl, Albany NY 12233-7014
518 402 9667

From: Phillips, Jessica <Jessica.Phillips@nationalgrid.com>
Sent: Friday, October 21, 2022 11:56 AM
To: Pratt, Gerald H (DEC) <gerald.pratt@dec.ny.gov>
Subject: FW: Williamsburg NAPL gauging/recovery plan

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HI Gerry,

I wanted to follow up on the Parcels 3&4 NAPL recovery plan and see if you have any questions or comments.

Jessica

From: Phillips, Jessica
Sent: Monday, October 10, 2022 12:48 PM
To: Pratt, Gerald H (DEC) <gerald.pratt@dec.ny.gov>
Cc: 'Campbell, Donald' <Donald.Campbell@nationalgrid.com>
Subject: Williamsburg NAPL gauging/recovery plan

Hi Gerry,

Please see attached NAPL gauging/recovery plan for Williamsburg Parcels 3&4. Please let me know if you have any questions/comments.

Jessica Phillips
Project Scientist - Contractor
Site Investigation & Remediation
nationalgrid
1-516-581-7313 (Mobile)
jessica.phillips@nationalgrid.com
Hicksville Office, Main Office Building 2nd Floor
175 East Old Country Road, Hicksville NY 11801
nationalgridus.com | Twitter | LinkedIn | Facebook

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GEI Consultants

Consulting
Engineers and
Scientists

Supplemental Remedial Investigation Work Plan - Parcels 3 and 4 Portion of K - Williamsburg Works Site

Brooklyn, New York
Index # CO 2-20200901-300
Site ID: 224055

Prepared for:
The Brooklyn Union Gas Company d/b/a National Grid NY
2 Hanson Place
Brooklyn, New York 11217

Prepared by:
GEI Consultants, Inc., P.C.
455 Winding Brook Drive
Glastonbury, CT 06033
860-368-5300

May 2024
Project 093060-3.5

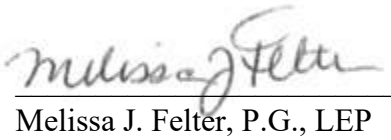
Melissa J. Felter, P.G., LEP
Project Manager

Matthew O'Neil, P.E.
Senior Engineer

Qualified Environmental Professional's Certification

I, Melissa J. Felter, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Supplemental Remedial Investigation Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Date: May 3, 2024



Melissa J. Felter, P.G., LEP
GEI Consultants, Inc., P.C.

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Executive Summary

By way of an Order on Consent (Order), The Brooklyn Union Gas Company d/b/a National Grid NY (National Grid), while preserving its rights to seek reimbursement from any responsible parties, has agreed to complete delineation of the nature and extent of contamination at, and emanating from the K - Williamsburg Works site, site #224055 in Brooklyn, Kings County, New York (the Site, Figure 1). Pursuant to that Order, National Grid has further agreed to implement this Supplemental Remedial Investigation (SRI) Work Plan (SRIWP)

Remedial investigation (RI) activities were previously performed in accordance with an Order on Consent (AOC) and Administrative Settlement Index No. A2-0552-0606 between New York State Department of Environmental Conservation (NYSDEC) and The Brooklyn Union Gas Company (BUG) d/b/a KeySpan Corporation and AOC Index No. CO 2-20200910-300 between New York State Department of Environmental Conservation (NYSDEC) and BUG d/b/a National Grid NY, and it was conducted in accordance with the NYSDEC-approved Remedial Investigation Work Plans (RIWPs). A draft RI Report was submitted to the NYSDEC October 2023 (draft RI Report). For ease of discussion in the draft RI Report, the RI study area has been divided into six parcels identified as Parcels 1 through 6 as shown in the table below and in Figure 2.

Parcel ID	Address	Current Owner	Block	Lot
Within Former Williamsburg Works MGP Footprint (*i.e.*, Within the Site)				
Parcel 1	35 Kent Avenue Brooklyn, NY	North 12th Associates, LLC	2288	1
Parcel 2	50 Kent Avenue (aka 41 North 11th Street), Brooklyn, NY	NYC Department of Parks and Recreation (NYCDPR)	2287	1
Parcel 3	20 North 12th Street Brooklyn, NY	NYCDPR	2287	16
Parcel 4	2 North 12th Street Brooklyn, NY	NYCDPR	2287	30
Outside Former Williamsburg Works MGP Footprint (*i.e.*, Outside the Site)				
Parcel 5	16 North 11th Street Brooklyn, NY	NYCDPR	2294	1
	33 North 10th Street Brooklyn, NY	NYCDPR	2294	5
Parcel 6	26 North 12th Street Brooklyn, NY	NYCDPR	2277	1
Source: NYCity Map https://experience.arcgis.com/experience/d826b115c87841d491c2b41fcb175305 accessed 4/16/2024				

On March 4 and 15, 2024, NYSDEC provided two letters commenting on the draft RI Report. The comments were discussed with NYSDEC and it was determined that National Grid would address NYSDEC's comment on delineating groundwater by installing additional wells at Parcels 3 and 4 (the Investigation Area). This SRIWP has been prepared by GEI Consultants, Inc. (GEI), on behalf of National Grid, and in general accordance with the New York State Department of Environmental Conservation (NYSDEC) *DER-10 Technical Guidance for Site Characterization and Remedial Investigation,* dated May 2010.

The Site is adjacent to properties located at Parcels 5 and 6 and 25 Kent Avenue, where a large-scale oil refining and storage facility (Pratt Works) was operated by Standard Oil and its predecessors (now collectively ExxonMobil) from the 1860s until 1949, generally contemporaneous with the operation of the Williamsburg Works. Both the Williamsburg Works and ExxonMobil operations, as well as onsite and adjacent operations by Bayside Fuel Oil Depot Co, Motiva Enterprises LLC., Buckeye Partners, L.P., Sunoco, Inc., and Chevron U.S.A. Inc. (ChevTex), included the storage and use of petroleum and petroleum products. Parcels 3 and 4 are currently vacant and comprise a portion of one of five blocks that have been or will be redeveloped by the New York City Department of Parks and Recreation (NYCDPR) as part of Bushwick Inlet Park (Friends of Bushwick Inlet Park, 2024).

At the NYCDEC's request and in address of draft RI Report comments, this SRIWP includes tables and figures comparing soil analytical data to Protection of Groundwater (POG) Soil Cleanup Objectives (SCOs) (Tables 1 through 3 and Figures 3 through 6).

In this SRIWP, the installation of soil borings and monitoring wells to further evaluate the extent of impacts in subsurface soil and groundwater at the Investigation Area, is described. The conceptual site model (CSM) will be updated and incorporated into the draft RI Report, including tables and figures.

1. Introduction

By way of an Order on Consent (Order), The Brooklyn Union Gas Company d/b/a National Grid NY (National Grid), while preserving its rights to seek reimbursement from any responsible parties, has agreed to complete delineation of the nature and extent of the contamination at, and emanating from the K - Williamsburg Works site, site #224055 which is approximately 5.5 acres in area and consists of the following properties located in Brooklyn, Kings County, New York (the Site).

Tax Map/Lot No.	Address
Block 2287 Lot 1	50 Kent Avenue (aka 41 North 11th Street), Brooklyn, NY
Block 2287, Lot 16	20 North 12th Street, Brooklyn, NY
Block 2287, Lot 30	2 North 12th Street, Brooklyn, NY
Block 2288, Lot 1	35 Kent Avenue, Brooklyn, NY

The Site location is shown in Figure 1. Pursuant to the Order, National Grid has further agreed to implement this Supplemental Remedial Investigation Work Plan (SRIWP).

A remedial investigation (RI) was performed, and a draft RI Report was submitted to NYSDEC in October 2023 (RI Report). The RI was conducted in accordance with an Order on Consent (AOC) and Administrative Settlement Index No. A2-0552-0606 between New York State Department of Environmental Conservation (NYSDEC) and The Brooklyn Union Gas Company (BUG) d/b/a KeySpan Corporation and AOC Index No. CO 2-20200910-300 between New York State Department of Environmental Conservation (NYSDEC) and BUG d/b/a National Grid NY, and it was conducted in accordance with the NYSDEC-approved Remedial Investigation Work Plans (RIWPs). For ease of discussion, in the draft RI Report, the RI study area has been divided into six parcels, identified as Parcels 1 through 6, as shown in the table below and in Figure 2.

Parcel ID	Address	Current Owner	Block	Lot
Within Former Williamsburg Works MGP Footprint (*i.e.*, Within the Site)				
Parcel 1	35 Kent Avenue Brooklyn, NY	North 12th Associates	2288	1
Parcel 2	50 Kent Avenue (aka 41 North 11th Street), Brooklyn, NY	NYC Department of Parks and Recreation (NYCDPR)	2287	1

Parcel 3	20 North 12th Street Brooklyn, NY	NYCDPR	2287	16
Parcel 4	2 North 12th Street Brooklyn, NY	NYCDPR	2287	30
Outside Former Williamsburg Works MGP Footprint (*i.e.*, Outside the Site)				
Parcel 5	16 North 11th Street Brooklyn, NY	NYCDPR	2294	1
	33 North 10th Street Brooklyn, NY	NYCDPR	2294	5
Parcel 6	26 North 12th Street Brooklyn, NY	NYCDPR	2277	1
Source: New York City Oasis Map http://www.oasisnyc.net/map.aspx accessed 10/25/2023				

The Site is adjacent to properties located at Parcels 5 and 6, and 25 Kent Avenue, where a large-scale oil refining and storage facility (Pratt Works) was operated by Standard Oil and its predecessors (now collectively ExxonMobil) from the 1860s until 1949, generally contemporaneous with the operation of the Williamsburg Works. Both the Williamsburg Works and ExxonMobil operations as well as on-site and adjacent operations by Bayside Fuel Oil Depot Co; Motiva Enterprises LLC.; Buckeye Partners, L.P.; Sunoco, Inc.; and Paragon Oil, Inc. and Texaco Inc., and Chevron U.S.A. Inc. (collectively ChevTex) included the storage and use of petroleum and petroleum products.

On March 4 and 21, 2024, NYSDEC provided two letters commenting on the draft RI Report. The comments were discussed with NYSDEC, and it was determined that National Grid would address NYSDEC's comment on delineating groundwater by installing additional wells at Parcels 3 and 4 (the Investigation Area). In this SRIWP, the installation of soil borings and monitoring wells is proposed to further evaluate the extent of impacts in subsurface soil and intermediate and deep groundwater at the Investigation Area. Plate 1 shows the Investigation Area, proposed investigations, and sample locations from prior investigations. Data generated during the implementation of this SRIWP investigation will be used to evaluate the extent of impacts and to update the Draft RI Report, including the conceptual site model, with respect to the Investigation Area.

Parcels 3 and 4, currently vacant, were most recently used for document storage and, in addition to gas manufacture, were previously used for a railroad terminal (Brooklyn Eastern Terminal District), for lumber storage (Bridge Lumber Co.), and by various oil companies. They comprise a portion of one of five blocks that have been or will be redeveloped by the NYCDPR as part of Bushwick Inlet Park (Friends of Bushwick Inlet Park, 2024). Located on Lots 16 and 30 of Block 2287, Parcels 3 and 4 occupy 2.75 acres of park land.

This SRIWP has been prepared by GEI Consultants, Inc. (GEI), on behalf of National Grid, and in general accordance with the NYSDEC *DER-10 Technical Guidance for Site Characterization and Remedial Investigation,* dated May 2010. The Investigation Area

history and Site geology and hydrogeology is described in the 2023 Draft RI Report. The scope of work is described in Section 2. The Health and Safety Plan (HASP), Community Air-Monitoring Plan (CAMP), Field Sampling Plan (FSP), and Quality Assurance Project Plan (QAPP) have been updated to incorporate new information and changes to policy and industry practice since 2008 (*e.g.*, 2010 version of DER-10) and are provided as Appendices A through D, respectively. If data for Parcel 6 is available prior to completion of the implementation of this SRIWP, National Grid reserves the right to amend/add to this SRIWP to incorporate and or consider recent sampling data from Block 2277.

2. Scope of Work

The proposed activities will be conducted in accordance with the HASP (Appendix A), CAMP (Appendix B), QAPP (Appendix C), and FSP (Appendix D). The remainder of this SRIWP describes the proposed soil borings and monitoring wells as well as analytical samples. At the NYCDEC's request, this SRIWP includes tables and figures comparing soil analytical data to Protection of Groundwater (POG) Soil Cleanup Objectives (SCOs) (Tables 1 through 3 and Figures 3 through 6).

2.1 Soil Borings

Eight soil borings (WW-MW-200D through WW-MW-207D) are proposed for installation in the Investigation Area to facilitate installing eight monitoring well pairs collocated with the existing shallow monitoring wells. The proposed soil boring locations are shown in Plate 1. Table 4 contains sample descriptions, rationale, and analysis. Actual drilling locations will be determined based upon the subsurface utility clearance activities, permanent above-ground structures, and property owner requirements. The borings will be installed with a sonic drill rig in accordance with drilling methods and procedures in the FSP and SRIWP. The concrete foundation will be removed, and each boring location will be hand-cleared for utilities to 5 feet bgs. Soil samples will be collected and logged continuously from each boring. It is anticipated that drilling will proceed to the clay layer present at approximately 60 feet bgs. After completing each borehole, the casing will be removed, and a monitoring well will be installed.

Up to three soil samples per boring will be selected for chemical analysis, as follow.

- One sample will be collected from the screen interval of the intermediate monitoring well.
- One sample will be collected from the screen interval of the deep monitoring well.
- The final sample will be collected beneath impacts within the screened interval of the deep monitoring well, if any. Impacts include visual and olfactory impacts, as well as elevated PID readings within the screened interval compared to soil at the completion depth of the boring.

Each sample will be analyzed, at a minimum, for volatile organic compounds (VOCs) by the United States Environmental Protection Agency (EPA) Method 8260C, semi-volatile organic compounds (SVOCs) by EPA Method 8270D, target analyte list (TAL) metals plus tin by EPA Method 6000/7000 series, free cyanide by EPA Method 9014.

Drilling and sampling equipment will be decontaminated between each sample location as described in the FSP. Soil cuttings and decontamination fluids will be contained within properly labeled United States Department of Transportation (USDOT) 55-gallon drums or a lined roll-off and disposed of at a National Grid-approved disposal facility.

2.2 Monitoring Wells

The proposed soil borings (WW-MW-200D through WW-MW-207D) will be completed as permanent monitoring wells collocated with existing shallow monitoring wells on Parcels 3 and 4. Two monitoring wells, deep and intermediate, will be installed at each location. The proposed well locations are shown in Plate 1. Table 4 provides sample description, rationale, and analysis. The wells will be installed using rotosonic methods in accordance with drilling methods and procedures in the FSP.

Each proposed deep monitoring well will be screened above the clay layer, which is expected to be encountered at 60 feet bgs. Each proposed intermediate monitoring well will be screened at the midpoint between the bottom of the existing shallow and deep wells. The proposed deep and intermediate wells will be spaced approximately 5-feet apart and 5-feet from the existing shallow well. Each monitoring well will be constructed with an approximate 10-foot length of 2-inch inner diameter (ID), 0.010-inch-slotted, monitoring well screen and finished with 2-inch ID poly vinyl chloride (PVC) riser pipe to the surface and a 2-foot sump. The annular space between the well screen and borehole wall will be backfilled with chemically inert sand to promote sufficient groundwater flow to the well and to minimize the passage of any fine-grained formational material into the well. A bentonite clay seal will be placed above the sand pack. The remaining annular space will be filled to grade with cement/bentonite grout. Each monitoring well will be fitted with a lockable cap and finished with a flush-mounted curb box secured with cement.

Each newly installed monitoring well will be developed by alternatively surging and pumping until the turbidity is less than 50 nephelometric turbidity units (NTUs) or until a maximum of 10 well volumes of water has been removed. A field turbidity meter will be used to monitor the NTU levels. Well development will be completed in general accordance with the FSP.

Each of the newly installed monitoring wells will be sampled after a minimum of two weeks following completion of well development. Prior to sampling, two synoptic rounds of groundwater level measurements will be recorded for the existing and newly installed monitoring wells and the established surface water measuring point in the East River; the groundwater will be gauged at both the low and high tidal levels.

Each newly installed monitoring well will be purged and sampled using low flow groundwater sampling procedures and in accordance with the FSP unless NAPL is observed

in the monitoring well. Each groundwater sample will be analyzed for VOCs by EPA Method 8260C, SVOCs by EPA Method 8270D, TAL metals and tin by EPA Method 6000/7000 series, and total cyanide by EPA Method 9014. The QAPP details the QA/QC samples that will be collected.

Purge water generated during the installation and sampling of monitoring wells will be collected in 55-gallon USDOT drums or a fractionation tank and will be disposed at a National Grid-approved disposal facility.

2.3 Survey

Monitoring wells will be surveyed by a New York State Licensed Land Surveyor to A-2 standards of accuracy with an approximate horizontal precision of ±0.02 feet. The elevation of each sample location will be determined to ±0.01 foot and will be tied into the Site benchmark. All locations and elevations will be referenced to the New York State Plane Eastern Zone North American Datum 1983 and North American Vertical Datum 1988.

2.4 Data Validation and Management

Soil and groundwater samples will be analyzed by a NYSDOH environmental laboratory approval program accredited laboratory. Analytical results will be provided in a New York State Category B data deliverable format. The data will be validated in accordance with New York State Analytical Service Protocols, and a data usability summary report will be prepared documenting the adequacy of the analytical data obtained from the laboratory and discussing any quality control non-compliance issues or limitations on the use of the data.

3. RI and AA Report Preparation

3.1 Remedial Investigation Report

The information collected as part of this SRIWP will be used to update the conceptual site model (CSM) and will be incorporated into the 2023 Draft RI Report, including tables and figures, to create a RI report that is comprehensive for at least Parcels 1 through 4. The CSM and RI report developed using data collected as part of this SRIWP will build upon data already collected at the Site including the 2023 RI Report, 50 Kent Avenue PDI, and other data collected previously on the Site.

3.2 Alternatives Analysis Report

An Alternatives Analysis (AA) Report that develops, evaluates, and recommends a remedy to address MGP wastes will be prepared in accordance with section 4.4 of DER-10. This will include the following:

- A discussion of the remedy already implemented on Parcel 2.
- Screening of technologies that can be implemented as part of remedial alternatives for Parcels 1, 3, and 4.
- Development and evaluation of remedial alternatives which can be implemented on Parcels 3 and 4, given the known future use and redevelopment plan.
- Recommendations for a remedial alternative for Parcels 3 and 4 and technologies which can be suitable for implementation of a remedial alternative for Parcel 1 when the property becomes available for remediation.

4. Schedule

Field activities can commence two to four weeks following NYSDEC and NYSDOH approval of this SRIWP and access to private properties, pending contractor availability. The field work is projected to last approximately 6 weeks (approximately 3 weeks for drilling activities and groundwater sampling at least two weeks following development). The draft RI report will be submitted to NYSDEC for review within 20 weeks following the completion of field activities.

A draft AA will be submitted to NYSDEC within 60 days of approval of the Final RI Report for Parcels 1 through 4.

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Tables

Table 1. Detected Surface Soil Analytical Results - Adjacent to Parcels 3 and 4
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williasmburg Works Site
Brooklyn, NY

Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SS-04 (0-0.2) 10/6/2009	Duplicate of WW-SS-04 (0-0.2) 10/6/2009	WW-SS-05 (0-0.2) 10/6/2009	WW-SS-06 (0-0.2) 10/6/2009	WW-SS-07 (0-0.2) 10/6/2009	WW-SS-08 (0-0.2) 10/6/2009	WW-SS-09 (0-0.2) 10/6/2009
BTEX (mg/kg)										
Total BTEX	NE	NE	NE	ND	ND	ND	ND	ND	ND	ND
Other VOCs (mg/kg)										
Total VOCs	NE	NE	NE	ND	ND	ND	ND	ND	ND	ND
PAHs (mg/kg)										
Acenaphthene	20	98	100	**0.18 J**	1.3 UJ	1.2 U	**0.23 J**	**0.1 J**	**0.12 J**	1.3 U
Acenaphthylene	100	107	100	**0.79 J**	**0.13 J**	1.2 U	1.2 U	1.1 U	**0.11 J**	**0.11 J**
Anthracene	100	1000	100	**0.58 J**	**0.071 J**	**0.12 J**	**0.35 J**	**0.19 J**	**0.32 J**	**0.15 J**
Benzo(a)anthracene	1	1	1	**2.1 J**	**0.28 J**	**0.5 J**	**0.96 J**	**0.54 J**	**1.2**	**0.53 J**
Benzo(b)fluoranthene	1	1.7	1	**2.9 J**	**0.47 J**	**0.81 J**	**1.4**	**0.8 J**	**1.6**	**0.77 J**
Benzo(k)fluoranthene	0.8	1.7	3.9	**1.2 J**	**0.14 J**	**0.36 J**	**0.59 J**	**0.26 J**	**0.68 J**	**0.32 J**
Benzo(g,h,i)perylene	100	1000	100	**2.6 J**	**0.61 J**	**0.49 J**	**1.4**	**0.78 J**	**1.7**	**0.97 J**
Benzo(a)pyrene	1	22	1	**2.9 J**	**0.37 J**	**0.6 J**	**1.1 J**	**0.64 J**	**1.5**	**0.7 J**
Chrysene	1	1	3.9	**2.6 J**	**0.33 J**	**0.63 J**	**1.1 J**	**0.64 J**	**1.3**	**0.63 J**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.73 J**	1.3 UJ	1.2 U	1.2 U	1.1 UJ	1.2 U	1.3 UJ
Fluoranthene	100	1000	100	**2.3 J**	**0.28 J**	**1.1 J**	**2.1**	**1.1 J**	**2.2**	**0.92 J**
Fluorene	30	386	100	**0.2 J**	1.3 UJ	1.2 U	**0.19 J**	1.1 U	1.2 U	1.3 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**2.9 J**	**0.52 J**	**0.43 J**	**1.2 J**	**0.66 J**	**1.7**	**1 J**
Phenanthrene	100	1000	100	**2.7 J**	**0.2 J**	**0.7 J**	**1.9**	**0.91 J**	**1.4**	**0.75 J**
Pyrene	100	1000	100	**4.8 J**	**0.55 J**	**1.1 J**	**2.6**	**1.5**	**3.2**	**1.5**
Total PAHs	NE	NE	NE	**29.48**	**3.951**	**6.84**	**15.12**	**8.12**	**17.03**	**8.35**
Other SVOCs (mg/kg)										
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**3 J**	1.3 UJ	1.2 UJ	1.2 U	1.1 U	1.2 U	1.3 U
Butyl benzyl phthalate	NE	122*	NE	**0.34 J**	**0.48 J**	**0.24 J**	**0.31 J**	**0.68 J**	**1.1 J**	**0.3 J**
Carbazole	NE	NE	NE	**0.16 J**	1.3 UJ	**0.08 J**	**0.2 J**	**0.095 J**	**0.13 J**	1.3 U
Dibenzofuran	7	210, 6.2*	59	**0.12 J**	1.3 UJ	1.2 U	**0.17 J**	1.1 U	1.2 U	1.3 U
Di-n-butyl phthalate	NE	8.1*	NE	**0.11 J**	1.3 UJ	1.2 U	1.2 U	**0.2 J**	1.2 U	**0.23 J**
Phenol	0.33	0.33	100	0.31 U	1.3 UJ	1.2 U	**0.15 J**	1.1 U	1.2 U	1.3 U
Total SVOCs	NE	NE	NE	**33.21**	**4.431**	**7.16**	**15.95**	**9.095**	**18.26**	**8.88**
PCB Aroclors (mg/kg)										
Aroclor 1248	NE	NE	NE	0.019 U	0.02 UJ	0.019 UJ	**0.018 J**	0.018 UJ	0.018 U	0.021 UJ
Aroclor 1254	NE	NE	NE	**0.15 J**	**0.043 J**	**0.024 J**	**0.06 J**	**0.021 J**	**0.12 J**	**0.022 J**
Aroclor 1260	NE	NE	NE	**0.2 J**	**0.073 J**	**0.041 J**	0.019 U	**0.017 J**	**0.1**	0.021 UJ
Aroclor 1268	NE	NE	NE	**0.12 J**	**0.079 J**	**0.022 J**	**0.011 J**	**0.0078 J**	**0.071 J**	**0.0075 J**
Total PCB Aroclors	0.1	3.2	1	**0.47**	**0.195**	**0.087**	**0.089**	**0.0458**	**0.291**	**0.0295**
Pesticides (mg/kg)										
Aldrin	0.005	0.19	0.097	**0.0022 J**	0.002 UJ	0.0018 UJ	0.0019 UJ	0.0018 UJ	0.0018 UJ	0.0021 UJ
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	**0.0037 JN**	**0.0025 JN**	0.0018 UJ	0.0019 UJ	0.0018 UJ	0.0018 UJ	0.0021 UJ
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	**0.0034 JN**	0.002 UJ	0.0018 UJ	0.0019 UJ	0.0018 UJ	0.0018 UJ	0.0021 UJ
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	**0.003 J**	**0.0019 J**	0.0018 UJ	0.0019 UJ	0.0018 UJ	0.0018 UJ	0.0021 UJ
alpha-chlordane	0.094	2.9	4.2	0.0019 UJ	0.002 UJ	0.0018 UJ	**0.0038 J**	0.0018 UJ	0.0018 UJ	0.0021 UJ
gamma-Chlordane	NE	14*	NE	**0.0051 JN**	**0.0041 JN**	0.0018 UJ	**0.0042 JN**	**0.003 JN**	**0.0031 JN**	0.0021 UJ
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	**0.042 J**	**0.033 J**	**0.01 J**	**0.011 J**	0.0034 UJ	**0.013 J**	**0.011 J**
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	**0.015 J**	**0.012 J**	**0.0024 J**	**0.0047 J**	**0.0035 J**	**0.0046 J**	0.004 UJ

Table 1. Detected Surface Soil Analytical Results - Adjacent to Parcels 3 and 4
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williasmburg Works Site
Brooklyn, NY

Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SS-04 (0-0.2) 10/6/2009	Duplicate of WW-SS-04 (0-0.2) 10/6/2009	WW-SS-05 (0-0.2) 10/6/2009	WW-SS-06 (0-0.2) 10/6/2009	WW-SS-07 (0-0.2) 10/6/2009	WW-SS-08 (0-0.2) 10/6/2009	WW-SS-09 (0-0.2) 10/6/2009
4,4'-DDD (p,p-DDD)	0.0033	14	13	**0.011 JN**	**0.0084 JN**	0.0036 UJ	**0.0068 J**	**0.0041 JN**	**0.011 J**	0.004 UJ
Dieldrin	0.005	0.1	0.2	**0.0046 J**	**0.0042 J**	**0.0013 J**	0.0036 UJ	0.0034 UJ	0.0036 UJ	0.004 UJ
alpha-Endosulfan (I)	2.4	102	24	**0.0075 J**	**0.0068 J**	0.0018 UJ	0.0019 UJ	0.0018 UJ	0.0018 UJ	0.0021 UJ
Endrin	0.014	0.06	11	**0.0039 JN**	0.0039 UJ	0.0036 R	0.0036 UJ	0.0034 UJ	0.0036 UJ	0.004 R
Endrin aldehyde	NE	NE	NE	**0.0071 JN**	**0.029 JN**	**0.0074 JN**	**0.0056 JN**	**0.0056 JN**	**0.0098 JN**	**0.011 JN**
Heptachlor epoxide	NE	0.02*	NE	**0.0036 JN**	**0.0072 J**	0.0018 UJ	0.0019 UJ	0.0018 UJ	0.0018 UJ	0.0021 UJ
Methoxychlor	NE	900*	NE	0.019 UJ	**0.027 JN**	0.018 UJ	0.019 UJ	0.018 UJ	**0.02 JN**	0.021 UJ
Herbicides (mg/kg)										
Herbicides	NE	NE	NE	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)										
Aluminum	NE	NE	NE	**4390**	**4600**	**4270**	**4160**	**2440**	**5260**	**13700**
Arsenic	13	16	16	5.9 U	5.9 U	5.8 U	5.8 U	5.4 U	5.6 U	**6.1 J**
Barium	350	820	400	**102 J**	**102 J**	**68.8 J**	**327 J**	**76.8 J**	**199 J**	**203 J**
Beryllium	7.2	47	72	**0.28 J**	**0.31 J**	**0.26 J**	**0.28 J**	**0.15 J**	**0.32 J**	**1.6**
Cadmium	2.5	7.5	4.3	**2.1**	**2.5**	**1 J**	**0.94 J**	**0.6 J**	**0.66 J**	1.5 U
Calcium	NE	NE	NE	**13900**	**12800**	**9680**	**15200**	**21700**	**17600**	**64900**
Chromium	30	NE	180	**22.4**	**31.5**	**20.9**	**21.1**	**22.5**	**23.8**	**32.3**
Cobalt	NE	NE	NE	**5.5**	**7.6**	**4**	**4.3**	**4 J**	**4.8**	**4.1**
Copper	50	1720	270	**89.9**	**88.1**	**51.9**	**347**	**57.2**	**75.6**	**130**
Iron	NE	NE	NE	**12800**	**15100**	**10200**	**15700**	**20500**	**12200**	**14900**
Lead	63	450	400	**241**	**248**	**99.6**	**251**	**99.1**	**125**	**106**
Magnesium	NE	NE	NE	**6380**	**6820**	**5840**	**7230**	**9290**	**7630**	**18400**
Manganese	1600	2000	2000	**188**	**227**	**272**	**205**	**195**	**248**	**963**
Mercury	0.18	0.73	0.81	**0.2**	**0.2**	**0.11**	**0.094**	**0.094**	**0.12**	**0.091**
Nickel	30	130	310	**19.7**	**24.2**	**14.6**	**16.7**	**19.4**	**19.3**	**20.9**
Potassium	NE	NE	NE	**491 J**	**540 J**	**423 J**	**430 J**	**277 J**	**531 J**	**1710 J**
Silver	2	8.3	180	1.4 U	**0.57 J**	1.4 U	**0.39 J**	1.3 UJ	1.3 U	**0.1 J**
Sodium	NE	NE	NE	**141 J**	**152 J**	**103 J**	**238 J**	**134 J**	**231 J**	**954 J**
Tin	NE	NE	NE	**5.7**	**5.4**	3.4 U	**6.9**	**3.5**	**9.3**	**5.9**
Vanadium	NE	NE	NE	**18.6**	**21.1**	**15.4**	**19.4**	**13.3**	**19**	**24.8**
Zinc	109	2480	10000	**832**	**922**	**456**	**462**	**626**	**465**	**336**
Cyanides (mg/kg)										
Free Cyanide	NE	NE	NE	0.231 UJ	0.233 UJ	0.218 UJ	0.223 UJ	**0.063 J**	0.216 UJ	0.242 UJ

Table 1. Detected Surface Soil Analytical Results - Adjacent to Parcels 3 and 4
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williasmburg Works Site
Brooklyn, NY

Notes:

mg/kg = milligrams/kilogram or parts per million (ppm)

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
PAH = Polycyclic Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
SVOC = Semi-Volatile Organic Compound
VOC = Volatile Organic Compound

Total BTEX, Total VOCs, Total PAHs, Total SVOCs, and Total PCBs are calculated using detects only.
Total PAHs are calculated using the list of analytes: Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, Naphthalene, 2-Methylnaphthalene, Phenanthrene, and Pyrene

6 NYCRR = New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York
Comparison of detected results are performed against one or more of the following NYCRR, Chapter IV, Part 375-6 Soil Cleanup Objectives (SCO)s: Unrestricted Use, Residential, Restricted-Residential, Commercial, Industrial, Protection of Ecological Resources, or Protection of Groundwater

ND = Not Detected
NE = Not Established

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the SCO it was compared to

Validation Qualifiers:

J = The result is an estimated value.
JN = The analyte is presumptively present at an approximated quantity.
R = The result is rejected.
U = The result was not detected above the reporting limit.
UJ = The results was not detected at or above the reporting limit shown and the reporting limit is estimated.

Table 2. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcel 1
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williasmburg Works Site
Brooklyn, NY

Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Industrial SCO	WW-SB-19 (2-3) 7/27/2009	WW-SB-19 (4-5) 7/6/2009	WW-SB-19 (14-15) 7/28/2009	WW-SB-19 (25-35) 7/29/2009	WW-SB-19 (47-50) 7/29/2009	WW-SB-20 (3-5) 6/29/2009	WW-SB-20 (55-57) 7/21/2009	WW-SB-20 (55-57) 7/21/2009	WW-SB-20 (62-63) 7/21/2009	WW-SB-21 (1-2) 7/1/2009	WW-SB-21 (33-34) 7/22/2009	WW-SB-21 (68-69) 7/22/2009	WW-SB-22 (3-4) 6/29/2009	WW-SB-22 (13-15) 7/1/2009	WW-SB-22 (37-38) 7/24/2009	WW-SB-22 (65-65.5) 7/27/2009
BTEX (mg/kg)																			
Benzene	0.06	0.06	89	0.006 U	0.006 U	0.03 U	0.032 U	0.0061 U	0.0057 U	**13**	**9**	**0.02**	0.0057 U	**23**	0.0061 UJ	0.0055 U	0.0059 U	**90**	**0.027**
Toluene	0.7	0.7	1000	**0.037**	0.006 U	0.03 U	0.032 U	0.0061 U	**0.00016 J**	**16**	**20**	0.0064 U	0.0057 U	**17**	0.0061 U	**0.00058 J**	0.0059 U	**200**	**0.062**
Ethylbenzene	1	1	780	**0.0091**	0.006 U	**0.0095 J**	**0.058**	**0.0071**	0.0057 U	**35**	**58**	**0.026**	0.0057 U	**160**	0.0061 UJ	0.0055 U	0.0059 U	**150**	**0.022**
Total Xylene	0.26	1.6	1000	**0.055**	0.006 U	**0.058**	**0.049**	**0.042**	0.0057 U	**42 J**	**71 J**	**0.03**	0.0057 U	**170**	0.0061 UJ	**0.00086 J**	0.0059 U	**260**	**0.054**
Total BTEX	NE	NE	NE	**0.1011**	ND	**0.0675**	**0.107**	**0.0491**	**0.00016**	**106**	**158**	**0.076**	ND	**370**	ND	**0.00144**	ND	**700**	**0.165**
Other VOCs (mg/kg)																			
Acetone	0.05	0.05	1000	0.024 U	0.024 UJ	0.12 U	**0.042 J**	**0.0064 J**	0.023 UJ	3.3 UJ	6.2 UJ	0.026 UJ	0.023 UJ	16 U	0.024 UJ	0.022 UJ	0.023 UJ	30 U	0.026 U
Carbon disulfide	NE	2.7*	NE	0.006 U	0.006 U	0.03 U	0.032 U	0.0061 U	0.0057 U	1.3 U	2.5 U	0.0064 U	0.0057 UJ	6.3 U	0.0061 UJ	0.0055 U	**0.0011 J**	12 U	**0.0014 J**
Chloroform (Trichloromethane)	0.37	0.37	700	0.006 U	0.006 U	0.03 U	0.032 U	**0.00047 J**	0.0057 U	1.3 U	2.5 U	0.0064 U	0.0057 U	6.3 U	0.0061 U	0.0055 U	0.0059 U	12 U	0.0065 U
cis-1,2-Dichloroethene	0.25	0.25	1000	0.006 U	0.006 U	0.03 U	**0.0045 J**	0.0061 U	0.0057 U	1.3 U	2.5 U	**0.0015 J**	0.0057 U	6.3 U	0.0061 UJ	0.0055 U	0.0059 U	12 U	0.0065 U
trans-1,2-Dichloroethene	0.19	0.19	1000	0.006 U	0.006 U	0.03 U	**0.01 J**	0.0061 U	0.0057 U	1.3 U	2.5 U	0.0064 U	0.0057 U	6.3 U	0.0061 U	**0.00071 J**	0.0059 U	12 U	0.0065 U
Styrene	NE	NE	NE	0.006 U	0.006 U	0.03 U	0.032 U	0.0061 U	0.0057 U	1.3 U	2.5 U	0.0064 U	0.0057 U	6.3 U	0.0061 UJ	0.0055 U	0.0059 U	**26**	0.0065 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.006 U	0.006 U	0.03 U	0.032 U	0.0061 UJ	0.0057 U	1.3 U	2.5 U	0.0064 U	0.0057 U	6.3 U	0.0061 U	0.0055 U	0.0059 U	12 U	0.0065 U
Trichloroethene (TCE)	0.47	0.47	400	0.006 U	0.006 U	0.03 U	**0.0053 J**	0.0061 U	0.0057 U	1.3 U	2.5 U	0.0064 U	0.0057 U	6.3 U	0.0061 UJ	0.0055 U	0.0059 U	12 U	0.0065 U
Total VOCs	NE	NE	NE	**0.1011**	ND	**0.0675**	**0.1688**	**0.05597**	**0.00016**	**106**	**158**	**0.0775**	ND	**370**	ND	**0.00215**	**0.0011**	**726**	**0.1664**
PAHs (mg/kg)																			
Acenaphthene	20	98	1000	**0.27 J**	**0.96**	0.32 U	**0.57**	0.33 U	0.61 U	**27 J**	**130 J**	**0.054 J**	**0.062 J**	**33**	0.32 U	**0.3 J**	0.31 U	**9.5 J**	0.35 U
Acenaphthylene	100	107	1000	**3.6**	**1.7**	0.32 U	0.35 U	0.33 U	0.61 U	**5.9 J**	**29 J**	**0.028 J**	**0.7**	**4.8 J**	0.32 U	**0.78**	0.31 U	**100**	0.35 U
Anthracene	100	1000	1000	**2.4**	**3.1**	**0.55**	**0.42**	0.33 U	0.61 U	**14 J**	**63 J**	**0.039 J**	**0.33**	**15**	0.32 U	**1.9**	0.31 U	**40 J**	0.35 U
Benzo(a)anthracene	1	1	11	**2.4**	**4.7**	**0.21 J**	**0.13 J**	0.33 U	0.61 U	**6.8 J**	**32 J**	**0.028 J**	**0.67**	**7.7**	0.32 U	**5.7**	0.31 U	**20 J**	0.35 U
Benzo(b)fluoranthene	1	1.7	11	**3.2**	**4.6**	**0.061 J**	**0.033 J**	0.33 U	0.61 U	**2.8 J**	**14 J**	0.34 U	**0.92**	**3.1 J**	0.32 U	**6**	0.31 U	**13 J**	0.35 U
Benzo(k)fluoranthene	0.8	1.7	110	**1.2**	**1.4**	0.32 U	0.35 U	0.33 U	0.61 U	**1.2 J**	67 U	0.34 U	**0.3 J**	**1.6 J**	0.32 U	**2.3**	0.31 U	65 U	0.35 U
Benzo(g,h,i)perylene	100	1000	1000	**1.1**	**3.6**	**0.048 J**	0.35 U	0.33 U	0.61 U	**1.9 J**	**8.1 J**	**0.42**	**0.93**	**1.4 J**	0.32 U	**5.2**	0.31 U	65 U	0.35 U
Benzo(a)pyrene	1	22	1.1	**4.5**	**5.4**	**0.11 J**	**0.061 J**	0.33 U	0.61 U	**4.9 J**	**22 J**	**0.02 J**	**0.93**	**5.2 J**	0.32 U	**7.3**	0.31 U	**15 J**	0.35 U
Chrysene	1	1	110	**3.3**	**5.1**	**0.26 J**	**0.18 J**	0.33 U	0.61 U	**6.6 J**	**29 J**	0.34 U	**0.81**	**7.5**	0.32 U	**5.9**	0.31 U	**19 J**	0.35 U
Dibenz(a,h)anthracene	0.33	1000	1.1	**0.63**	**1.2**	0.32 U	0.35 U	0.33 U	0.61 U	7 U	67 U	0.34 U	**0.31**	6.8 U	0.32 U	**1.7**	0.31 U	65 U	0.35 U
Fluoranthene	100	1000	1000	**2.8**	**9.1**	**0.21 J**	**0.12 J**	0.33 U	**0.049 J**	**11 J**	**50 J**	**0.035 J**	**0.86**	**13**	0.32 U	**9.4**	0.31 U	**38 J**	0.35 U
Fluorene	30	386	1000	**0.8**	**1.5**	**0.64**	**0.27 J**	0.33 U	0.61 U	**15 J**	**73 J**	**0.035 J**	**0.073 J**	**17**	0.32 U	**0.57 J**	0.31 U	**52 J**	0.35 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	11	**1.3**	**3.8**	**0.037 J**	0.35 U	0.33 U	0.61 U	**1.5 J**	**6.6 J**	**0.39**	**0.95**	**1.2 J**	0.32 U	**6**	0.31 U	65 U	0.35 U
2-Methylnaphthalene	NE	36.4*	NE	**0.15 J**	**0.58 J**	0.32 U	**0.85**	0.33 U	0.61 U	**74 J**	**390 J**	**0.12 J**	**0.043 J**	**76**	0.32 U	**0.46 J**	0.31 U	**280**	0.35 U
Naphthalene	12	12	1000	0.32 U	**0.89**	0.32 U	**2.4**	0.33 U	0.61 U	**120 J**	**760 J**	0.34 U	**0.068 J**	**120**	0.32 U	**1.1**	0.31 U	**840**	0.35 U
Phenanthrene	100	1000	1000	**2.5**	**9**	**2.1**	**0.89**	0.33 U	0.61 U	**47 J**	**220 J**	**0.12 J**	**0.51**	**50**	0.32 U	**7.5**	0.31 U	**130**	0.35 U
Pyrene	100	1000	1000	**5**	**8.9**	**0.64**	**0.36**	0.33 U	**0.054 J**	**18 J**	**84 J**	**0.051 J**	**1.2**	**20**	0.32 U	**9.2**	0.31 U	**36 J**	0.35 U
Total PAHs	NE	NE	NE	**35.15**	**65.53**	**4.866**	**6.284**	ND	**0.103**	**357.6**	**1910.7**	**1.34**	**9.666**	**376.5**	ND	**71.31**	ND	**1592.5**	ND
Other SVOCs (mg/kg)																			
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.32 U	**0.12 J**	0.32 U	0.35 U	0.33 U	**8.9**	7 U	67 U	0.34 U	**3.7 J**	6.8 U	**0.048 J**	**4.7**	**0.11 J**	65 U	0.35 U
Butyl benzyl phthalate	NE	122*	NE	0.32 U	0.63 U	0.32 U	0.35 U	0.33 U	**0.051 J**	7 U	67 U	0.34 U	0.31 U	6.8 U	0.32 U	0.6 U	0.31 U	65 U	0.35 U
Carbazole	NE	NE	NE	**0.31 J**	**0.95**	0.32 U	0.35 U	0.33 U	0.61 U	**0.56 J**	67 U	0.34 U	**0.079 J**	**0.45 J**	0.32 U	**0.77**	0.31 U	65 U	0.35 U
Dibenzofuran	7	210, 6.2*	1000	**0.2 J**	**0.93**	0.32 U	**0.073 J**	0.33 U	0.61 U	**1.7 J**	**9.4 J**	0.34 U	**0.031 J**	**2 J**	0.32 U	**0.56 J**	0.31 U	**8.3 J**	0.35 U
4-Nitroaniline	NE	NE	NE	**0.38**	0.63 U	0.32 U	0.35 U	0.33 U	0.61 U	7 U	67 U	0.34 U	0.31 U	6.8 U	0.32 U	0.6 U	0.31 U	65 U	0.35 U
Phenol	0.33	0.33	1000	0.32 U	0.63 U	0.32 U	0.35 U	0.33 U	0.61 U	7 U	67 U	0.34 U	0.31 U	6.8 U	0.32 U	**0.043 J**	0.31 U	65 U	0.35 U
Total SVOCs	NE	NE	NE	**36.04**	**67.53**	**4.866**	**6.357**	ND	**9.054**	**359.86**	**1920.1**	**1.34**	**13.476**	**378.95**	**0.048**	**77.383**	**0.11**	**1600.8**	ND

Table 2. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcel 1
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williasmburg Works Site
Brooklyn, NY

Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Industrial SCO	WW-SB-19 (2-3) 7/27/2009	WW-SB-19 (4-5) 7/6/2009	WW-SB-19 (14-15) 7/28/2009	WW-SB-19 (25-35) 7/29/2009	WW-SB-19 (47-50) 7/29/2009	WW-SB-20 (3-5) 6/29/2009	WW-SB-20 (55-57) 7/21/2009	WW-SB-20 (55-57) 7/21/2009	WW-SB-20 (62-63) 7/21/2009	WW-SB-21 (1-2) 7/1/2009	WW-SB-21 (33-34) 7/22/2009	WW-SB-21 (68-69) 7/22/2009	WW-SB-22 (3-4) 6/29/2009	WW-SB-22 (13-15) 7/1/2009	WW-SB-22 (37-38) 7/24/2009	WW-SB-22 (65-65.5) 7/27/2009
PC Aroclor 1260																			
	NE	NE	NE	0.02 UJ	**0.017 J**	NA	NA	NA	0.019 U	NA	NA	NA	**0.012 J**	NA	NA	0.019 U	NA	NA	NA
Total PCB Aroclors	0.1	3.2	25	ND	**0.017**	NA	NA	NA	ND	NA	NA	NA	**0.012**	NA	NA	ND	NA	NA	NA
Pesticides (mg/kg)																			
gamma-Chlordane	NE	NE	NE	0.002 U	**0.00084 J**	NA	NA	NA	0.0019 U	NA	NA	NA	**0.0021 J**	NA	NA	0.0019 U	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	94	**0.064 J**	0.004 UJ	NA	NA	NA	0.0038 UJ	NA	NA	NA	0.0037 UJ	NA	NA	**0.0047 J**	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	180	0.004 UJ	0.004 U	NA	NA	NA	0.0038 U	NA	NA	NA	0.0037 U	NA	NA	0.0036 U	NA	NA	NA
Dieldrin	0.005	0.1	2.8	**0.0054 J**	0.004 U	NA	NA	NA	0.0038 U	NA	NA	NA	**0.002 J**	NA	NA	0.0036 U	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	920	0.002 U	0.002 U	NA	NA	NA	0.0019 UJ	NA	NA	NA	0.0019 UJ	NA	NA	0.0019 UJ	NA	NA	NA
beta-Endosulfan (II)	2.4	102	920	**0.011 JN**	0.004 UJ	NA	NA	NA	0.0038 UJ	NA	NA	NA	**0.0064 JN**	NA	NA	**0.0035 J**	NA	NA	NA
Endosulfan sulfate	2.4	1000	920	0.004 UJ	0.004 UJ	NA	NA	NA	0.0038 U	NA	NA	NA	0.0037 UJ	NA	NA	0.0036 U	NA	NA	NA
Endrin	0.014	0.06	410	**0.011 JN**	0.004 UJ	NA	NA	NA	0.0038 U	NA	NA	NA	0.0037 UJ	NA	NA	0.0036 U	NA	NA	NA
Endrin aldehyde	NE	NE	NE	**0.017 JN**	**0.0023 J**	NA	NA	NA	0.0038 UJ	NA	NA	NA	**0.0082 J**	NA	NA	**0.0093 J**	NA	NA	NA
Endrin ketone	NE	NE	NE	**0.015 JN**	0.004 UJ	NA	NA	NA	0.0038 U	NA	NA	NA	0.0037 UJ	NA	NA	0.0036 U	NA	NA	NA
Heptachlor	0.042	0.38	29	0.002 UJ	**0.00045 J**	NA	NA	NA	0.0019 U	NA	NA	NA	**0.0015 J**	NA	NA	0.0019 U	NA	NA	NA
Heptachlor epoxide	NE	0.02*	NE	0.002 U	0.002 UJ	NA	NA	NA	0.0019 U	NA	NA	NA	0.0019 UJ	NA	NA	0.0019 U	NA	NA	NA
Methoxychlor	NE	900*	NE	**0.045 JN**	0.02 UJ	NA	NA	NA	0.019 U	NA	NA	NA	0.019 UJ	NA	NA	0.019 U	NA	NA	NA
Herbicides (mg/kg)																			
Total Herbicides	NE	NE	NE	ND	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA
Metals (mg/kg)																			
Aluminum	NE	NE	NE	**10100**	**8780**	**9390**	**3680**	**2980**	**9750**	**2350**	**1970**	**3570**	**6980**	**2820**	**1330**	**7350**	**10900**	**3570**	**3530**
Arsenic	13	16	16	6.1 UJ	**7.1 J**	**2.2 J**	6.7 U	6.1 U	**6.2 J**	6.8 U	6.2 U	6.7 U	**12.4 J**	6.6 U	6.1 U	**8.5 J**	6 U	6.4 U	6.8 U
Barium	350	820	10000	**102**	**139**	**54.1**	**24.1**	**28.6**	**366 J**	**12.2**	**9**	**29.7**	**160 J**	**19.2**	**14.1**	**158 J**	**94.2 J**	**30.7**	**26.9**
Beryllium	7.2	47	2700	**0.75 J**	**0.76 J**	**0.52 J**	**0.34 J**	**0.5 J**	**0.39 J**	**0.22 J**	**0.18 J**	**0.45 J**	**0.41 J**	**0.38 J**	**0.41 J**	**0.49 J**	**0.9 J**	**0.43 J**	**0.64 J**
Cadmium	2.5	7.5	60	**0.49 J**	1.5 UJ	1.4 UJ	1.6 UJ	1.4 UJ	1.4 U	**1.1 J**	**0.94 J**	**0.6 J**	**0.64 J**	**0.55 J**	1.5 UJ	**0.56 J**	1.4 UJ	**0.53 J**	1.6 UJ
Calcium	NE	NE	NE	**3010 J**	**4550 J**	**4300 J**	**1000 J**	**951 J**	**40600**	80.9 U	74.1 U	79.7 U	**46200**	78.2 U	73.1 U	**4130**	**2220**	75.7 U	**843 J**
Chromium	30	NE	6800	**16.1 J**	**17.1 J**	**29.3 J**	**10.4 J**	**11.8 J**	**13.7 J**	**6.6 J**	**7.4 J**	**11.7 J**	**16 J**	**11.7 J**	**8.6 J**	**16.2 J**	**30.6 J**	**15.8 J**	**20.5 J**
Cobalt	NE	NE	NE	**7.1**	**9.5**	**10.6**	**5.3**	**4.5 J**	**3 J**	**3.8**	**2.9**	**5.5**	**24.6 J**	**3.7**	**4.5 J**	**18.7 J**	**10.6 J**	**7.2**	**4.4 J**
Copper	50	1720	10000	**49.6**	**51.1 J**	**42.2**	**9.9**	**11.9**	**7.7**	**8.6**	**6**	**11.5**	**27.5 J**	**8.4**	**9.9**	**54.7 J**	**24.4 J**	**14.9**	**14.6**
Iron	NE	NE	NE	**20900**	**22700**	**25400**	**12800**	**38800**	**7780**	**12300**	**8930**	**19500**	**18600**	**12000**	**36200**	**20600**	**29500**	**13700**	**44700**
Lead	63	450	3900	**191**	**311**	**9.1**	**5**	**6.7**	**762 J**	**6.6 J**	**5.4 J**	**8.4 J**	**839 J**	**6.8 J**	**6.9 J**	**190 J**	**6.2 J**	**6.6 J**	**8.2 J**
Magnesium	NE	NE	NE	**2760 J**	**2290**	**2790 J**	**1200 J**	**630 J**	**14800**	**962 J**	**787 J**	**1150 J**	**5780**	**921 J**	73.1 UJ	**3030**	**5830**	**1220 J**	**564 J**
Manganese	1600	2000	10000	**231**	**600**	**765**	**193**	**445**	**387**	**245 J**	**120 J**	**481**	**375**	**82.6**	**935**	**458**	**715**	**331**	**483**
Mercury	0.18	0.73	5.7	**0.34**	**1.4**	0.056 U	0.062 U	0.057 U	**0.098 J**	0.063 U	0.058 U	0.061 U	**0.53 J**	0.062 U	0.06 U	**0.24 J**	0.057 UJ	0.056 U	**0.011 J**
Nickel	30	130	10000	**15.5**	**17.5**	**17.7**	**6.7**	**6.3**	**11.4**	**5.7**	**5**	**7.5**	**15.7**	**6.7**	**3.9 J**	**19.3**	**18.9**	**8.9**	**7.1 J**
Potassium	NE	NE	NE	**822 J**	**852 J**	**1520 J**	**561 J**	**411 J**	**1040**	80.9 U	74.1 U	**620**	**1220**	**476**	73.1 U	**1340**	**2910**	**603**	**523 J**
Selenium	3.9	4	6800	11 UJ	11.1 UJ	10.7 UJ	12 UJ	10.9 UJ	10.3 R	12.1 UJ	11.1 UJ	12 UJ	10.3 R	11.7 UJ	**10.5 J**	10 R	10.7 R	11.4 UJ	**8.1 J**
Silver	2	8.3	6800	1.5 UJ	1.5 UJ	**0.54 J**	1.6 U	1.4 UJ	**0.075 J**	1.6 U	1.5 U	1.6 U	1.4 UJ	**0.12 J**	**0.15 J**	**0.28 J**	1.4 UJ	**0.29 J**	**0.25 J**
Sodium	NE	NE	NE	73.2 UJ	**73.7 J**	**1050 J**	**85.3 J**	**45.6 J**	**1110 J**	80.9 UJ	74.1 UJ	79.7 UJ	**833 J**	78.2 UJ	73.1 UJ	**213 J**	**92.3 J**	75.7 UJ	81.2 UJ
Thallium	NE	NE	NE	4.4 UJ	4.4 U	4.3 UJ	4.8 UJ	**3.7 J**	4.1 UJ	4.9 U	4.4 U	4.8 U	**2.8 J**	4.7 U	4.4 UJ	4 UJ	4.3 UJ	4.5 U	4.9 UJ
Tin	NE	NE	NE	**9.5**	**14.7**	3.6 U	4 U	3.6 U	3.4 U	4 U	3.7 U	4 U	**12.3**	3.9 U	3.7 U	**12.2**	3.6 U	3.8 U	4.1 U
Vanadium	NE	NE	NE	**37.2**	**24.4**	**54.1**	**20.3**	**21.7**	**18.8**	**11 J**	**10 J**	**19.2 J**	**22.1**	**28.1 J**	**20.2 J**	**23.2**	**52.3**	**26.2 J**	**23.6 J**
Zinc	109	2480	10000	**182**	**232**	**38.2**	**24**	**25 J**	**142 J**	**14.5 J**	**11 J**	**28.8 J**	**262 J**	**18.7 J**	**24.2 J**	**270 J**	**63.4 J**	**21.1 J**	**30.8**
Cyanides (mg/kg)																			
Free Cyanide	NE	NE	NE	0.241 U	0.238 U	0.231 U	0.257 U	0.241 U	0.227 U	0.26 U	0.246 U	0.254 U	**0.0456 J**	0.25 U	0.241 U	0.22 U	0.234 U	0.241 U	0.258 U
Other (mg/kg)																			
Ammonia	NE	NE	NE	**4.6 J**	2.4 U	**20.2**	**5.4 J**	2.4 U	**1.5 J**	NA	NA	NA	**1.4 J**	**14.9**	2.4 U	**1.7 J**	**7.5**	**16.3**	**3.5 J**

Table 2. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcel 1
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williasmburg Works Site
Brooklyn, NY

Notes:
mg/kg = milligrams/kilogram or parts per million (ppm)

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
PAH = Polycyclic Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
SVOC = Semi-Volatile Organic Compound
VOC = Volatile Organic Compound

Total BTEX, Total VOCs, Total PAHs, Total SVOCs, and Total PCBs are calculated using detects only.
Total PAHs are calculated using the list of analytes: Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, Naphthalene, 2-Methylnaphthalene, Phenanthrene, and Pyrene

6 NYCRR = New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York

Comparison of detected results are performed against one or more of the following NYCRR, Chapter IV, Part 375-6 Soil Cleanup Objectives (SCO)s: Unrestricted Use, Residential, Restricted-Residential, Commercial, Industrial, Protection of Ecological Resources, or Protection of Groundwater

NA = Not Analyzed
ND = Not Detected
NE = Not Established

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the SCO it was compared to

Validation Qualifiers:
J = The result is an estimated value.
JN = The analyte is presumptively present at an approximated quantity.
R = The result is rejected.
U = The result was not detected above the reporting limit.
UJ = The results was not detected at or above the reporting limit shown and the reporting limit is estimated.

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.021 J**	**62 J**	**0.0042 J**	0.0057 U	**0.37 J**	**0.13**	**0.73 J**	**14**	**87**	**2.8**	**0.25**
Toluene	0.7	0.7	100	**0.0014 J**	**220 J**	**0.003 J**	**0.00068 J**	**0.74 J**	**0.0027 J**	**7.6**	**15**	**180**	**1.2**	0.032 U
Ethylbenzene	1	1	41	0.0056 UJ	**220 J**	**0.018**	**0.002 J**	**15 J**	**0.12**	**38**	**16**	**43**	**1.5**	**0.028 J**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	**0.0011 J**	**320 J**	**0.02**	**0.002 J**	**22 J**	**0.12**	**87**	**19**	**220**	**1.6**	**0.027 J**
Total BTEX	NE	NE	NE	**0.0235**	**822**	**0.0452**	**0.00468**	**38.11**	**0.3727**	**133.33**	**64**	**530**	**7.1**	**0.305**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.048 J**	14 UJ	**0.039 J**	0.023 U	1.5 U	0.023 U	7.2 U	1.7 U	15 U	1.5 U	0.13 UJ
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	**0.0012 J**	**1.5 J**	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Chlorobenzene	1.1	1.1	100	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
1,1-Dichloroethene	0.33	0.33	100	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
cis-1,2-Dichloroethene	0.25	0.25	100	**0.0015 J**	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
1,2-Dichloropropane	NE	NE	NE	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.011 UJ	5.8 UJ	0.012 U	0.011 U	0.59 U	0.011 U	2.9 U	0.68 U	6 U	0.62 U	0.063 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.022 UJ	5.8 UJ	0.023 U	0.023 U	0.59 U	0.023 U	2.9 U	0.68 U	6 U	0.62 U	0.13 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.0056 UJ	**60 J**	0.0058 U	**0.00026 J**	**0.61 J**	0.0057 U	2.9 U	**0.24 J**	**150**	0.62 U	0.032 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Trichloroethene (TCE)	0.47	0.47	21	**0.0053 J**	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0056 UJ	5.8 UJ	0.0058 U	0.0057 U	0.59 U	0.0057 U	2.9 U	0.68 U	6 U	0.62 U	0.032 U
Total VOCs	NE	NE	NE	**0.0795**	**883.5**	**0.0842**	**0.00494**	**38.72**	**0.3727**	**133.33**	**64.24**	**680**	**7.1**	**0.305**
PAHs (mg/kg)														
Acenaphthene	20	98	100	0.3 U	**31 J**	0.31 UJ	0.3 U	**95**	**0.36 J**	**24 J**	**0.55 J**	**20 J**	**0.21 J**	**0.055 J**
Acenaphthylene	100	107	100	**0.069 J**	**280**	0.31 UJ	**0.077 J**	**16 J**	**0.033 J**	**16 J**	**3.7**	**220**	1.7 U	0.34 U
Anthracene	100	1000	100	**0.054 J**	**110 J**	0.31 UJ	**0.058 J**	**26 J**	0.61 U	**26 J**	**1.6**	**77**	1.7 U	0.34 U
Benzo(a)anthracene	1	1	1	**0.088 J**	**56 J**	0.31 UJ	**0.045 J**	**17 J**	0.61 U	**16 J**	**0.92 J**	**39 J**	1.7 U	0.34 U
Benzo(b)fluoranthene	1	1.7	1	**0.14 J**	**26 J**	0.31 UJ	0.3 U	**13 J**	0.61 U	**7.3 J**	**0.42 J**	**19 J**	1.7 U	0.34 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**0.046 J**	150 U	0.31 UJ	0.3 U	**5.2 J**	0.61 U	62 U	**0.15 J**	**6.4 J**	1.7 U	0.34 U
Benzo(g,h,i)perylene	100	1000	100	**0.3 J**	**86 J**	0.31 UJ	0.3 U	**28 J**	0.61 U	**47 J**	**0.85 J**	**11 J**	1.7 U	0.34 U
Benzo(a)pyrene	1	22	1	**0.088 J**	**42 J**	0.31 UJ	0.3 U	**19 J**	0.61 U	**11 J**	**0.68 J**	**29 J**	1.7 U	0.34 U
Chrysene	1	1	3.9	**0.1 J**	**56 J**	0.31 UJ	**0.038 J**	**16 J**	0.61 U	**15 J**	**0.88 J**	**36 J**	1.7 U	0.34 U
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.19 J**	150 U	0.31 UJ	0.3 U	**29 J**	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
Fluoranthene	100	1000	100	**0.13 J**	**88 J**	0.31 UJ	**0.065 J**	**26 J**	**0.032 J**	**25 J**	**1.5**	**69**	1.7 U	0.34 U
Fluorene	30	386	100	**0.042 J**	**150**	0.31 UJ	**0.075 J**	**35**	0.61 U	**28 J**	**2**	**110**	1.7 U	0.34 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**0.38**	150 U	0.31 UJ	0.3 U	**38**	0.61 U	**46 J**	**0.83 J**	**10 J**	1.7 U	0.34 U
2-Methylnaphthalene	NE	36.4*	NE	**0.1 J**	**790**	**0.072 J**	**0.18 J**	**320**	**1.4**	**250**	**7.5**	**550**	**2.3**	**0.14 J**
Naphthalene	12	12	100	**0.054 J**	**2100**	**0.13 J**	**0.27 J**	**540**	**7.3**	**610**	**15**	**1200**	**21**	**0.74**
Phenanthrene	100	1000	100	**0.22 J**	**390**	**0.033 J**	**0.23 J**	**88**	**0.046 J**	**84**	**5.6**	**290**	1.7 U	0.34 U
Pyrene	100	1000	100	**0.23 J**	**150 J**	0.31 UJ	**0.11 J**	**29 J**	**0.03 J**	**37 J**	**2.3**	**110**	1.7 U	0.34 U
Total PAHs	NE	NE	NE	**2.231**	**4355**	**0.235**	**1.148**	**1340.2**	**9.201**	**1242.3**	**44.48**	**2796.4**	**23.51**	**0.935**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.15 J**	150 U	0.31 UJ	**0.031 J**	32 U	**0.73**	62 U	1.5 U	64 U	**0.36 J**	0.34 U
Butyl benzyl phthalate	NE	122*	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
2-Chloronaphthalene	NE	NE	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
Dibenzofuran	7	210, 6.2*	59	0.3 U	**16 J**	0.31 UJ	0.3 U	32 U	0.61 U	**4.8 J**	1.5 U	**15 J**	1.7 U	0.34 U
Diethyl phthalate	NE	7.1*	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
2,4-Dimethylphenol	NE	NE	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	**0.75 J**	0.34 U
Di-n-butyl phthalate	NE	8.1*	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
2,6-Dinitrotoluene	NE	1*	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
Di-n-octyl phthalate	NE	120*	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	**0.55 J**	0.34 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	**0.52 J**	0.34 U
4-Nitroaniline	NE	NE	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	0.34 U
Phenol	0.33	0.33	100	0.3 U	150 U	0.31 UJ	0.3 U	32 U	0.61 U	62 U	1.5 U	64 U	1.7 U	**0.1 J**
Total SVOCs	NE	NE	NE	**2.381**	**4371**	**0.235**	**1.179**	**1340.2**	**9.931**	**1247.1**	**44.48**	**2811.4**	**25.69**	**1.035**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NE	NE	NE	0.019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NE	NE	NE	0.019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NE	NE	NE	**0.012 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	**0.012**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0019 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	**0.00082 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.0019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NE	14*	NE	0.0019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	**0.0071 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	0.005	0.1	0.2	**0.0021 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	24	0.0019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-Endosulfan (II)	2.4	102	24	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	2.4	1000	24	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	0.014	0.06	11	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NE	NE	NE	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NE	NE	NE	0.0037 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	0.042	0.38	2.1	0.0019 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
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Heptachlor epoxide	NE	0.02*	NE	0.0019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.019 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.097 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.024 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.024 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**5960 J**	**2580 J**	**2250 J**	**2650**	**7070**	**2430**	**7190**	**6740**	**4050**	**6850**	**3340**
Antimony	NE	NE	NE	4.5 UJ	4.5 UJ	4.6 UJ	4.6 UJ	4.9 UJ	4.7 UJ	4.6 UJ	5.6 UJ	4.9 UJ	5 UJ	5.1 UJ
Arsenic	13	16	16	**2.4 J**	5.8 UJ	5.8 UJ	5.8 UJ	**3.2 J**	6 UJ	5.9 UJ	7.1 UJ	6.3 UJ	**3.7 J**	**6.4 J**
Barium	350	820	400	**180 J**	**19.1 J**	**15.7 J**	**18.3**	**54.7**	**15.1**	**36.3**	**55.5**	**25.1**	**42.8**	**24.8**
Beryllium	7.2	47	72	**0.58 J**	**0.23 J**	**0.41 J**	**0.68 J**	**0.53 J**	**0.51 J**	**0.51 J**	**0.57 J**	**0.72 J**	**0.66 J**	**0.27 J**
Cadmium	2.5	7.5	4.3	1.4 UJ	1.4 U	1.4 UJ	1.4 UJ	1.5 U	1.4 UJ	1.4 U	1.7 U	1.5 UJ	1.5 U	1.5 U
Calcium	NE	NE	NE	**63700 J**	**349 J**	**545 J**	**413**	**14800**	**507**	70.2 U	84.3 U	74.7 U	76.4 U	76.7 U
Chromium	30	NE	180	**19.1 J**	**6.6 J**	**9.1 J**	**11.5**	**12.8**	**12.3**	**16.7**	**16.9**	**15.2**	**21.3**	**8.8**
Cobalt	NE	NE	NE	**7.1 J**	**4.4 J**	**4.3 J**	**6.5 J**	**5.5 J**	**4.4 J**	**15.1**	**8.9**	**8**	**178**	**4.2**
Copper	50	1720	270	**88**	**10.4**	**17.4 J**	**20.4**	**21**	**15.4**	**15.9**	**13.7**	**19.8**	**17.2**	**7.2**
Iron	NE	NE	NE	**9400 J**	**10900 J**	**21700 J**	**43800**	**15000**	**30500**	**17100 J**	**13700 J**	**28200 J**	**21200 J**	**8490 J**
Lead	63	450	400	**99.9**	**2.3 J**	**5.9**	**9.8 J**	**548 J**	**6.7 J**	4.2 U	5.1 U	4.5 UJ	**12.8**	4.6 U
Magnesium	NE	NE	NE	**6070 J**	**911 J**	**640 J**	**571**	**3810**	**513**	**2300**	**3770**	**1210**	**2310**	**1660**
Manganese	1600	2000	2000	**157 J**	**147 J**	**575 J**	**409**	**287**	**389**	**155**	**195**	**228**	**581**	**130**
Mercury	0.18	0.73	0.81	**0.11**	0.056 U	0.057 U	0.055 U	**1.2**	0.053 U	**0.012 J**	**0.0068 J**	**0.01 J**	**0.022**	0.063 U
Nickel	30	130	310	**10 J**	**5.6 J**	**4.3 J**	**6.8**	**11.4**	**5.2**	**13**	**15.4**	**15.2**	**170**	**7.2**
Potassium	NE	NE	NE	**543 J**	**424 J**	**332 J**	**347**	**927**	**282**	**1120 J**	**1770 J**	**643 J**	**1030 J**	**825 J**
Selenium	3.9	4	180	10.2 R	10.3 R	10.4 R	10.4 UJ	11.1 UJ	10.7 UJ	10.5 U	12.6 U	11.2 UJ	11.5 U	11.5 U
Silver	2	8.3	180	1.4 UJ	1.4 U	1.4 UJ	1.4 UJ	1.5 U	1.4 UJ	1.4 U	1.7 U	1.5 UJ	**0.14 J**	1.5 U
Sodium	NE	NE	NE	**604**	68.7 U	69.5 U	**57.6 J**	**362**	**48.9 J**	70.2 U	84.3 U	74.7 U	76.4 U	76.7 U
Thallium	NE	NE	NE	4.1 U	4.1 U	4.2 U	4.2 U	**1.7 J**	4.3 U	4.2 U	5.1 U	4.5 UJ	4.6 U	4.6 U
Tin	NE	NE	NE	**24.8**	3.4 U	3.5 U	3.5 U	3.7 U	3.6 U	3.5 U	4.2 U	3.7 U	3.8 U	3.8 U
Vanadium	NE	NE	NE	**10.2 J**	**9.6 J**	**18.8 J**	**21**	**20.4**	**23.7**	**24.2**	**22.5**	**42.7**	**29.3**	**12.2**
Zinc	109	2480	10000	**1020 J**	**13.5 J**	**21.6 J**	**35.3**	**55.4**	**27.8**	**33.1**	**33.4**	**36.1**	**127**	**21.1**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.221 U	0.229 U	0.232 U	0.23 U	0.234 U	0.228 U	0.229 U	0.271 U	0.238 U	0.246 U	0.253 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-04 (5-10) 6/15/2009	WW-MW-04 (31-33) 6/15/2009	WW-MW-04 (58-59) 6/15/2009	WW-MW-05 (63-64) 6/11/2009	WW-MW-17 (7-8) 6/8/2009	WW-MW-17 (54-55) 6/9/2009	WW-SB-09 (11-12) 7/13/2009	WW-SB-09 (53-54) 7/14/2009	WW-SB-10 (49-50) 7/15/2009	WW-SB-10 (51-52) 7/15/2009	WW-SB-11 (50-51) 7/14/2009
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
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Sample Location				Parcel 2 [Block 2287 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	**0.0029 J**	**1100**	**13**	**840**	**0.063**	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	**0.33 J**
Toluene	0.7	0.7	100	0.0061 U	**1800**	**32**	**1300**	**0.0033 J**	0.0058 U	**0.00019 J**	0.0059 U	0.0059 U	0.006 U	0.0058 U	**5**
Ethylbenzene	1	1	41	0.0061 U	**200**	**35**	**120**	**0.014**	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	**2.5**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.0061 U	**1700**	**69**	**1200**	**0.014**	0.0058 U	0.0058 U	0.0059 U	**0.0019 J**	**0.00069 J**	0.0058 U	**18**
Total BTEX	NE	NE	NE	**0.0029**	**4800**	**149**	**3460**	**0.0943**	ND	**0.00019**	ND	**0.0019**	**0.00069**	ND	**25.83**
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	0.024 UJ	270 U	3 U	81 U	0.024 UJ	0.023 UJ	0.023 UJ	0.024 UJ	**0.0062 J**	**0.005 J**	0.023 U	2.8 UJ
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 UJ	1.1 U
Chlorobenzene	1.1	1.1	100	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	**0.0016 J**	**0.0017 J**	0.0058 U	1.1 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
1,1-Dichloroethene	0.33	0.33	100	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 UJ	1.1 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
1,2-Dichloropropane	NE	NE	NE	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.012 U	110 U	1.2 U	33 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	1.1 UJ
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.024 U	110 U	1.2 U	33 U	0.024 U	0.023 U	0.023 U	0.024 U	0.024 U	0.024 U	**0.0022 J**	1.1 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.0061 U	**1100**	**21**	**1000**	**0.00019 J**	0.0058 U	0.0058 U	0.0059 U	**0.0009 J**	0.006 U	0.0058 U	**7.3**
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Trichloroethene (TCE)	0.47	0.47	21	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0061 U	110 U	1.2 U	33 U	0.0061 U	0.0058 U	0.0058 U	0.0059 U	0.0059 U	0.006 U	0.0058 U	1.1 U
Total VOCs	NE	NE	NE	**0.0029**	**5900**	**170**	**4460**	**0.09449**	ND	**0.00019**	ND	**0.0106**	**0.00739**	**0.0022**	**33.13**
PAHs (mg/kg)															
Acenaphthene	20	98	100	0.32 U	**400 J**	**5.1 J**	**44 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**1.5 J**
Acenaphthylene	100	107	100	0.32 U	**3200**	**32**	**470**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**14**
Anthracene	100	1000	100	0.32 U	**1300**	**14**	**140 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**6.1**
Benzo(a)anthracene	1	1	1	0.32 U	**710 J**	**7.5**	**82 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**3.6 J**
Benzo(b)fluoranthene	1	1.7	1	0.32 U	**430 J**	**3.5 J**	**40 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**1.9 J**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.32 U	**140 J**	**1.1 J**	**21 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**0.81 J**
Benzo(g,h,i)perylene	100	1000	100	0.32 U	**620 J**	**4.3 J**	**23 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**0.45 J**
Benzo(a)pyrene	1	22	1	0.32 U	**530 J**	**5.5 J**	**64 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**2.5 J**
Chrysene	1	1	3.9	0.32 U	**700 J**	**6.9**	**78 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**3.6 J**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.32 U	1200 U	**2.9 J**	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Fluoranthene	100	1000	100	0.32 U	**1600**	**14**	**140 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**6.4**
Fluorene	30	386	100	0.32 U	**2000**	**19**	**220**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**9.5**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.32 U	1200 U	**4.2 J**	**24 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**0.54 J**
2-Methylnaphthalene	NE	36.4*	NE	0.32 U	**7800**	**64**	**1200**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**45**
Naphthalene	12	12	100	0.32 U	**17000**	**120**	**3100**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**90**
Phenanthrene	100	1000	100	0.32 U	**4800**	**50**	**540**	0.33 U	0.3 U	0.3 U	0.32 U	**0.019 J**	**0.035 J**	0.31 U	**22**
Pyrene	100	1000	100	0.32 U	**1700**	**19**	**220**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**8.9**
Total PAHs	NE	NE	NE	ND	**42930**	**373**	**6406**	ND	ND	ND	ND	**0.019**	**0.035**	ND	**216.8**
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.042 J**	1200 U	6.5 U	180 U	**0.038 J**	**0.044 J**	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Butyl benzyl phthalate	NE	122*	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.32 U	1200 U	**0.77 J**	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
2-Chloronaphthalene	NE	NE	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Dibenzofuran	7	210, 6.2*	59	0.32 U	**400 J**	**2.8 J**	**31 J**	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	**1.1 J**
Diethyl phthalate	NE	7.1*	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
2,4-Dimethylphenol	NE	NE	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Di-n-butyl phthalate	NE	8.1*	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
2,6-Dinitrotoluene	NE	1*	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Di-n-octyl phthalate	NE	120*	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
4-Nitroaniline	NE	NE	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.32 U	1200 U	6.5 U	180 U	0.33 U	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Phenol	0.33	0.33	100	0.32 U	1200 U	6.5 U	180 U	**0.23 J**	0.3 U	0.3 U	0.32 U	0.32 U	0.32 U	0.31 U	5.9 U
Total SVOCs	NE	NE	NE	**0.042**	**43330**	**376.57**	**6437**	**0.268**	**0.044**	ND	ND	**0.019**	**0.035**	ND	**217.9**
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	0.014	0.06	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (mg/kg)															
Aluminum	NE	NE	NE	**4090**	**2310**	**2770**	**3910**	**3710**	**915**	**845**	**13500**	**29700**	**26300**	**22000**	**3830**
Antimony	NE	NE	NE	4.9 UJ	4.3 UJ	4.8 UJ	5.4 UJ	4.9 UJ	22.7 UJ	4.7 UJ	4.9 UJ	4.7 UJ	4.9 UJ	4.8 UJ	22.7 UJ
Arsenic	13	16	16	6.2 UJ	**2.4 J**	6.1 UJ	6.8 UJ	6.2 UJ	28.9 U	**2.1 J**	6.2 UJ	6 U	6.2 U	6.1 UJ	28.8 U
Barium	350	820	400	**20.2**	**15.6**	**19.7**	**22.3**	**37.6**	**14.9**	**11.3**	**22.5**	**531**	**474**	**320**	**35.3 J**
Beryllium	7.2	47	72	**0.65 J**	**0.17 J**	**0.51 J**	**0.43 J**	**0.66 J**	**0.97 J**	**0.56 J**	**0.8 J**	**1.5**	**1.2 J**	**1.5**	**0.73 J**
Cadmium	2.5	7.5	4.3	1.5 UJ	1.3 U	1.4 UJ	1.6 U	1.5 UJ	6.9 U	1.4 U	1.5 UJ	1.4 UJ	1.5 UJ	1.4 UJ	6.9 UJ
Calcium	NE	NE	NE	73.8 U	65.1 U	72.5 U	81.3 U	73.8 U	**332 J**	**268 J**	**540 J**	**5010 J**	**5800 J**	**579 J**	**3060 J**
Chromium	30	NE	180	**16.1**	**5.3**	**14.7**	**15.9**	**16.7**	**6.7 J**	**4.8**	**17.6**	**27.7**	**20.2**	**74**	**10.3 J**
Cobalt	NE	NE	NE	**7.5 J**	**2.9**	**6 J**	**7.5**	**4.4 J**	**1.2 J**	**9.6 J**	**16.3 J**	**17.4 J**	**15.5 J**	**26.7 J**	**1.2 J**
Copper	50	1720	270	**15.9 J**	**6.8**	**13.7**	**14.8**	**17.4 J**	**7.1**	**5.8**	**28.4**	**50.3**	**58.9**	**68.9**	**5.8 J**
Iron	NE	NE	NE	**51400 J**	**6430 J**	**31400 J**	**19900 J**	**49200 J**	**439**	**3260**	**27800**	**41900**	**33400**	**42900**	**247000**
Lead	63	450	400	4.4 UJ	3.9 U	4.3 UJ	4.9 U	4.4 UJ	20.6 U	**3.8 J**	**7 J**	**4.9**	**1.5 J**	**7.3**	**7.1 J**
Magnesium	NE	NE	NE	73.8 U	**1520**	72.5 U	**1480**	73.8 U	**62.9 J**	**83.5**	**5600**	**10600**	**9350**	**10300**	**3850**
Manganese	1600	2000	2000	**359**	**108**	**352**	**217**	**421**	**4.1 J**	**6.2**	**288**	**593**	**441**	**338**	**4820**
Mercury	0.18	0.73	0.81	**0.0078 J**	0.051 U	0.061 U	**0.0074 J**	**0.022**	0.056 U	0.055 U	0.058 U	0.055 U	0.059 U	0.055 U	0.053 U
Nickel	30	130	310	**8.4**	**6.2**	**8.2**	**12.1**	**7.6**	6.9 U	**6.3 J**	**18.8 J**	**17.7 J**	**13.7 J**	**57.3 J**	**4.3 J**
Potassium	NE	NE	NE	73.8 UJ	**409 J**	72.5 UJ	**627 J**	**607 J**	688 UJ	**32.4 J**	**2980**	**13400**	**10500**	**9740**	**492**
Selenium	3.9	4	180	11.1 UJ	9.8 U	10.9 UJ	12.2 U	11.1 UJ	51.6 U	10.7 U	11 UJ	10.7 UJ	11.1 UJ	10.8 UJ	51.5 UJ
Silver	2	8.3	180	**0.15 J**	1.3 U	**0.3 J**	**0.12 J**	**0.22 J**	6.9 U	1.4 U	1.5 UJ	1.4 UJ	1.5 UJ	1.4 UJ	6.9 UJ
Sodium	NE	NE	NE	73.8 U	65.1 U	72.5 U	81.3 U	73.8 U	688 U	142 U	**1110**	**549 J**	**1030 J**	**232 J**	687 U
Thallium	NE	NE	NE	4.4 U	3.9 U	4.3 U	4.9 U	4.4 U	20.6 U	4.3 U	4.4 UJ	4.3 UJ	4.4 UJ	4.3 UJ	20.6 UJ
Tin	NE	NE	NE	3.7 U	3.3 U	3.6 U	4.1 U	3.7 U	17.2 U	3.6 U	3.7 U	3.6 U	3.7 U	**5.5**	17.2 U
Vanadium	NE	NE	NE	**31.6**	**8.9**	**25.8**	**25.5**	**20.6**	**3.5 J**	**4.6**	**65.7**	**94.8**	**84.1**	**90**	**19.4 J**
Zinc	109	2480	10000	**40.8**	**13.4**	**34.6**	**31**	**35.1**	34.4 U	**6.8**	**96.4**	**89.5**	**58.5**	**102**	**22.8 J**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	0.243 U	0.213 U	0.243 U	0.257 U	0.243 U	0.231 U	0.229 U	0.234 U	0.236 U	0.239 U	0.231 U	0.222 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-11 (63-64) 7/14/2009	WW-SB-23 (31-33) 7/17/2009	WW-SB-23 (62-63) 7/17/2009	WW-SB-24 (38-40) 7/16/2009	WW-SB-24 (53-55) 7/16/2009	WW-SB-37 (96-97) 12/28/2009	WW-SB-38 (96.5-97) 12/29/2009	WW-SB-39 (96-97) 12/30/2009	WW-SB-40 (95-95.5) 12/23/2009	Duplicate of WW-SB-40 (95-95.5) 12/23/2009	WW-SB-41 (96-97) 12/22/2009	WW-SB-42 (62-62.5) 12/22/2009
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)															
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-42 (96.5-97) 12/22/2009**	**WW-MW-06 (50-52) 6/18/2009**	**WW-MW-06 (58-60) 6/18/2009**	**WW-MW-07 (4-5) 6/22/2009**	**WW-MW-07 (48.5-49.5) 6/23/2009**	**WW-MW-07 (59-60) 6/23/2009**	**WW-MW-08 (7.5-8.5) 6/19/2009**	**WW-MW-08 (40-45) 6/19/2009**	**Duplicate of WW-MW-08 (40-45) 6/19/2009**	**WW-MW-200 (0-5) 7/18/2022**	**WW-MW-200 (7-10) 7/20/2022**
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.0062 U	**160**	**0.15**	0.0061 U	**230**	**2.8**	**7.1 J**	**0.013**	**0.0081**	0.0036 U	0.0026 U
Toluene	0.7	0.7	100	0.0062 U	**460**	**0.05**	0.0061 U	**400**	0.6 U	**4.6 J**	0.0061 U	0.0064 U	0.0036 U	0.0026 U
Ethylbenzene	1	1	41	0.0062 U	**440**	**0.058**	0.0061 U	**64**	**0.89**	**470**	0.0061 UJ	0.0064 U	0.0036 U	0.0026 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0072 U	0.0053 U
Total Xylene	0.26	1.6	100	0.0062 U	**570**	**0.073**	0.0061 U	**550**	0.6 U	**550**	0.0061 UJ	0.0064 U	NA	NA
Total BTEX	NE	NE	NE	ND	**1630**	**0.331**	ND	**1244**	**3.69**	**1031.7**	**0.013**	**0.0081**	ND	ND
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.025 U	52 U	**0.049 J**	0.025 U	66 U	1.5 U	37 U	0.024 UJ	**0.049 J**	0.0359 U	**0.0477 J**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	**0.052**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	**0.0014 J**
Carbon disulfide	NE	2.7*	NE	0.0062 UJ	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	**0.0012 J**
Chlorobenzene	1.1	1.1	100	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 UJ	0.0064 U	0.0036 U	0.0026 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
1,1-Dichloroethane	0.27	0.27	26	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
1,1-Dichloroethene	0.33	0.33	100	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
1,2-Dichloropropane	NE	NE	NE	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	**0.002 J**
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.012 U	21 U	0.011 U	0.012 U	26 U	0.6 U	15 U	0.012 UJ	0.013 U	0.0359 U	0.0264 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 UJ	0.0064 U	0.0359 U	0.0264 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
Methylene chloride	0.05	0.05	100	**0.0031 J**	21 U	0.021 U	0.025 U	26 U	0.6 U	15 U	0.024 U	0.026 U	0.0179 U	0.0132 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	**0.0107**
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
Styrene	NE	NE	NE	0.0062 U	**20 J**	**0.0045 J**	0.0061 U	**420**	0.6 U	15 U	0.0061 UJ	0.0064 U	0.0036 U	**0.0023 J**
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 UJ	0.0064 U	0.0036 U	0.0026 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 UJ	0.0064 U	0.0036 U	0.0026 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
1,1,2-Trichloroethane	NE	NE	NE	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U
Trichloroethene (TCE)	0.47	0.47	21	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0036 U	0.0026 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-42 (96.5-97) 12/22/2009	WW-MW-06 (50-52) 6/18/2009	WW-MW-06 (58-60) 6/18/2009	WW-MW-07 (4-5) 6/22/2009	WW-MW-07 (48.5-49.5) 6/23/2009	WW-MW-07 (59-60) 6/23/2009	WW-MW-08 (7.5-8.5) 6/19/2009	WW-MW-08 (40-45) 6/19/2009	Duplicate of WW-MW-08 (40-45) 6/19/2009	WW-MW-200 (0-5) 7/18/2022	WW-MW-200 (7-10) 7/20/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	**0.0016 J**
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0036 U	0.0026 U
Vinyl chloride	0.02	0.02	0.9	0.0062 U	21 U	0.0054 U	0.0061 U	26 U	0.6 U	15 U	0.0061 U	0.0064 U	0.0072 U	0.0053 U
Total VOCs	NE	NE	NE	**0.0031**	**1650**	**0.3845**	ND	**1664**	**3.69**	**1031.7**	**0.013**	**0.0571**	ND	**0.1189**
PAHs (mg/kg)														
Acenaphthene	20	98	100	0.33 U	**44 J**	**0.03 J**	**0.27 J**	**46 J**	**0.028 J**	**290**	0.32 U	0.34 U	**0.677 J**	**4.94**
Acenaphthylene	100	107	100	0.33 U	**460**	**0.13 J**	**2.9**	**460**	**0.13 J**	**37 J**	0.32 U	0.34 U	**0.525 J**	**5.59**
Anthracene	100	1000	100	0.33 U	**170**	**0.071 J**	**0.99**	**130 J**	**0.051 J**	**91 J**	0.32 U	0.34 U	**1.41**	**2.14**
Benzo(a)anthracene	1	1	1	0.33 U	**89 J**	**0.056 J**	**6.9**	**83 J**	**0.04 J**	**44 J**	0.32 U	0.34 U	**4.9**	**15.9**
Benzo(b)fluoranthene	1	1.7	1	0.33 U	**39 J**	**0.016 J**	**8.1**	**34 J**	0.32 U	**24 J**	**0.07 J**	0.34 U	**5.21**	**7.11**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.33 U	**15 J**	0.29 U	**3.3**	350 U	0.32 U	160 U	0.32 U	0.34 U	**3.93**	**7.37**
Benzo(g,h,i)perylene	100	1000	100	0.33 U	**88 J**	0.29 U	**6.1**	350 U	0.32 U	**12 J**	**0.42**	**0.44**	**10.1**	**9.39**
Benzo(a)pyrene	1	22	1	0.33 U	**64 J**	**0.033 J**	**12**	**58 J**	**0.03 J**	**35 J**	**0.044 J**	**0.049 J**	**12.3**	**19.7**
Chrysene	1	1	3.9	0.33 U	**86 J**	**0.043 J**	**6**	**75 J**	**0.028 J**	**43 J**	0.32 U	0.34 U	**5.48**	**16.2**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.33 U	140 U	0.29 U	**2.3**	350 U	0.32 U	160 U	0.32 U	0.34 U	**1.25**	**1.5**
Fluoranthene	100	1000	100	0.33 U	**140 J**	**0.079 J**	**5.4**	**130 J**	**0.057 J**	**76 J**	0.32 U	0.34 U	**5.48**	**33.5**
Fluorene	30	386	100	0.33 U	**230**	**0.084 J**	**0.37 J**	**220 J**	**0.066 J**	**120 J**	0.32 U	0.34 U	**0.34 J**	1.14 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.33 U	**72 J**	0.29 U	**7.6**	350 U	0.32 U	**110 J**	**0.28 J**	0.34 U	**7.58**	**7.28**
2-Methylnaphthalene	NE	36.4*	NE	0.33 U	**1200**	**0.32**	**0.26 J**	**1200**	**0.37**	**840**	**0.023 J**	**0.014 J**	**0.24 J**	1.14 U
Naphthalene	12	12	100	0.33 U	**2600**	**0.84**	**0.58 J**	**3300**	**1**	**1700**	**0.062 J**	**0.038 J**	**0.536 J**	1.14 U
Phenanthrene	100	1000	100	0.33 U	**610**	**0.27 J**	**1.9**	**490**	**0.2 J**	**310**	0.32 U	0.34 U	**4.48**	**0.639 J**
Pyrene	100	1000	100	0.33 U	**240**	**0.12 J**	**5.6**	**190 J**	**0.086 J**	**120 J**	0.32 U	0.34 U	**9.72**	**68.6**
Total PAHs	NE	NE	NE	ND	**6147**	**2.092**	**70.57**	**6416**	**2.086**	**3852**	**0.899**	**0.541**	**74.158**	**199.859**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name				**WW-SB-42**	**WW-MW-06**	**WW-MW-06**	**WW-MW-07**	**WW-MW-07**	**WW-MW-07**	**WW-MW-08**	**WW-MW-08**	**Duplicate of WW-MW-08**	**WW-MW-200**	**WW-MW-200**
Sample Depth (feet bgs)	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**(96.5-97)**	**(50-52)**	**(58-60)**	**(4-5)**	**(48.5-49.5)**	**(59-60)**	**(7.5-8.5)**	**(40-45)**	**(40-45)**	**(0-5)**	**(7-10)**
Sample Date				**12/22/2009**	**6/18/2009**	**6/18/2009**	**6/22/2009**	**6/23/2009**	**6/23/2009**	**6/19/2009**	**6/19/2009**	**6/19/2009**	**7/18/2022**	**7/20/2022**
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.55 U	2.29 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.772 U	1.14 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.33 U	140 U	**0.089 J**	**0.21 J**	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Butyl benzyl phthalate	NE	122*	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.772 U	1.14 U
Carbazole	NE	NE	NE	0.33 U	140 U	0.29 U	**0.45 J**	350 U	0.32 U	160 U	0.32 U	0.34 U	**0.263 J**	1.14 U
2-Chloronaphthalene	NE	NE	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Dibenzofuran	7	210, 6.2*	59	0.33 U	**26 J**	0.29 U	**0.18 J**	**27 J**	0.32 U	**14 J**	0.32 U	0.34 U	0.772 U	1.14 U
Diethyl phthalate	NE	7.1*	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
2,4-Dimethylphenol	NE	NE	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Di-n-butyl phthalate	NE	8.1*	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
2,6-Dinitrotoluene	NE	1*	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Di-n-octyl phthalate	NE	120*	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.24 J**	1.14 U
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.55 U	2.29 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	NA	NA
4-Nitroaniline	NE	NE	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Phenol	0.33	0.33	100	0.33 U	140 U	0.29 U	0.65 U	350 U	0.32 U	160 U	0.32 U	0.34 U	0.772 U	1.14 U
Total SVOCs	NE	NE	NE	ND	**6173**	**2.181**	**71.41**	**6443**	**2.086**	**3866**	**0.899**	**0.541**	**74.421**	**199.859**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-42 (96.5-97) 12/22/2009	WW-MW-06 (50-52) 6/18/2009	WW-MW-06 (58-60) 6/18/2009	WW-MW-07 (4-5) 6/22/2009	WW-MW-07 (48.5-49.5) 6/23/2009	WW-MW-07 (59-60) 6/23/2009	WW-MW-08 (7.5-8.5) 6/19/2009	WW-MW-08 (40-45) 6/19/2009	Duplicate of WW-MW-08 (40-45) 6/19/2009	WW-MW-200 (0-5) 7/18/2022	WW-MW-200 (7-10) 7/20/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name				**WW-SB-42**	**WW-MW-06**	**WW-MW-06**	**WW-MW-07**	**WW-MW-07**	**WW-MW-07**	**WW-MW-08**	**WW-MW-08**	**Duplicate of WW-MW-08**	**WW-MW-200**	**WW-MW-200**
Sample Depth (feet bgs)	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**(96.5-97)**	**(50-52)**	**(58-60)**	**(4-5)**	**(48.5-49.5)**	**(59-60)**	**(7.5-8.5)**	**(40-45)**	**(40-45)**	**(0-5)**	**(7-10)**
Sample Date				**12/22/2009**	**6/18/2009**	**6/18/2009**	**6/22/2009**	**6/23/2009**	**6/23/2009**	**6/19/2009**	**6/19/2009**	**6/19/2009**	**7/18/2022**	**7/20/2022**
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name				**WW-SB-42**	**WW-MW-06**	**WW-MW-06**	**WW-MW-07**	**WW-MW-07**	**WW-MW-07**	**WW-MW-08**	**WW-MW-08**	**Duplicate of WW-MW-08**	**WW-MW-200**	**WW-MW-200**
Sample Depth (feet bgs)	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**(96.5-97)**	**(50-52)**	**(58-60)**	**(4-5)**	**(48.5-49.5)**	**(59-60)**	**(7.5-8.5)**	**(40-45)**	**(40-45)**	**(0-5)**	**(7-10)**
Sample Date				**12/22/2009**	**6/18/2009**	**6/18/2009**	**6/22/2009**	**6/23/2009**	**6/23/2009**	**6/19/2009**	**6/19/2009**	**6/19/2009**	**7/18/2022**	**7/20/2022**
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.021 U	NA	NA	NA	NA	NA	0.05 U	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.021 U	NA	NA	NA	NA	NA	0.05 U	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	0.021 U	NA	NA	NA	NA	NA	**0.3 J**	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	0.021 U	NA	NA	NA	NA	NA	**0.2**	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	ND	NA	NA	NA	NA	NA	**0.5**	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.0021 U	NA	NA	NA	NA	NA	0.0028 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	**0.0027 J**	NA	NA	NA	NA	NA	0.0028 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.0021 U	NA	NA	NA	NA	NA	0.0017 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.0021 U	NA	NA	NA	NA	NA	0.0028 U	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0848 JN**	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	0.0021 U	NA	NA	NA	NA	NA	**0.0189**	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	**0.0045 J**	NA	NA	NA	NA	NA	**0.0174 J**	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	**0.014 JN**	NA	NA	NA	NA	NA	0.0028 U	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	0.004 U	NA	NA	NA	NA	NA	**0.004**	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	0.004 UJ	NA	NA	NA	NA	NA	0.0028 U	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	0.004 UJ	NA	NA	NA	NA	NA	**0.0087 JN**	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.0021 U	NA	NA	NA	NA	NA	0.0028 U	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	**0.0087 JN**	NA	NA	NA	NA	NA	0.0028 U	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	**0.017 J**	NA	NA	NA	NA	NA	0.0028 U	NA
Endrin	0.014	0.06	11	NA	NA	NA	**0.0074 JN**	NA	NA	NA	NA	NA	0.0028 U	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	**0.023 J**	NA	NA	NA	NA	NA	0.0028 U	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	**0.019 J**	NA	NA	NA	NA	NA	0.0028 U	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	**0.0043 J**	NA	NA	NA	NA	NA	**0.0017 J**	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-42 (96.5-97) 12/22/2009**	**WW-MW-06 (50-52) 6/18/2009**	**WW-MW-06 (58-60) 6/18/2009**	**WW-MW-07 (4-5) 6/22/2009**	**WW-MW-07 (48.5-49.5) 6/23/2009**	**WW-MW-07 (59-60) 6/23/2009**	**WW-MW-08 (7.5-8.5) 6/19/2009**	**WW-MW-08 (40-45) 6/19/2009**	**Duplicate of WW-MW-08 (40-45) 6/19/2009**	**WW-MW-200 (0-5) 7/18/2022**	**WW-MW-200 (7-10) 7/20/2022**
Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.0021 U	NA	NA	NA	NA	NA	0.0028 U	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0028 U	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	**0.033 JN**	NA	NA	NA	NA	NA	0.0028 U	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.096 U	NA	NA	NA	NA	NA	0.206 U	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01 U	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.206 U	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.6 U	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.3 U	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.024 U	NA	NA	NA	NA	NA	0.01 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.024 U	NA	NA	NA	NA	NA	0.01 U	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**3400**	**2370 J**	**2690 J**	**7330**	**1860**	**2790**	**4480 J**	**2710 J**	**7800 J**	**3900 J**	**10400**
Antimony	NE	NE	NE	4.9 UJ	4.2 UJ	4.3 UJ	4.8 UJ	5.3 UJ	4.9 UJ	4.9 UJ	4.9 UJ	5.2 UJ	**0.52 J**	2.17 UJ
Arsenic	13	16	16	**3.4**	**1.7 J**	5.4 UJ	**2.3 J**	6.7 U	6.3 U	**2.3 J**	**3.1 J**	**14.3 J**	**6.99 J**	**2.55 J**
Barium	350	820	400	**34.4**	**15.2 J**	**21.9 J**	**48.5 J**	**18.4 J**	**19.9 J**	**26.5 J**	**39.7 J**	**87.2 J**	**56.8 J**	**35.7**
Beryllium	7.2	47	72	**0.56 J**	**0.26 J**	**0.47 J**	**0.67 J**	**0.42 J**	**0.53 J**	**0.44 J**	**0.8 J**	**1.8**	**0.26 J**	**0.71 J**
Cadmium	2.5	7.5	4.3	**0.49 J**	1.3 U	1.3 UJ	**0.33 J**	1.6 U	1.5 UJ	1.5 U	1.5 U	1.6 U	1.9 UJ	1.74 U
Calcium	NE	NE	NE	**469 J**	**580 J**	**786 J**	**1150 J**	**436 J**	**666 J**	**737 J**	**1360 J**	**2210 J**	**46400 J**	**1160 J**
Chromium	30	NE	180	**4.9**	**6.9 J**	**11.2 J**	**15.7 J**	**8 J**	**11.5 J**	**11.2 J**	**10.3 J**	**18.2 J**	**11.2 J**	**16.3 J**
Cobalt	NE	NE	NE	**185 J**	**3.8 J**	**4.2 J**	**6.4**	**6.5**	**5.3 J**	**5.3 J**	**15.8 J**	**53.9 J**	**1.73 J**	**9.14 J**
Copper	50	1720	270	**264**	**9.3**	**19.8 J**	**24.8 J**	**17.1 J**	**16.8 J**	**12.9**	**35.1**	**53.9**	**44.1 J**	**11.8 J**
Iron	NE	NE	NE	**19100**	**8800 J**	**21600 J**	**15800**	**10300**	**25100**	**13000 J**	**4110 J**	**9520 J**	**7750 J**	**16200 J**
Lead	63	450	400	**11.4**	**3.2**	**7.4**	**45 J**	**4.7 J**	**5.9 J**	**4.6**	**14.5 J**	**25.9 J**	**165 J**	**12 J**
Magnesium	NE	NE	NE	**265**	**953 J**	**888 J**	**2010**	**782**	**794**	**2530 J**	**568 J**	**1600 J**	**19600 J**	**2510 J**
Manganese	1600	2000	2000	**11.3**	**291 J**	**423 J**	**269**	**92.1**	**555**	**79.6 J**	**27.4 J**	**78.3 J**	**140 J**	**158**
Mercury	0.18	0.73	0.81	0.058 U	0.051 U	0.05 U	**0.037 J**	0.065 UJ	**0.0078 J**	0.059 U	**0.035**	**0.018 J**	**0.737**	**0.016 J**
Nickel	30	130	310	**231 J**	**6.1 J**	**6.5 J**	**13.6 J**	**7.6 J**	**5.6 J**	**13.4 J**	**16.7 J**	**70 J**	**11.6 J**	**16 J**
Potassium	NE	NE	NE	**43.7 J**	**454 J**	**417 J**	**806 J**	**380 J**	**448 J**	**729 J**	**559 J**	**799 J**	**681 J**	2170 UJ
Selenium	3.9	4	180	11.2 U	9.5 R	9.7 R	11 UJ	11.9 U	11.2 U	11.1 R	11.1 R	11.8 R	2.37 UJ	2.17 U
Silver	2	8.3	180	1.5 U	1.3 U	1.3 UJ	1.5 U	1.6 U	1.5 UJ	1.5 U	1.5 U	1.6 U	1.9 U	1.74 U
Sodium	NE	NE	NE	**46.3 J**	**58.9 J**	**56.9 J**	**65.1 J**	**138 J**	74.5 UJ	**347**	**119 J**	**248 J**	2370 UJ	2170 U
Thallium	NE	NE	NE	**1.8 J**	3.8 U	**1.1 J**	4.4 U	4.8 U	4.5 U	4.4 U	4.4 U	4.7 U	2.37 UJ	2.17 U
Tin	NE	NE	NE	3.7 U	3.2 U	3.2 U	3.7 U	4 U	3.7 U	3.7 U	3.7 U	3.9 U	47.4 UJ	43.4 UJ
Vanadium	NE	NE	NE	**25.2**	**9.7 J**	**21 J**	**25.9 J**	**17.9 J**	**21.5 J**	**14.2 J**	**18.4 J**	**26.9 J**	**10.4 J**	**27.1**
Zinc	109	2480	10000	**161**	**13.1 J**	**25.2 J**	**91.3 J**	**17.4 J**	**23.8 J**	**20.8 J**	**81.1 J**	**287 J**	**188 J**	**57.8 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.247 U	0.209 U	0.213 U	0.241 U	0.264 U	0.233 U	0.233 U	0.241 U	0.255 U	0.223 U	0.239 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-42 (96.5-97) 12/22/2009	WW-MW-06 (50-52) 6/18/2009	WW-MW-06 (58-60) 6/18/2009	WW-MW-07 (4-5) 6/22/2009	WW-MW-07 (48.5-49.5) 6/23/2009	WW-MW-07 (59-60) 6/23/2009	WW-MW-08 (7.5-8.5) 6/19/2009	WW-MW-08 (40-45) 6/19/2009	Duplicate of WW-MW-08 (40-45) 6/19/2009	WW-MW-200 (0-5) 7/18/2022	WW-MW-200 (7-10) 7/20/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 2 [Block 2287 Lot 1]	Adjacent to Parcel 2 N. 11th St		Adjacent to Parcel 2 N. 12th St						Parcels 3 and 4 [Block 2287 Lots 16 and 30]	
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-42 (96.5-97) 12/22/2009**	**WW-MW-06 (50-52) 6/18/2009**	**WW-MW-06 (58-60) 6/18/2009**	**WW-MW-07 (4-5) 6/22/2009**	**WW-MW-07 (48.5-49.5) 6/23/2009**	**WW-MW-07 (59-60) 6/23/2009**	**WW-MW-08 (7.5-8.5) 6/19/2009**	**WW-MW-08 (40-45) 6/19/2009**	**Duplicate of WW-MW-08 (40-45) 6/19/2009**	**WW-MW-200 (0-5) 7/18/2022**	**WW-MW-200 (7-10) 7/20/2022**
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
BTEX (mg/kg)													
Benzene	0.06	0.06	4.8	0.003 U	0.0033 UJ	**0.0009 J**	**10.3**	0.0025 U	0.004 U	**0.0365**	**143**	0.0026 U	0.0037 UJ
Toluene	0.7	0.7	100	0.003 U	0.0033 UJ	0.0026 UJ	**10.3**	0.0025 U	0.004 U	**0.0117**	**95**	0.0026 U	0.0037 UJ
Ethylbenzene	1	1	41	0.003 U	0.0033 UJ	0.0026 UJ	**161**	0.0025 U	0.004 U	**0.0058**	**615**	0.0026 U	0.0037 UJ
o-Xylene	0.26	1.6	100	0.003 U	0.0033 UJ	0.0026 UJ	**116**	0.0025 U	0.004 U	**0.0106**	**291**	0.0026 U	0.0037 UJ
m/p-Xylene	0.26	1.6	100	0.006 U	0.0066 UJ	0.0052 UJ	**219**	0.0049 U	0.008 U	**0.0087**	**440**	0.0051 U	0.0074 UJ
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	ND	**0.0009**	**516.6**	ND	ND	**0.0733**	**1584**	ND	ND
Other VOCs (mg/kg)													
Acetone	0.05	0.05	100	**0.0039 J**	**0.0158 J**	**0.0613 J**	89.8 U	0.0247 U	**0.0458 J**	0.0383 UJ	89.9 U	0.0255 U	**0.039 J**
n-Butylbenzene	12	12	100	0.003 U	0.0033 UJ	0.0026 UJ	**11.4**	0.0025 U	0.004 U	0.0038 U	**20.1**	0.0026 U	0.0037 UJ
sec-Butylbenzene	11	11	100	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	**3.59**	0.0026 U	0.0037 UJ
tert-Butylbenzene	5.9	5.9	100	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Carbon disulfide	NE	2.7*	NE	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	**0.0021 J**	3.59 U	0.0026 U	0.0037 UJ
Chlorobenzene	1.1	1.1	100	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Chloroform (Trichloromethane)	0.37	0.37	49	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Cyclohexane	NE	NE	NE	0.003 U	0.0033 UJ	**0.0022 J**	**7.11**	0.0025 U	**0.0014 J**	**0.006**	**26.1**	0.0026 U	0.0037 UJ
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.003 U	0.0033 UJ	0.0026 UJ	**16.1**	0.0025 U	0.004 U	**0.0136**	**27.1**	0.0026 U	0.0037 UJ
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.003 UJ	0.0033 UJ	0.0026 UJ	21.6 UJ	0.0025 U	0.004 U	0.0038 UJ	21.6 U	0.0026 U	0.0037 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
1,1-Dichloroethane	0.27	0.27	26	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
1,1-Dichloroethene	0.33	0.33	100	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
cis-1,2-Dichloroethene	0.25	0.25	100	**0.0012 J**	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
trans-1,2-Dichloroethene	0.19	0.19	100	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
1,2-Dichloropropane	NE	NE	NE	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Isopropylbenzene	NE	2.3*	NE	0.003 U	0.0033 UJ	0.0026 UJ	**30.8**	0.0025 U	0.004 U	**0.0082**	**77.3**	0.0026 U	0.0037 UJ
Methyl acetate	NE	NE	NE	0.003 U	0.0033 R	0.0026 UJ	35.9 U	0.0025 U	0.004 U	0.0038 U	35.9 U	0.0026 U	0.0037 UJ
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0299 U	0.033 U	0.026 UJ	89.8 U	0.0247 U	0.04 U	**0.0161 J**	89.9 U	0.0255 U	0.0368 UJ
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.003 U	0.0033 U	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0299 U	0.033 U	0.026 UJ	35.9 U	0.0247 U	0.04 U	0.0383 U	35.9 U	0.0255 U	0.0368 UJ
Methylcyclohexane	NE	NE	NE	0.003 U	0.0033 UJ	**0.0023 J**	**12.6**	0.0025 U	**0.0041**	**0.0204**	**53.8**	0.0026 U	0.0037 UJ
Methylene chloride	0.05	0.05	100	0.015 U	0.0165 UJ	0.013 UJ	18 U	0.0123 U	0.02 U	0.0191 U	18 U	0.0128 U	0.0184 UJ
Naphthalene	12	12	100	0.003 U	0.0033 UJ	**0.0008 J**	**2400**	**0.0051**	0.004 U	**0.0196**	**7010**	0.0026 U	0.0037 UJ
n-Propylbenzene	3.9	3.9	100	0.003 U	0.0033 UJ	0.0026 UJ	**10.6**	0.0025 U	0.004 U	**0.006**	**42.3**	0.0026 U	0.0037 UJ
Styrene	NE	NE	NE	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	**8.27**	0.0026 U	0.0037 UJ
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.003 U	0.0033 R	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Tetrachloroethene (PCE)	1.3	1.3	19	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Tetrahydrofuran	NE	NE	NE	0.003 U	0.0033 U	0.0026 UJ		0.0025 U	0.004 U	0.0038 U		0.0026 U	0.0037 UJ
1,2,3-Trichlorobenzene	NE	NE	NE	0.003 U	0.0033 R	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
1,1,2-Trichloroethane	NE	NE	NE	0.003 U	0.0033 UJ	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ
Trichloroethene (TCE)	0.47	0.47	21	0.003 U	0.0033 U	0.0026 UJ	3.59 U	0.0025 U	0.004 U	0.0038 U	3.59 U	0.0026 U	0.0037 UJ

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.003 U	0.0033 UJ	0.0026 UJ	**166**	0.0025 U	0.004 U	**0.0145**	**379**	0.0026 U	0.0037 UJ
1,3,5-Trimethylbenzene	8.4	8.4	52	0.003 U	0.0033 UJ	0.0026 UJ	**68**	0.0025 U	0.004 U	**0.0024 J**	**110**	0.0026 U	0.0037 UJ
Vinyl chloride	0.02	0.02	0.9	0.006 U	0.0066 UJ	0.0052 UJ	3.59 U	0.0049 U	0.008 U	0.0077 U	3.59 U	0.0051 U	0.0074 UJ
Total VOCs	NE	NE	NE	**0.0051**	**0.0158**	**0.0675**	**3239.21**	**0.0051**	**0.0513**	**0.1822**	**9341.56**	ND	**0.039**
PAHs (mg/kg)													
Acenaphthene	20	98	100	0.405 U	**0.327**	**0.052 J**	**42.9**	0.286 U	**0.354**	**49**	**600**	0.294 U	**0.335 J**
Acenaphthylene	100	107	100	0.405 U	**2.89**	**0.0866 J**	**15.8**	0.286 U	**3.08**	**13.2**	**715**	0.294 U	**1.47**
Anthracene	100	1000	100	0.405 U	**1.26**	**0.234 J**	**55.7**	0.286 U	**1.56**	**30.2**	**820**	0.294 U	**7.21**
Benzo(a)anthracene	1	1	1	0.405 U	**3.97**	**0.709**	**44.9**	0.286 U	**5.03**	**39.1**	**583**	0.294 U	**5.79**
Benzo(b)fluoranthene	1	1.7	1	0.405 U	**3.65 J**	**0.603**	**26**	0.286 U	**5.53**	**23.6**	**251**	0.294 U	**4.92**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.405 U	**3.68**	**0.467**	**25.1**	0.286 U	**4.6**	**25**	**225**	0.294 U	**3.53**
Benzo(g,h,i)perylene	100	1000	100	0.405 U	**4.35**	**0.553**	**12.6**	0.286 U	**6.12**	**21.8**	**150**	0.294 U	**3.47**
Benzo(a)pyrene	1	22	1	0.203 U	**5.81**	**0.806**	**39.8**	0.286 U	**8.28**	**44.2**	**471**	0.294 U	**6.03**
Chrysene	1	1	3.9	0.203 U	**3.75**	**0.8**	**42**	0.286 U	**4.76**	**38.9**	**520**	0.294 U	**5.84**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.203 U	**1.16**	**0.124 J**	**4.84**	0.286 U	**1.43**	**6.39**	**51**	0.294 U	**0.787**
Fluoranthene	100	1000	100	0.405 U	**4.32**	**1.17**	**82.4**	0.286 U	**4.48**	**61.4**	**1200**	0.294 U	**12.2**
Fluorene	30	386	100	0.405 U	**0.224 J**	**0.0646 J**	**34.3**	0.286 U	**0.283 J**	**6.03**	**879**	0.294 U	**1.45**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.405 U	**5.05**	**0.529**	**17.1**	0.286 U	**7.05**	**25.3**	**184**	0.294 U	**4.21**
2-Methylnaphthalene	NE	36.4*	NE	0.405 U	**0.418**	**0.194 J**	**74**	0.286 U	**0.865**	**4.39**	**2680**	**0.0201 J**	**0.338 J**
Naphthalene	12	12	100	0.405 U	**0.732**	**0.451**	**303**	**0.0477 J**	**1.56**	**9.49**	**7570**	**0.0964 J**	**0.396**
Phenanthrene	100	1000	100	0.405 U	**2.27**	**1.22**	**105**	0.286 U	**2.46**	**15.4**	**2920**	0.294 U	**9.72**
Pyrene	100	1000	100	0.405 U	**5.05**	**1.91**	**88.9**	0.286 U	**6.38**	**144**	**1290**	0.294 U	**9.85**
Total PAHs	NE	NE	NE	ND	**48.911**	**9.9732**	**1014.34**	**0.0477**	**63.822**	**557.4**	**21109**	**0.1165**	**77.546**
MAEPH (mg/kg)													
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)													
Acetophenone	NE	NE	NE	0.812 U	**0.101 J**	**0.064 J**	0.877 U	0.286 U	**0.146 J**	3.55 U	5.5 U	0.294 U	0.716 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.405 U	**0.074**	**0.0578**	**9.5**	0.0286 U	**0.148**	**1.78**	**248**	0.0294 U	**0.148 J**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.405 U	**1.91 J**	0.3 U	0.877 U	0.286 U	**0.144 J**	3.55 U	5.5 U	0.294 U	0.358 U
Butyl benzyl phthalate	NE	122*	NE	0.405 U	**0.606**	0.3 U	**0.195 J**	0.286 U	0.285 U	3.55 U	**17.1**	0.294 U	0.358 U
Caprolactam	NE	NE	NE	0.405 U	0.295 U	0.3 U	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 U
Carbazole	NE	NE	NE	0.405 U	**0.243 J**	**0.0325 J**	**10.2**	0.286 U	**0.229 J**	**0.795 J**	**139**	0.294 U	**1.03**
2-Chloronaphthalene	NE	NE	NE	0.405 U	0.295 U	0.3 U	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 U
Dibenzofuran	7	210, 6.2*	59	0.405 U	**0.182 J**	**0.047 J**	**26.9**	0.286 U	**0.285**	**2.81 J**	**365**	0.294 U	**0.747**
Diethyl phthalate	NE	7.1*	NE	0.405 U	0.295 U	0.3 U	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 U
2,4-Dimethylphenol	NE	NE	NE	0.405 U	0.295 U	0.3 R	**0.353 J**	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 R
Di-n-butyl phthalate	NE	8.1*	NE	0.405 U	0.295 U	0.3 U	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 U
2,6-Dinitrotoluene	NE	1*	NE	0.405 U	0.295 U	0.3 U	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 U
Di-n-octyl phthalate	NE	120*	NE	0.405 U	0.591 U	0.599 U	1.75 U	0.572 U	0.569 U	7.09 U	11 U	0.588 U	0.358 U
2-Methylnaphthalene	NE	36.4*	NE	0.405 U	**0.418**	**0.194 J**	**74**	0.286 U	**0.865**	**4.39**	**2680**	**0.0201 J**	**0.338 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.405 U	0.295 U	0.3 R	0.877 U	0.286 U	**0.0443 J**	3.55 U	5.5 U	0.294 U	0.358 R
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.812 U	0.295 U	0.3 R	**0.209 J**	0.286 U	**0.0878 J**	3.55 U	5.5 U	0.294 U	0.716 R
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.405 U	0.591 U	0.599 U	1.75 U	0.572 U	0.569 U	7.09 U	11 U	0.588 U	0.358 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.405 U	0.295 U	0.3 U	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 U
Phenol	0.33	0.33	100	0.405 U	0.295 U	0.3 R	0.877 U	0.286 U	0.285 U	3.55 U	5.5 U	0.294 U	0.358 R
Total SVOCs	NE	NE	NE	ND	**52.027**	**10.1745**	**1061.697**	**0.0477**	**64.9061**	**562.785**	**21878.1**	**0.1165**	**79.471**
Alkylated PAHs (mg/kg)													
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)													
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)													
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)													
Aroclor 1242	NE	NE	NE	NA	0.06 U	NA	NA	NA	0.03 U	NA	NA	NA	0.05 U
Aroclor 1248	NE	NE	NE	NA	0.06 U	NA	NA	NA	0.03 U	NA	NA	NA	0.05 U
Aroclor 1254	NE	NE	NE	NA	0.06 U	NA	NA	NA	0.03 U	NA	NA	NA	0.05 U
Aroclor 1260	NE	NE	NE	NA	**0.07**	NA	NA	NA	**0.07**	NA	NA	NA	0.05 U
Aroclor 1268	NE	NE	NE	NA	0.06 U	NA	NA	NA	0.03 U	NA	NA	NA	0.05 U
Total PCB Aroclors	0.1	3.2	1	NA	**0.07**	NA	NA	NA	**0.07**	NA	NA	NA	ND
Pesticides (mg/kg)													
Aldrin	0.005	0.19	0.097	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	0.0016 U	NA	NA	NA	0.0017 U	NA	NA	NA	0.0016 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Chlordane (Technical)	NE	NE	NE	NA	**0.135 J**	NA	NA	NA	**0.0498 J**	NA	NA	NA	**0.0136 J**
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	**0.0221 J**	NA	NA	NA	**0.0068**	NA	NA	NA	**0.0014 J**
gamma-Chlordane	NE	14*	NE	NA	**0.0224**	NA	NA	NA	**0.0048**	NA	NA	NA	**0.001 J**
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	**0.006 JN**	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	**0.0029 JN**	NA	NA	NA	**0.0018 J**	NA	NA	NA	0.0026 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Dieldrin	0.005	0.1	0.2	NA	**0.0052 JN**	NA	NA	NA	**0.0076 J**	NA	NA	NA	**0.0042 J**
alpha-Endosulfan (I)	2.4	102	24	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
beta-Endosulfan (II)	2.4	102	24	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Endosulfan sulfate	2.4	1000	24	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Endrin	0.014	0.06	11	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Endrin aldehyde	NE	NE	NE	NA	**0.0034 JN**	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Endrin ketone	NE	NE	NE	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Heptachlor	0.042	0.38	2.1	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-200 (33-35) 7/20/2022	WW-MW-201 (0-5) 8/2/2022	WW-MW-201 (5-10) 8/3/2022	WW-MW-201 (27-30) 8/3/2022	WW-MW-201 (45-50) 8/3/2022	WW-MW-202 (0-5) 7/22/2022	WW-MW-202 (8-10) 8/1/2022	WW-MW-202 (20-22) 8/1/2022	WW-MW-202 (50-52) 8/1/2022	WW-MW-203 (0-5) 7/20/2022
Heptachlor epoxide	NE	0.02*	NE	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Hexachlorobenzene	0.33	3.2	1.2	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 UJ
Methoxychlor	NE	900*	NE	NA	0.0027 U	NA	NA	NA	0.0028 U	NA	NA	NA	0.0026 U
Herbicides (mg/kg)													
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	0.207 U	NA	NA	NA	0.207 U	NA	NA	NA	0.197 U
Dicamba	NE	NE	NE	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U
Dichloroprop	NE	NE	NE	NA	0.207 U	NA	NA	NA	0.207 U	NA	NA	NA	0.197 U
Mecoprop (MCPP)	NE	NE	NE	NA	20.7 U	NA	NA	NA	**4.58 J**	NA	NA	NA	19.7 U
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	20.5 U	NA	NA	NA	20.4 U	NA	NA	NA	19.4 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U
Metals (mg/kg)													
Aluminum	NE	NE	NE	**8400**	**6680 J**	**10900**	**11200**	**4620**	**4560**	**6180**	**4600**	**5170**	**4690**
Antimony	NE	NE	NE	2.66 UJ	2.63 UJ	2.49 U	4.1 U	2.5 U	2.09 U	2.78 U	3.68 U	2.29 U	2.4 UJ
Arsenic	13	16	16	2.66 UJ	**8.17**	**3.51**	**14.1**	**1.68 J**	**8.26**	**19.1**	**4.82**	**1.05 J**	**3.59 J**
Barium	350	820	400	**73.8**	**180 J**	**81.6**	**96.5**	**34.3**	**64.9**	**195**	**25.1 J**	**27**	**43.9**
Beryllium	7.2	47	72	**0.65 J**	**0.44 J**	**0.5 J**	**0.61 J**	**0.61 J**	**0.27 J**	**0.97 J**	**0.4 J**	**0.47 J**	**0.26 J**
Cadmium	2.5	7.5	4.3	2.13 U	**2.3 J**	1.99 U	3.28 U	2 U	1.67 U	2.22 U	**1.26 J**	1.83 U	1.92 U
Calcium	NE	NE	NE	**9040 J**	**24100 J**	**45200 J**	**18200 J**	**6220 J**	**15500**	**5910**	**69900**	**7690**	**48000 J**
Chromium	30	NE	180	**19 J**	**20.3 J**	**9.76 J**	**22.7**	**13**	**19.7**	**13.9**	**9.27 J**	**13.1**	**13.2 J**
Cobalt	NE	NE	NE	**7.17 J**	**7.18 J**	**2.26 J**	**7.51 J**	**7.93 J**	**4.07 J**	**21.5**	**2.57 J**	**6.37 J**	**2.73 J**
Copper	50	1720	270	**14.3 J**	**60.8 J**	**14.1 J**	**30 J**	**9.86 J**	**34.5**	**101**	**16 J**	**12 J**	**25.7 J**
Iron	NE	NE	NE	**16500 J**	**16100 J**	**9660**	**31600**	**36500**	**11600**	**28500**	**6620**	**16400**	**8500 J**
Lead	63	450	400	**8.11 J**	**279 J**	**27.7 J**	**613**	**8.78 J**	**132**	**640**	**39.2 J**	**6.23 J**	**49 J**
Magnesium	NE	NE	NE	**7130 J**	**4750 J**	**9240**	**4730**	**3630**	**4420**	**1500**	**5560**	**4410**	**11700 J**
Manganese	1600	2000	2000	**302**	**256 J**	**327**	**511**	**751**	**163**	**165**	**181**	**354**	**131**
Mercury	0.18	0.73	0.81	0.036 U	**0.392 J**	**0.064**	**0.507**	**0.007 J**	**0.322**	**0.555**	**1.02**	0.03 U	**0.114**
Nickel	30	130	310	**16.3 J**	**19.3 J**	**8.53 J**	**22.5 J**	**10.7 J**	**14.8 J**	**37.1**	**6.27 J**	**10.3 J**	**10.9 J**
Potassium	NE	NE	NE	2660 UJ	**1750 J**	**2770 J**	**2360 J**	**887 J**	**880 J**	**797 J**	**976 J**	**1170 J**	2400 UJ
Selenium	3.9	4	180	2.66 U	**0.57 J**	2.49 U	4.1 U	2.5 U	2.09 U	**2.93 J**	3.68 UJ	2.29 UJ	2.4 U
Silver	2	8.3	180	2.13 U	2.1 U	1.99 U	3.28 U	2 U	1.67 U	2.22 U	2.94 U	1.83 U	1.92 U
Sodium	NE	NE	NE	2660 U	**685 J**	**1760 J**	**2710 J**	**950 J**	2090 U	**779 J**	**2700 J**	**1350 J**	2400 U
Thallium	NE	NE	NE	2.66 U	2.63 U	2.49 U	4.1 U	2.5 U	2.09 U	2.78 U	3.68 U	2.29 U	2.4 U
Tin	NE	NE	NE	53.1 UJ	52.5 U	49.7 U	81.9 U	50 U	41.8 U	55.6 U	73.5 U	45.8 U	48 UJ
Vanadium	NE	NE	NE	**23.5**	**23.5 J**	**15.8**	**33.5**	**30.4**	**17.1**	**24.9**	**7.1 J**	**21**	**10.2**
Zinc	109	2480	10000	**53.6 J**	**319 J**	**22.3 J**	**98.8**	**39.7**	**172**	**359**	**32 J**	**33.1**	**75.2 J**
Cyanides (mg/kg)													
Free Cyanide	NE	NE	NE	0.239 U	0.229 U	0.227 U	0.368 U	0.221 U	0.227 U	0.251 U	0.331 U	0.23 U	0.209 U
Biomarkers (mg/kg)													
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)													
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-203 (10-12) 7/27/2022	WW-MW-203 (22-24) 7/27/2022	MW-204 (0.4-5) 7/12/2022	WW-MW-204 (30-32) 7/21/2022	WW-MW-204 (48-50) 7/21/2022	WW-MW-205 (0-5) 7/18/2022	WW-MW-205 (5-10) 8/9/2022	WW-MW-205 (10-15) 8/9/2022	WW-MW-205 (35-40) 8/9/2022	WW-SB-200 (0.4-3.5) 7/11/2022
BTEX (mg/kg)													
Benzene	0.06	0.06	4.8	0.0042 U	0.003 U	0.0038 U	**0.802**	0.0039 U	0.0041 U	**4.22**	**85.6 J**	0.0028 U	0.0047 U
Toluene	0.7	0.7	100	0.0042 U	0.003 U	0.0038 U	**0.0047 J**	0.0039 U	0.0041 U	**1.56 J**	15.8 U	0.0028 U	0.0047 U
Ethylbenzene	1	1	41	0.0042 U	0.003 U	0.0038 U	**0.13**	0.0039 U	0.0041 U	**14.6**	**182 J**	0.0028 U	0.0047 U
o-Xylene	0.26	1.6	100	0.0042 U	0.003 U	0.0038 U	**0.0569**	0.0039 U	0.0041 U	**3.29**	**74.1 J**	0.0028 U	0.0047 U
m/p-Xylene	0.26	1.6	100	0.0084 U	0.006 U	0.0075 U	**0.0583**	0.0077 U	0.0082 U	**2.86**	**72.6 J**	0.0056 U	0.0094 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	ND	ND	**1.0519**	ND	ND	**26.53**	**414.3**	ND	ND
Other VOCs (mg/kg)													
Acetone	0.05	0.05	100	0.0418 U	0.0298 U	0.0377 U	0.0523 U	0.0387 U	0.0409 U	6.02 U	396 U	0.028 UJ	0.0471 U
n-Butylbenzene	12	12	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	**2.38**	**11.7 J**	0.0028 U	0.0047 U
sec-Butylbenzene	11	11	100	**0.0093**	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	**0.448**	15.8 U	0.0028 U	0.0047 U
tert-Butylbenzene	5.9	5.9	100	**0.0014 J**	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	**0.144 J**	15.8 U	0.0028 U	0.0047 U
Carbon disulfide	NE	2.7*	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Chlorobenzene	1.1	1.1	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Cyclohexane	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	**0.52**	**10.1 J**	0.0028 U	0.0047 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0042 U	0.003 U	0.0038 U	**0.0041 J**	0.0039 U	0.0041 U	**3.12**	**8.56 J**	0.0028 U	0.0047 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0042 UJ	0.003 UJ	0.0038 U	0.0052 U	0.0039 U	0.0041 U	1.44 UJ	95.1 UJ	0.0028 UJ	0.0047 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
1,1-Dichloroethane	0.27	0.27	26	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
1,1-Dichloroethene	0.33	0.33	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
1,2-Dichloropropane	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Isopropylbenzene	NE	2.3*	NE	**0.0051**	0.003 U	0.0038 U	**0.0129**	0.0039 U	0.0041 U	**2.25**	**15.5 J**	0.0028 U	0.0047 U
Methyl acetate	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	2.41 U	158 U	0.0028 U	0.0047 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.0069 J**	0.0298 U	0.0377 U	0.0523 U	0.0387 U	0.0409 U	6.02 U	396 U	0.028 U	0.0471 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0418 U	0.0298 U	0.0377 U	0.0523 U	0.0387 U	0.0409 U	2.41 U	158 U	0.028 U	0.0471 U
Methylcyclohexane	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	**2.85**	**10.1 J**	0.0028 U	0.0047 U
Methylene chloride	0.05	0.05	100	0.0209 U	0.0149 U	0.0188 U	0.0262 U	0.0194 U	0.0205 U	1.2 U	79.2 U	0.014 U	0.0235 U
Naphthalene	12	12	100	**0.0445**	0.003 U	0.0038 U	**4.67**	0.0039 U	0.0041 U	**128**	**2030 J**	0.0028 U	0.0047 U
n-Propylbenzene	3.9	3.9	100	**0.002 J**	0.003 U	0.0038 U	**0.0054**	0.0039 U	0.0041 U	**1.51**	**7.29 J**	0.0028 U	0.0047 U
Styrene	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	**0.002 J**	0.0039 U	0.0041 U	**0.308**	15.8 U	0.0028 U	0.0047 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Tetrahydrofuran	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	NA	NA	0.0028 U	0.0047 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
1,1,2-Trichloroethane	NE	NE	NE	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U
Trichloroethene (TCE)	0.47	0.47	21	0.0042 U	0.003 U	0.0038 U	0.0052 U	0.0039 U	0.0041 U	0.241 U	15.8 U	0.0028 U	0.0047 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-203 (10-12) 7/27/2022	WW-MW-203 (22-24) 7/27/2022	MW-204 (0.4-5) 7/12/2022	WW-MW-204 (30-32) 7/21/2022	WW-MW-204 (48-50) 7/21/2022	WW-MW-205 (0-5) 7/18/2022	WW-MW-205 (5-10) 8/9/2022	WW-MW-205 (10-15) 8/9/2022	WW-MW-205 (35-40) 8/9/2022	WW-SB-200 (0.4-3.5) 7/11/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0042 U	0.003 U	0.0038 U	**0.0955**	0.0039 U	0.0041 U	**35.8**	**90 J**	0.0028 U	0.0047 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0042 U	0.003 U	0.0038 U	**0.0257**	0.0039 U	0.0041 U	**0.862**	**24.1 J**	0.0028 U	0.0047 U
Vinyl chloride	0.02	0.02	0.9	0.0084 U	0.006 U	0.0075 U	0.0105 U	0.0077 U	0.0082 U	0.241 U	15.8 U	0.0056 U	0.0094 U
Total VOCs	NE	NE	NE	**0.0692**	ND	ND	**5.8675**	ND	ND	**204.722**	**2621.65**	ND	ND
PAHs (mg/kg)													
Acenaphthene	20	98	100	**0.599**	0.281 U	**0.365 J**	**0.0686 J**	0.199 U	0.717 U	**85.3**	**173**	0.316 U	**0.397 J**
Acenaphthylene	100	107	100	**0.323**	0.281 U	**1.94**	**0.0144 J**	0.199 U	0.717 U	**150**	**26.3**	0.316 U	**2.64**
Anthracene	100	1000	100	**1.16**	0.281 U	**1.54**	0.209 U	0.199 U	**0.134 J**	**93.6**	**78.1**	0.316 U	**1.99**
Benzo(a)anthracene	1	1	1	**3.01**	0.281 U	**2.87**	0.209 U	0.199 U	**0.637 J**	**119**	**58.8**	0.316 U	**5.46**
Benzo(b)fluoranthene	1	1.7	1	**2.1**	0.281 U	**2.44**	0.209 U	0.199 U	**0.608 J**	**76.9**	**38.8**	0.316 U	**4.6**
Benzo(k)fluoranthene	0.8	1.7	3.9	**2.13**	0.281 U	**2.01**	0.209 U	0.199 U	**0.448 J**	**30.6**	**13.9**	0.316 U	**3.9**
Benzo(g,h,i)perylene	100	1000	100	**1.17**	0.281 U	**2.05**	0.209 U	0.199 U	**0.404 J**	**33.3**	**14.9**	0.316 U	**3.34**
Benzo(a)pyrene	1	22	1	**3.05**	0.281 U	**3.17**	0.209 U	0.199 U	**0.668**	**119**	**53.2**	0.316 U	**5.71**
Chrysene	1	1	3.9	**2.4**	0.281 U	**2.68**	0.209 U	0.199 U	**0.611**	**109**	**53.1**	0.316 U	**4.85**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.532**	0.281 U	**0.511**	0.209 U	0.199 U	0.36 U	**11.5**	**5.25**	0.316 U	**1.03**
Fluoranthene	100	1000	100	**2.99**	0.281 U	**4.77**	0.209 U	0.199 U	**0.979**	**168**	**130 J**	0.316 U	**6.28**
Fluorene	30	386	100	**0.785**	0.281 U	**0.328 J**	**0.0311 J**	0.199 U	0.717 U	**65.7**	**137**	0.316 U	**0.285 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**1.65**	0.281 U	**2.54**	0.209 U	0.199 U	**0.475 J**	**38.4**	**18.8**	0.316 U	**4.25**
2-Methylnaphthalene	NE	36.4*	NE	**0.0991 J**	0.281 U	**0.361 J**	**0.172 J**	0.199 U	0.717 U	**14.1**	**486**	0.316 U	**0.663 J**
Naphthalene	12	12	100	**0.173 J**	0.281 U	**0.735**	**0.984**	0.199 U	0.717 U	**35.8**	**1090**	0.316 U	**1.43**
Phenanthrene	100	1000	100	**2.02**	0.281 U	**3.41**	**0.0576 J**	0.199 U	**0.373 J**	**86.3**	**369**	0.316 U	**3.84**
Pyrene	100	1000	100	**2.9**	0.281 U	**4.99**	0.209 U	0.199 U	**1.02**	**283**	**171**	0.316 U	**7.01**
Total PAHs	NE	NE	NE	**27.0911**	ND	**36.71**	**1.3277**	ND	**6.357**	**1519.5**	**2917.15**	ND	**57.675**
MAEPH (mg/kg)													
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-203 (10-12) 7/27/2022	WW-MW-203 (22-24) 7/27/2022	MW-204 (0.4-5) 7/12/2022	WW-MW-204 (30-32) 7/21/2022	WW-MW-204 (48-50) 7/21/2022	WW-MW-205 (0-5) 7/18/2022	WW-MW-205 (5-10) 8/9/2022	WW-MW-205 (10-15) 8/9/2022	WW-MW-205 (35-40) 8/9/2022	WW-SB-200 (0.4-3.5) 7/11/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)													
Acetophenone	NE	NE	NE	0.314 U	0.281 U	0.806 U	0.209 U	0.199 U	1.44 U	2.25 U	1.29 U	0.316 U	1.55 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.0318**	0.0281 U	0.402 U	**0.0145 J**	0.0199 U	0.717 U	**4.92**	**33.5**	0.0316 U	0.776 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.314 U	0.281 U	**0.208 J**	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Butyl benzyl phthalate	NE	122*	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Caprolactam	NE	NE	NE	**0.543**	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	**15**	0.316 U	0.776 U
Carbazole	NE	NE	NE	**0.242 J**	0.281 U	**0.339 J**	**0.0167 J**	0.199 U	0.717 U	**1.7 J**	**5.17**	0.316 U	**0.332 J**
2-Chloronaphthalene	NE	NE	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Dibenzofuran	7	210, 6.2*	59	**0.414**	0.281 U	**0.226 J**	**0.0222 J**	0.199 U	0.717 U	2.25 U	**12**	0.316 U	**0.247 J**
Diethyl phthalate	NE	7.1*	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
2,4-Dimethylphenol	NE	NE	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Di-n-butyl phthalate	NE	8.1*	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
2,6-Dinitrotoluene	NE	1*	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Di-n-octyl phthalate	NE	120*	NE	0.628 U	0.561 U	0.402 U	0.418 U	0.398 U	0.717 U	4.5 U	2.58 U	0.632 U	0.776 U
2-Methylnaphthalene	NE	36.4*	NE	**0.0991 J**	0.281 U	**0.361 J**	**0.172 J**	0.199 U	0.717 U	**14.1**	**486**	0.316 U	**0.663 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.314 U	0.281 U	0.806 U	0.209 U	0.199 U	1.44 U	2.25 U	1.29 U	0.316 U	1.55 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.628 U	0.561 U	0.402 U	0.418 U	0.398 U	0.717 U	4.5 U	2.58 U	0.632 U	0.776 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Phenol	0.33	0.33	100	0.314 U	0.281 U	0.402 U	0.209 U	0.199 U	0.717 U	2.25 U	1.29 U	0.316 U	0.776 U
Total SVOCs	NE	NE	NE	**28.3219**	ND	**37.483**	**1.3811**	ND	**6.357**	**1526.12**	**2982.82**	ND	**58.254**
Alkylated PAHs (mg/kg)													
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
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C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
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C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)													
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.002**
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00031 J**
n-Alkanes and Isoprenoids (mg/kg)													
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)													
Aroclor 1242	NE	NE	NE	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	NA	0.06 U
Aroclor 1248	NE	NE	NE	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	NA	0.06 U
Aroclor 1254	NE	NE	NE	NA	NA	**1 J**	NA	NA	0.06 U	NA	NA	NA	**1.6**
Aroclor 1260	NE	NE	NE	NA	NA	**0.4 J**	NA	NA	**0.1**	NA	NA	NA	**0.6**
Aroclor 1268	NE	NE	NE	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	NA	0.06 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	**1.4**	NA	NA	**0.1**	NA	NA	NA	**2.2**
Pesticides (mg/kg)													
Aldrin	0.005	0.19	0.097	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0018 U	NA	NA	0.0016 U	NA	NA	NA	0.0017 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Chlordane (Technical)	NE	NE	NE	NA	NA	**0.121 J**	NA	NA	**0.185 J**	NA	NA	NA	**0.139 J**
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	**0.0161**	NA	NA	**0.0286 JN**	NA	NA	NA	**0.0265**
gamma-Chlordane	NE	14*	NE	NA	NA	**0.0156 J**	NA	NA	**0.0222 J**	NA	NA	NA	**0.0261**
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.0031 U	NA	NA	**0.0073 JN**	NA	NA	NA	**0.0862 JN**
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	**0.0047 JN**	NA	NA	**0.0052 JN**	NA	NA	NA	**0.0138 J**
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Dieldrin	0.005	0.1	0.2	NA	NA	**0.0257**	NA	NA	**0.0069 JN**	NA	NA	NA	**0.0341**
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0031 U	NA	NA	0.0027 UJ	NA	NA	NA	0.0029 U
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Endrin	0.014	0.06	11	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Endrin aldehyde	NE	NE	NE	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Endrin ketone	NE	NE	NE	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Heptachlor	0.042	0.38	2.1	NA	NA	**0.0024 J**	NA	NA	**0.003**	NA	NA	NA	**0.0027 J**

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Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Methoxychlor	NE	900*	NE	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U
Herbicides (mg/kg)													
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.215 U	NA	NA	0.207 U	NA	NA	NA	0.199 U
Dicamba	NE	NE	NE	NA	NA	0.011 U	NA	NA	0.01 U	NA	NA	NA	0.01 U
Dichloroprop	NE	NE	NE	NA	NA	0.215 U	NA	NA	0.207 U	NA	NA	NA	0.199 U
Mecoprop (MCPP)	NE	NE	NE	NA	NA	**2.64 J**	NA	NA	20.7 U	NA	NA	NA	19.9 U
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	**9.18 J**	NA	NA	20.5 U	NA	NA	NA	19.7 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.011 U	NA	NA	0.01 U	NA	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.011 U	NA	NA	0.01 U	NA	NA	NA	0.01 U
Metals (mg/kg)													
Aluminum	NE	NE	NE	**10000**	**7380**	**7110**	**3610**	**10800**	**5300 J**	**5870**	**8560**	**3900 J**	**5650**
Antimony	NE	NE	NE	2.99 U	2.6 U	**2.18 J**	2.88 U	2.99 U	2.54 UJ	2.82 UJ	2.13 UJ	2.4 UJ	**3.96**
Arsenic	13	16	16	**2.72 J**	**1.62 J**	**10.2**	**1.42 J**	**1.33 J**	**2.48 J**	**8.57**	**5.52**	2.4 UJ	**11.7**
Barium	350	820	400	**56.2**	**51.6**	**219**	**21.3 J**	**42.1**	**59.9 J**	**42.4 J**	**107 J**	**13.3 J**	**298**
Beryllium	7.2	47	72	**0.49 J**	**0.52 J**	**0.33 J**	**0.35 J**	**0.75 J**	**0.38 J**	**0.64 J**	**0.6 J**	**0.24 J**	1.08 U
Cadmium	2.5	7.5	4.3	2.4 U	2.08 U	**1.44 J**	2.31 U	2.39 U	2.03 UJ	2.25 U	1.7 U	1.92 UJ	**4.38**
Calcium	NE	NE	NE	**2780 J**	**705 J**	**22300 J**	**844**	**2570**	**56500 J**	**2440 J**	**53100 J**	**811 J**	**23900 J**
Chromium	30	NE	180	**15.7 J**	**19.2 J**	**25.6**	**7.51 J**	**25.3**	**10.9 J**	**11 J**	**15**	**7.66 J**	**193**
Cobalt	NE	NE	NE	**6.37 J**	**3.96 J**	**5.87 J**	**4.93 J**	**8.47 J**	**2.54 J**	**6.8 J**	**5.62 J**	**4.84 J**	**8.49 J**
Copper	50	1720	270	**14.6 J**	**12.6 J**	**192**	**6.87 J**	**15.9 J**	**22.4 J**	**30.4**	**54**	**6.12 J**	**278**
Iron	NE	NE	NE	**19900 J**	**30800 J**	**18800**	**30700**	**28700**	**8950 J**	**26200**	**19500**	**11800 J**	**44600**
Lead	63	450	400	**30.2 J**	**8.24 J**	**459**	**4.14 J**	**9.71 J**	**78.3 J**	**220**	**467**	47.9 UJ	**805**
Magnesium	NE	NE	NE	**2590 J**	**2930 J**	**3320**	**1620**	**4150**	**17700 J**	**1790 J**	**2590 J**	**2120 J**	**6710**
Manganese	1600	2000	2000	**414**	**192**	**277**	**126 J**	**690 J**	**172 J**	**194**	**269**	**60.9 J**	**393**
Mercury	0.18	0.73	0.81	**0.075**	0.036 U	**0.77**	0.038 U	0.035 U	**0.117**	**0.031 J**	**0.052**	0.038 UJ	**2.29**
Nickel	30	130	310	**11.1 J**	**12.6 J**	**24.4 J**	**6.57 J**	**16.2 J**	**11.1 J**	**20.9 J**	**12.7 J**	**8.91 J**	**266**
Potassium	NE	NE	NE	**1230 J**	**1850 J**	**984 J**	**934 J**	**1970 J**	**1010 J**	**660 J**	**1080 J**	**658 J**	**748 J**
Selenium	3.9	4	180	**1.3 J**	**1 J**	2.59 U	2.88 U	2.99 U	2.54 UJ	**1.17 J**	**1.14 J**	2.4 UJ	**1.29 J**
Silver	2	8.3	180	2.4 U	2.08 U	2.07 U	2.31 U	2.39 U	2.03 U	2.25 U	1.7 U	1.92 U	**1.67 J**
Sodium	NE	NE	NE	**315 J**	**600 J**	**248 J**	**241 J**	**537 J**	2540 UJ	**332 J**	**926 J**	**165 J**	**276 J**
Thallium	NE	NE	NE	2.99 U	2.6 U	2.59 U	2.88 U	2.99 U	2.54 UJ	2.82 U	2.13 U	2.4 UJ	**0.62 J**
Tin	NE	NE	NE	59.9 U	52 U	**82.8**	57.7 U	59.8 U	50.8 UJ	56.3 U	**15.6 J**	47.9 UJ	48.9 U
Vanadium	NE	NE	NE	**25.5**	**37.2**	**24.9**	**16**	**33.6**	**34.1 J**	**31.6**	**22.6**	**13.3 J**	**26.1**
Zinc	109	2480	10000	**35.1 J**	**41.2 J**	**696 J**	**29.6**	**47**	**78.9 J**	**117 J**	**87.7 J**	**21 J**	**1280 J**
Cyanides (mg/kg)													
Free Cyanide	NE	NE	NE	0.256 U	0.222 U	0.233 U	0.262 U	0.242 U	0.225 U	0.266 U	0.257 U	0.244 U	0.22 U
Biomarkers (mg/kg)													
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-203 (10-12) 7/27/2022	WW-MW-203 (22-24) 7/27/2022	MW-204 (0.4-5) 7/12/2022	WW-MW-204 (30-32) 7/21/2022	WW-MW-204 (48-50) 7/21/2022	WW-MW-205 (0-5) 7/18/2022	WW-MW-205 (5-10) 8/9/2022	WW-MW-205 (10-15) 8/9/2022	WW-MW-205 (35-40) 8/9/2022	WW-SB-200 (0.4-3.5) 7/11/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-203 (10-12) 7/27/2022	WW-MW-203 (22-24) 7/27/2022	MW-204 (0.4-5) 7/12/2022	WW-MW-204 (30-32) 7/21/2022	WW-MW-204 (48-50) 7/21/2022	WW-MW-205 (0-5) 7/18/2022	WW-MW-205 (5-10) 8/9/2022	WW-MW-205 (10-15) 8/9/2022	WW-MW-205 (35-40) 8/9/2022	WW-SB-200 (0.4-3.5) 7/11/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)													
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0179**	**0.0192**	0.0025 U	**0.743**	**0.0459**	**0.002 J**	**1.72**	0.0026 U	0.0023 U	**3.12**	**0.203 J**
Toluene	0.7	0.7	100	**0.0032**	0.0035 U	0.0025 U	**0.375**	0.0029 U	**0.0016 J**	**0.826**	0.0026 U	0.0023 U	**0.0066**	0.0032 U
Ethylbenzene	1	1	41	**0.547**	0.0035 U	0.0025 U	**47.1**	0.0029 U	0.0039 U	**109 J**	0.0026 U	0.0023 U	**4.94**	**0.0084**
o-Xylene	0.26	1.6	100	**0.225**	0.0035 U	0.0025 U	**15.1**	0.0029 U	0.0039 U	**26.7**	0.0026 U	0.0023 U	**0.0667**	**0.0064**
m/p-Xylene	0.26	1.6	100	**0.095**	0.0071 U	0.0049 U	**27**	0.0058 U	0.0078 U	**33.7**	0.0053 U	0.0045 U	**0.0449**	**0.0032 J**
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.8881**	**0.0192**	ND	**90.318**	**0.0459**	**0.0036**	**171.946**	ND	ND	**8.1782**	**0.221**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.0412 J**	0.0355 U	**0.0037 J**	4.15 U	0.029 U	**0.0142 J**	5.06 U	**0.0168 J**	**0.0137 J**	0.0311 U	**0.0153 J**
n-Butylbenzene	12	12	100	**0.0086**	0.0035 U	0.0025 U	**3.1**	0.0029 U	0.0039 U	**7.7**	0.0026 U	0.0023 U	**0.109**	0.0032 U
sec-Butylbenzene	11	11	100	0.0026 U	0.0035 U	0.0025 U	**0.153 J**	0.0029 U	0.0039 U	**0.801**	0.0026 U	0.0023 U	**0.031**	0.0032 U
tert-Butylbenzene	5.9	5.9	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	**0.0029 J**	0.0032 U
Carbon disulfide	NE	2.7*	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	**0.0688 J**	0.0026 U	0.0023 U	**0.0031 J**	0.0032 U
Chlorobenzene	1.1	1.1	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
Cyclohexane	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	**0.332**	0.0026 U	0.0023 U	**0.0948**	0.0032 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**0.0079**	0.0035 U	0.0025 U	**2.63**	0.0029 U	0.0039 U	**9.19**	0.0026 U	0.0023 U	**0.0563**	0.0032 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	0.995 UJ	0.0029 U	0.0039 U	1.21 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,1-Dichloroethane	0.27	0.27	26	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,1-Dichloroethene	0.33	0.33	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,2-Dichloropropane	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
Isopropylbenzene	NE	2.3*	NE	**0.0322**	0.0035 U	0.0025 U	**5.61**	**0.0014 J**	0.0039 U	**15.6**	0.0026 U	0.0023 U	**4.99**	**0.0054**
Methyl acetate	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	1.66 U	0.0029 U	0.0039 U	2.02 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.0047 J**	0.0355 U	0.0246 U	4.15 U	0.029 U	0.0392 U	5.06 U	0.0263 U	0.0227 U	0.0311 U	0.0318 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0259 U	0.0355 U	0.0246 U	1.66 U	0.029 U	0.0392 U	2.02 U	0.0263 U	0.0227 U	0.0311 U	0.0318 U
Methylcyclohexane	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	**1.29**	0.0026 U	0.0023 U	**2.47**	0.0032 U
Methylene chloride	0.05	0.05	100	0.0129 U	0.0177 U	0.0123 U	0.829 U	0.0145 U	0.0196 U	1.01 U	0.0131 U	0.0114 U	0.0156 U	**0.0017 J**
Naphthalene	12	12	100	**10.4**	**0.0095 J**	0.0025 U	**569**	**0.013 J**	**0.0014 J**	**1360 J**	0.0026 U	0.0023 U	**7.77**	**0.0872**
n-Propylbenzene	3.9	3.9	100	**0.0107**	0.0035 U	0.0025 U	**2.04**	0.0029 U	0.0039 U	**5.84**	0.0026 U	0.0023 U	**3.03**	**0.0016 J**
Styrene	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	**0.0431 J**	0.0029 U	0.0039 U	**0.178 J**	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0026 U	0.0035 U	0.0025 UJ	0.166 U	0.0029 U	0.0039 UJ	0.202 U	0.0026 U	0.0023 UJ	0.0031 U	0.0032 U
Tetrahydrofuran	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	NA	0.0029 U	0.0039 U	NA	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
1,1,2-Trichloroethane	NE	NE	NE	0.0026 U	0.0035 U	0.0025 U	0.166 U	0.0029 U	0.0039 U	0.202 U	0.0026 U	0.0023 U	0.0031 U	0.0032 U
Trichloroethene (TCE)	0.47	0.47	21	0.0026 U	0.0035 U	**0.0012 J**	0.166 U	0.0029 U	**0.0014 J**	0.202 U	0.0026 U	**0.0046**	0.0031 U	0.0032 U

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.434**	0.0035 U	0.0025 U	**43.5**	0.0029 U	0.0039 U	**82.6 J**	0.0026 U	0.0023 U	**8.26**	**0.0076**
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.0336**	0.0035 U	0.0025 U	**10.4**	0.0029 U	0.0039 U	**20.3**	0.0026 U	0.0023 U	**0.0084**	**0.0013 J**
Vinyl chloride	0.02	0.02	0.9	0.0052 U	0.0071 U	0.0049 U	0.166 U	0.0058 U	0.0078 U	0.202 U	0.0053 U	0.0045 U	0.0062 U	0.0064 U
Total VOCs	NE	NE	NE	**11.861**	**0.0287**	**0.0049**	**726.7941**	**0.0603**	**0.0206**	**1675.8458**	**0.0168**	**0.0183**	**35.0037**	**0.3411**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.181 J**	0.41 U	0.778 U	**22.7**	0.374 U	**0.719 J**	**96.9**	0.406 U	**0.22 J**	**26.4**	0.423 U
Acenaphthylene	100	107	100	0.426 U	0.41 U	0.778 U	**3.28**	0.374 U	**0.895**	**11.3**	0.406 U	**1.28**	**7.54**	0.423 U
Anthracene	100	1000	100	0.426 U	0.41 U	**0.285 J**	**4.95**	0.374 U	**1.92**	**35.9**	0.406 U	**1.26**	**13.4**	0.423 U
Benzo(a)anthracene	1	1	1	0.426 U	0.41 U	**0.915**	**3.32**	0.374 U	**4.9**	**24.5**	0.406 U	**3.31**	**16.3**	0.423 U
Benzo(b)fluoranthene	1	1.7	1	0.426 U	0.41 U	**0.81**	**0.97**	0.374 U	**3.88**	**10.1**	0.406 U	**2.86**	**19**	0.423 U
Benzo(k)fluoranthene	0.8	1.7	3.9	0.426 U	0.41 U	**0.65 J**	**1.2**	0.374 U	**3.35**	**9.94**	0.406 U	**2.41**	**8.87**	0.423 U
Benzo(g,h,i)perylene	100	1000	100	0.426 U	0.41 U	**0.52 J**	**0.664**	0.374 U	**2.56**	**7.56**	0.406 U	**2.13**	**15.1**	0.423 U
Benzo(a)pyrene	1	22	1	0.214 U	0.205 U	**0.911**	**2.38**	0.188 U	**4.72**	**19.5**	0.203 U	**3.51**	**19.8**	0.212 U
Chrysene	1	1	3.9	0.214 U	0.205 U	**0.892**	**2.9**	0.188 U	**4.67**	**22.2**	0.203 U	**3.15**	**14.5**	0.212 U
Dibenz(a,h)anthracene	0.33	1000	0.33	0.214 U	0.205 U	**0.121 J**	**0.234 J**	0.188 U	**0.697**	**2.04**	0.203 U	**0.573**	**7.93**	0.212 U
Fluoranthene	100	1000	100	0.426 U	**0.0751 J**	**1.94**	**4.74**	0.374 U	**9.49**	**38.8**	0.406 U	**5.95**	**46.4**	0.423 U
Fluorene	30	386	100	0.426 U	0.41 U	0.778 U	**5.92**	0.374 U	**0.683 J**	**43.2**	0.406 U	**0.231 J**	**20.6**	0.423 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.426 U	0.41 U	**0.566 J**	**0.798**	0.374 U	**3.22**	**9.36**	0.406 U	**2.49**	**18.1**	0.423 U
2-Methylnaphthalene	NE	36.4*	NE	**0.691**	0.41 U	0.778 U	**88.4**	0.374 U	**0.355 J**	**213**	0.406 U	**0.413 J**	**0.469 J**	**0.135 J**
Naphthalene	12	12	100	**4.13**	**0.108 J**	0.778 U	**193**	0.374 U	**0.731 J**	**442**	0.406 U	**0.65 J**	**2.95**	**0.235 J**
Phenanthrene	100	1000	100	0.426 U	0.41 U	**1.12**	**20.7**	0.374 U	**7.39**	**116**	0.406 U	**3.65**	**77.9**	0.423 U
Pyrene	100	1000	100	0.426 U	0.41 U	**1.71**	**7.92**	0.374 U	**8.87**	**56.4**	0.406 U	**5.51**	**47.4**	0.423 U
Total PAHs	NE	NE	NE	**5.002**	**0.1831**	**10.44**	**364.076**	ND	**59.05**	**1158.7**	ND	**39.597**	**362.659**	**0.37**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	0.853 U	0.821 U	1.56 U	1.14 U	0.749 U	1.54 U	1.62 U	0.812 U	1.52 U	1.76 U	0.847 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.426 U	0.41 U	0.778 U	**3.47**	0.374 U	0.768 U	**13.5**	0.406 U	0.758 U	**2**	0.423 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
Butyl benzyl phthalate	NE	122*	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	**0.212 J**	0.807 U	0.406 U	**0.151 J**	0.878 U	0.423 U
Caprolactam	NE	NE	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	**7.31**	0.406 U	0.758 U	**1.35**	0.423 U
Carbazole	NE	NE	NE	0.426 U	0.41 U	0.778 U	**0.195 J**	0.374 U	**0.905**	**1.41**	0.406 U	**0.331 J**	**0.789 J**	0.423 U
2-Chloronaphthalene	NE	NE	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
Dibenzofuran	7	210, 6.2*	59	0.426 U	0.41 U	0.778 U	**0.869**	0.374 U	**0.461 J**	**6.51**	0.406 U	0.758 U	**6.64**	0.423 U
Diethyl phthalate	NE	7.1*	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
2,4-Dimethylphenol	NE	NE	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
Di-n-butyl phthalate	NE	8.1*	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
2,6-Dinitrotoluene	NE	1*	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
Di-n-octyl phthalate	NE	120*	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
2-Methylnaphthalene	NE	36.4*	NE	**0.691**	0.41 U	0.778 U	**88.4**	0.374 U	**0.355 J**	**213**	0.406 U	**0.413 J**	**0.469 J**	**0.135 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.853 U	0.821 U	1.56 U	1.14 U	0.749 U	1.54 U	1.62 U	0.812 U	1.52 U	1.76 U	0.847 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
Phenol	0.33	0.33	100	0.426 U	0.41 U	0.778 U	0.57 U	0.374 U	0.768 U	0.807 U	0.406 U	0.758 U	0.878 U	0.423 U
Total SVOCs	NE	NE	NE	**5.002**	**0.1831**	**10.44**	**368.61**	ND	**60.628**	**1187.43**	ND	**40.079**	**373.438**	**0.37**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	0.06 U	NA	NA	**0.7**	NA	NA	0.06 U	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	0.06 U	NA	NA	**2.5 J**	NA	NA	**3.2 J**	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	**0.07**	NA	NA	**0.8**	NA	NA	**0.9**	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	**0.07**	NA	NA	**4**	NA	NA	**4.1**	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0017 U	NA	NA	0.0018 U	NA	NA	0.0016 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	**0.194 J**	NA	NA	**0.125 J**	NA	NA	**0.154 J**	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	**0.037 J**	NA	NA	**0.0207**	NA	NA	**0.0329**	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	**0.0241**	NA	NA	**0.0204 J**	NA	NA	**0.0286 J**	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	**0.005 JN**	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	**0.0075 J**	NA	NA	**0.007 JN**	NA	NA	**0.0154 J**	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	**0.0134 J**	NA	NA	**0.0351**	NA	NA	**0.0273 J**	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0028 UJ	NA	NA	0.0031 UJ	NA	NA	0.0027 UJ	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Endrin	0.014	0.06	11	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	**0.0026 J**	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-200 (13-15) 7/18/2022	WW-SB-200 (25-26) 7/18/2022	WW-SB-201 (0.4-5) 7/14/2022	WW-SB-201 (12-15) 7/18/2022	WW-SB-201 (30-32) 7/18/2022	WW-SB-202 (0.4-5) 7/14/2022	WW-SB-202 (12-14) 7/19/2022	WW-SB-202 (34-35) 7/19/2022	WW-SB-203 (0.4-5) 7/14/2022	WW-SB-203 (8-10) 7/19/2022	WW-SB-203 (30-32) 7/19/2022
Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	0.0028 U	NA	NA	**0.0013 J**	NA	NA	**0.0014 J**	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	0.0028 U	NA	NA	0.0031 U	NA	NA	0.0027 U	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.208 U	NA	NA	0.213 U	NA	NA	0.203 U	NA	NA
Dicamba	NE	NE	NE	NA	NA	0.01 U	NA	NA	0.011 U	NA	NA	0.01 U	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	0.208 U	NA	NA	0.213 U	NA	NA	0.203 U	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	20.8 U	NA	NA	21.3 U	NA	NA	20.3 U	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	20.6 U	NA	NA	21.1 U	NA	NA	20.1 U	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.011 U	NA	NA	**0.002 J**	NA	NA	0.01 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.011 U	NA	NA	0.011 U	NA	NA	0.01 U	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**10200 J**	**4400 J**	**4690**	**9040 J**	**2770 J**	**5600**	**3450**	**2350**	**3340**	**8530**	**2450**
Antimony	NE	NE	NE	2.7 UJ	2.57 UJ	2.77 U	2.11 UJ	2.37 UJ	**3.65 J**	**1.02 J**	2.71 U	**3.59 J**	2.84 U	2.78 U
Arsenic	13	16	16	**1.98 J**	**2.06 J**	**3.12**	**2.6 J**	**0.97 J**	**13.5**	**5.64**	**1.86 J**	**7.36**	**15.3**	**1.74 J**
Barium	350	820	400	**39.8 J**	**48 J**	**44.4**	**41.2 J**	**29.8 J**	**287**	**91.7 J**	**13.6 J**	**243**	**45.7 J**	**21.2 J**
Beryllium	7.2	47	72	**0.51 J**	**0.6 J**	**0.37 J**	**0.45 J**	**0.2 J**	**0.25 J**	1.15 U	**0.3 J**	**0.25 J**	**0.51 J**	**0.25 J**
Cadmium	2.5	7.5	4.3	2.16 UJ	2.05 UJ	2.22 U	1.69 UJ	1.9 UJ	**8.37**	2.08 U	2.17 U	**3.37**	2.27 U	2.23 U
Calcium	NE	NE	NE	**734 J**	**835 J**	**33600**	**1940 J**	**673 J**	**15700**	**3820 J**	**505 J**	**16800**	**4050 J**	**488 J**
Chromium	30	NE	180	**14 J**	**16.6 J**	**9.81 J**	**20.3 J**	**8.06 J**	**38.1**	**13.3 J**	**10.6 J**	**15.6**	**17.4 J**	**7.9 J**
Cobalt	NE	NE	NE	**4.8 J**	**8.02 J**	**1.77 J**	**7.32 J**	**3.02 J**	**6.64**	**3.29 J**	**6.58 J**	**2.61 J**	**6.18 J**	**3.41 J**
Copper	50	1720	270	**7.45 J**	**9.09 J**	**17.5 J**	**12.6 J**	**5.32 J**	**379**	**61.5 J**	**6.89 J**	**1010**	**20.5 J**	**8.39 J**
Iron	NE	NE	NE	**17100 J**	**41400 J**	**9420**	**20900 J**	**17000 J**	**26900**	**13700 J**	**44200 J**	**17000**	**21700 J**	**12800 J**
Lead	63	450	400	**6.74 J**	**8.36 J**	**51.1 J**	**7.84 J**	**3.07 J**	**670**	**195 J**	**6.54 J**	**534**	**64.7 J**	**4.14 J**
Magnesium	NE	NE	NE	**2490 J**	**910 J**	**4480**	**2360 J**	**961 J**	**3750**	**1250 J**	**460 J**	**2870**	**2550 J**	**793 J**
Manganese	1600	2000	2000	**177 J**	**408 J**	**148**	**437 J**	**123 J**	**254**	**158**	**656**	**186**	**228**	**69**
Mercury	0.18	0.73	0.81	0.038 U	0.037 U	**0.155**	0.025 U	0.025 U	**2.34**	**0.268**	0.032 U	**1.95**	**0.458**	0.035 U
Nickel	30	130	310	**9.4 J**	**10.2 J**	**9.06 J**	**13.7 J**	**5.51 J**	**47.6**	**19 J**	**7.84 J**	**23.5 J**	**12.6 J**	**5.21 J**
Potassium	NE	NE	NE	**823 J**	**534 J**	**698 J**	**823 J**	**467 J**	**512 J**	**578 J**	**288 J**	**521 J**	**1150 J**	**622 J**
Selenium	3.9	4	180	2.7 UJ	2.57 UJ	2.77 U	2.11 UJ	2.37 UJ	**1.26 J**	**1.49 J**	**0.98 J**	**1.14 J**	**2.21 J**	**1.1 J**
Silver	2	8.3	180	2.16 U	2.05 U	2.22 U	1.69 U	1.9 U	**1.27 J**	2.08 U	2.17 U	**1.42 J**	2.27 U	2.23 U
Sodium	NE	NE	NE	2700 UJ	2570 UJ	**197 J**	2110 UJ	2370 UJ	**218 J**	**179 J**	**120 J**	**134 J**	**166 J**	**219 J**
Thallium	NE	NE	NE	2.7 UJ	2.57 UJ	2.77 U	2.11 UJ	2.37 UJ	1.66 U	2.6 U	2.71 U	**0.7 J**	2.84 U	2.78 U
Tin	NE	NE	NE	54.1 UJ	51.3 UJ	55.4 UJ	42.2 UJ	47.4 UJ	33.1 UJ	52.1 U	54.3 U	51.4 UJ	56.9 U	**51 J**
Vanadium	NE	NE	NE	**21.4 J**	**28.4 J**	**32.3**	**33.8 J**	**15.3 J**	**22.2**	**10.9**	**25.7**	**14.8**	**24.6**	**18.5**
Zinc	109	2480	10000	**30.8 J**	**45.7 J**	**59.3**	**31.4 J**	**18.7 J**	**2020**	**348 J**	**40.5 J**	**608**	**69.4 J**	**27.3 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.245 U	0.244 U	0.233 U	0.242 U	0.234 U	0.241 U	0.24 U	0.233 U	0.222 U	0.254 U	0.244 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-204 (0-5) 7/21/2022	WW-SB-204 (5-10) 8/11/2022	WW-SB-204 (7-9) 7/21/2022	WW-SB-204 (28-30) 7/21/2022	WW-SB-205 (0.4-5) 7/12/2022	WW-SB-205 (10-12) 7/21/2022	WW-SB-205 (28-30) 7/21/2022	WW-SB-206 (0-5) 7/18/2022	WW-SB-206 (5-10) 7/20/2022	WW-SB-206 (28-30) 7/20/2022	WW-SB-207 (0.4-5) 7/15/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.0047 U	NA	**0.0148 J**	0.0027 U	0.0027 U	0.0026 U	**0.0246**	0.0041 U	0.002 U	0.0027 U	**0.0024**
Toluene	0.7	0.7	100	**0.0019 J**	NA	**0.0013 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	**0.0011 J**
Ethylbenzene	1	1	41	0.0047 U	NA	**0.0035 J**	0.0027 U	0.0027 U	**0.0014 J**	**0.0498**	0.0041 U	0.002 U	0.0027 U	0.0023 U
o-Xylene	0.26	1.6	100	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	**0.0025 J**	**0.0059**	0.0041 U	0.002 U	0.0027 U	0.0023 U
m/p-Xylene	0.26	1.6	100	0.0094 U	NA	**0.0023 J**	0.0054 U	0.0054 U	0.0052 U	**0.0059**	0.0083 U	0.004 U	0.0055 U	0.0046 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.0019**	NA	**0.0219**	ND	ND	**0.0039**	**0.0862**	ND	ND	ND	**0.0035**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.0476 J**	NA	**0.174 J**	0.0271 UJ	**0.0077 J**	0.026 UJ	0.0288 UJ	0.0414 U	**0.0048 J**	**0.0083 J**	**0.0047 J**
n-Butylbenzene	12	12	100	0.0047 U	NA	**0.021 J**	0.0027 U	0.0027 U	**0.0266**	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
sec-Butylbenzene	11	11	100	0.0047 U	NA	**0.0279 J**	0.0027 U	0.0027 U	**0.0028**	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
tert-Butylbenzene	5.9	5.9	100	0.0047 U	NA	**0.0046 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Carbon disulfide	NE	2.7*	NE	**0.0016 J**	NA	**0.0035 J**	0.0027 U	0.0027 U	**0.001 J**	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Chlorobenzene	1.1	1.1	100	0.0047 U	NA	**0.0233 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Cyclohexane	NE	NE	NE	0.0047 U	NA	**0.0057 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0047 U	NA	**0.0026 J**	0.0027 U	0.0027 U	**0.0026**	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 UJ	0.0027 U	0.0023 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0047 U	NA	**0.0402 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0047 U	NA	**0.0104 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,1-Dichloroethane	0.27	0.27	26	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,1-Dichloroethene	0.33	0.33	100	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
cis-1,2-Dichloroethene	0.25	0.25	100	**0.0027 J**	NA	**0.0088 J**	**0.0099**	0.0027 U	0.0026 U	**0.0021 J**	0.0041 U	0.002 U	**0.0145**	0.0023 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0047 U	NA	**0.0014 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,2-Dichloropropane	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Isopropylbenzene	NE	2.3*	NE	0.0047 U	NA	**0.013 J**	0.0027 U	0.0027 U	**0.0326**	**0.006**	0.0041 U	0.002 U	0.0027 U	0.0023 U
Methyl acetate	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 UJ	0.0027 U	0.0023 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0471 U	NA	**0.0077 J**	0.0271 U	0.0272 U	0.026 U	0.0288 U	0.0414 U	0.0202 U	0.0273 U	0.0229 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0471 U	NA	0.0268 UJ	0.0271 U	0.0272 U	0.026 U	0.0288 U	0.0414 U	0.0202 U	0.0273 U	0.0229 U
Methylcyclohexane	NE	NE	NE	0.0047 U	NA	**0.053 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Methylene chloride	0.05	0.05	100	0.0236 U	NA	0.0134 UJ	0.0136 U	0.0136 U	0.013 U	0.0144 U	0.0207 U	0.0101 U	**0.0015 J**	0.0114 U
Naphthalene	12	12	100	**0.0043 J**	NA	**0.0033 J**	0.0027 U	0.0027 U	**0.0125**	**3.34**	0.0041 U	0.002 U	0.0027 U	**0.0039**
n-Propylbenzene	3.9	3.9	100	0.0047 U	NA	**0.018 J**	0.0027 U	0.0027 U	**0.0125**	**0.0013 J**	0.0041 U	0.002 U	0.0027 U	0.0023 U
Styrene	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	**0.0008 J**	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 UJ
Tetrahydrofuran	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,1,2-Trichloroethane	NE	NE	NE	0.0047 U	NA	0.0027 UJ	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Trichloroethene (TCE)	0.47	0.47	21	0.0047 U	NA	**0.0015 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-204 (0-5) 7/21/2022	WW-SB-204 (5-10) 8/11/2022	WW-SB-204 (7-9) 7/21/2022	WW-SB-204 (28-30) 7/21/2022	WW-SB-205 (0.4-5) 7/12/2022	WW-SB-205 (10-12) 7/21/2022	WW-SB-205 (28-30) 7/21/2022	WW-SB-206 (0-5) 7/18/2022	WW-SB-206 (5-10) 7/20/2022	WW-SB-206 (28-30) 7/20/2022	WW-SB-207 (0.4-5) 7/15/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0047 U	NA	**0.0014 J**	0.0027 U	0.0027 U	**0.0374**	**0.0106**	0.0041 U	0.002 U	0.0027 U	0.0023 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0047 U	NA	**0.0018 J**	0.0027 U	0.0027 U	0.0026 U	0.0029 U	0.0041 U	0.002 U	0.0027 U	0.0023 U
Vinyl chloride	0.02	0.02	0.9	**0.0017 J**	NA	**0.0036 J**	0.0054 U	0.0054 U	0.0052 U	0.0058 U	0.0083 U	0.004 U	0.0055 U	0.0046 U
Total VOCs	NE	NE	NE	**0.0598**	NA	**0.4486**	**0.0099**	**0.0077**	**0.1327**	**3.4462**	ND	**0.0048**	**0.0243**	**0.0121**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**1.36**	NA	**0.348**	0.212 U	0.739 U	**8.78**	**0.0226 J**	**0.519 J**	0.423 U	0.371 U	**0.529 J**
Acenaphthylene	100	107	100	**2.31**	NA	**0.222**	0.212 U	**0.365 J**	**0.786**	0.191 U	**0.882**	**0.151 J**	0.371 U	**4.15**
Anthracene	100	1000	100	**2.17**	NA	**0.539**	0.212 U	**0.216 J**	**3.42**	0.191 U	**1.45**	**0.162 J**	0.371 U	**1.46**
Benzo(a)anthracene	1	1	1	**6.43**	NA	**1.76**	0.212 U	**0.785**	**1.91**	0.191 U	**5.7**	**1.09**	0.371 U	**3.48**
Benzo(b)fluoranthene	1	1.7	1	**6.64**	NA	**2.03**	0.212 U	**0.716 J**	**0.656**	0.191 U	**5.7**	**1.95**	0.371 U	**3.43**
Benzo(k)fluoranthene	0.8	1.7	3.9	**5.75**	NA	**1.99**	0.212 U	**0.646 J**	**0.805**	0.191 U	**5.02**	**1.71**	0.371 U	**3.2**
Benzo(g,h,i)perylene	100	1000	100	**5.79**	NA	**2.63**	0.212 U	**0.566 J**	**0.499**	0.191 U	**4.75**	**1.45**	0.371 U	**3.12**
Benzo(a)pyrene	1	22	1	**9.82**	NA	**3.55**	0.212 U	**0.922**	**1.59**	0.191 U	**7.8**	**1.49**	0.186 U	**5.17**
Chrysene	1	1	3.9	**6.36**	NA	**1.79**	0.212 U	**0.788**	**1.77**	0.191 U	**5.54**	**1.32**	0.186 U	**3.52**
Dibenz(a,h)anthracene	0.33	1000	0.33	**1.5**	NA	**0.7**	0.212 U	**0.155 J**	**0.166 J**	0.191 U	**1.25**	**0.602**	0.186 U	**0.74**
Fluoranthene	100	1000	100	**9.11**	NA	**1.85**	0.212 U	**1.15**	**3.53**	0.191 U	**7.3**	**0.515**	0.371 U	**5.27**
Fluorene	30	386	100	**0.856**	NA	**0.21**	0.212 U	0.739 U	**4.34**	0.191 U	**0.429 J**	0.423 U	0.371 U	**0.29 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**6.98**	NA	**3.07**	0.212 U	**0.643 J**	**0.604**	0.191 U	**5.96**	**1.89**	0.371 U	**3.46**
2-Methylnaphthalene	NE	36.4*	NE	**1.15**	NA	**0.0912 J**	**0.0341 J**	0.739 U	0.195 U	**0.0634 J**	**0.276 J**	0.423 U	0.371 U	**0.777 J**
Naphthalene	12	12	100	**2.38**	NA	**0.171 J**	**0.0913 J**	0.739 U	**0.0234 J**	**0.881**	**0.414 J**	**0.102 J**	0.371 U	**1.76**
Phenanthrene	100	1000	100	**8.56**	NA	**0.973**	0.212 U	**0.891**	**10.6**	0.191 U	**4.68**	**0.273 J**	0.371 U	**3.48**
Pyrene	100	1000	100	**11.4**	NA	**2.48**	0.212 U	**1.66**	**5.29**	0.191 U	**7.93**	**0.904**	0.371 U	**5.95**
Total PAHs	NE	NE	NE	**88.566**	NA	**24.4042**	**0.1254**	**9.503**	**44.7694**	**0.967**	**65.6**	**13.609**	ND	**49.786**
MAEPH (mg/kg)														
C-10	NE	NE	NE	**3.55**	**2.91**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	0.541 U	**1.06**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	0.541 U	**1.54**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	0.541 U	**0.58 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	0.541 U	**0.812**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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C-28	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	0.541 U	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	0.541 U	**0.366 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	0.541 U	**1**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	**0.176 J**	NA	0.204 U	0.212 U	1.48 U	0.195 U	0.191 U	1.45 U	0.847 U	0.743 U	1.56 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.166**	NA	0.0204 U	0.0212 U	0.739 U	**0.249**	0.0191 U	0.726 U	0.423 U	0.371 U	0.779 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.109 J**	NA	**0.262**	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Butyl benzyl phthalate	NE	122*	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Caprolactam	NE	NE	NE	**0.0585 J**	NA	**1.18**	0.212 U	0.739 U	**0.106 J**	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Carbazole	NE	NE	NE	**0.643**	NA	**0.184 J**	0.212 U	0.739 U	**0.0386 J**	0.191 U	**0.494 J**	0.423 U	0.371 U	**0.34 J**
2-Chloronaphthalene	NE	NE	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	**0.0169 J**	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Dibenzofuran	7	210, 6.2*	59	**0.503**	NA	**0.131 J**	0.212 U	0.739 U	**0.52**	0.191 U	**0.28 J**	0.423 U	0.371 U	**0.213 J**
Diethyl phthalate	NE	7.1*	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
2,4-Dimethylphenol	NE	NE	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Di-n-butyl phthalate	NE	8.1*	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
2,6-Dinitrotoluene	NE	1*	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Di-n-octyl phthalate	NE	120*	NE	0.71 U	NA	0.408 U	0.425 U	0.739 U	0.391 U	0.383 U	0.726 U	0.423 U	0.371 U	0.779 U
2-Methylnaphthalene	NE	36.4*	NE	**1.15**	NA	**0.0912 J**	**0.0341 J**	0.739 U	0.195 U	**0.0634 J**	**0.276 J**	0.423 U	0.371 U	**0.777 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.355 U	NA	0.204 U	0.212 U	1.48 U	0.195 U	0.191 U	1.45 U	0.847 U	0.743 U	1.56 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.71 U	NA	0.408 U	0.425 U	0.739 U	0.391 U	0.383 U	0.726 U	0.423 U	0.371 U	0.779 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Phenol	0.33	0.33	100	0.355 U	NA	0.204 U	0.212 U	0.739 U	0.195 U	0.191 U	0.726 U	0.423 U	0.371 U	0.779 U
Total SVOCs	NE	NE	NE	**90.2215**	NA	**26.1612**	**0.1254**	**9.503**	**45.6999**	**0.967**	**66.374**	**13.609**	ND	**50.339**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	**1.2**	**0.427**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	**7.51**	**0.816**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	**3.75**	**1.43**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	**0.77 J**	**0.727**	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-204 (0-5) 7/21/2022	WW-SB-204 (5-10) 8/11/2022	WW-SB-204 (7-9) 7/21/2022	WW-SB-204 (28-30) 7/21/2022	WW-SB-205 (0.4-5) 7/12/2022	WW-SB-205 (10-12) 7/21/2022	WW-SB-205 (28-30) 7/21/2022	WW-SB-206 (0-5) 7/18/2022	WW-SB-206 (5-10) 7/20/2022	WW-SB-206 (28-30) 7/20/2022	WW-SB-207 (0.4-5) 7/15/2022
C1-Benzene	NE	NE	NE	**0.873 JN**	**0.724 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	**1.46 JN**	**0.944 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	**1.26 JN**	**1.72 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	**0.795 JN**	**1.02 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	**0.402 JN**	**0.525 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	**7.36**	**9.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	**8.37 J**	**11.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	**8.27**	**10.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	**0.451**	**0.638**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	**0.222**	**0.255**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	**0.886**	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	**11.3**	**11.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	**13**	**15.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	**7.78**	**10.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	**0.196**	**0.133**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	**0.226 JN**	**0.0919 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	**0.208 JN**	**0.103 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	**0.121 JN**	**0.0882 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	**0.0525 JN**	**0.101 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.229**	**0.108**	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	**0.0338**	**0.0493**	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	0.0271 U	**0.036**	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	0.0271 U	0.0311 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	**4.81 JN**	**6.39 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	**2.75 JN**	**4.12 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	**1.4 JN**	**2.71 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	**0.71 JN**	**1.49 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	**6.9**	**8.38**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	**3.82**	**3.45**	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	**0.0507**	**0.0963**	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	0.0271 U	**0.0468**	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	**0.0663**	**0.28**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	**0.231 JN**	**0.85 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	**0.31 JN**	**0.971 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	**0.227 JN**	**0.794 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	**0.288 JN**	**2.63 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	**2.89**	**4.62**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	**0.322**	**0.404**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	**0.509**	**0.458**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	**0.707 JN**	**0.903 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	**0.706 JN**	**1.04 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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C3-Dibenzothiophenes	NE	NE	NE	**0.457 JN**	**1.12 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	**0.205 JN**	**0.737 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	**0.985**	**0.216**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	**8.05**	**7.21**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	**6.85 JN**	**6.25 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	**4.06 JN**	**4.61 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	**1.97 JN**	**3.13 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	**0.645**	**0.643**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	**0.794 JN**	**0.598 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	**0.795 JN**	**1.59 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	**0.758 JN**	**2.33 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**13.8**	**16.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	**0.0625**	**0.0564**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	**0.24 J**	**1.97**	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	**1.82**	**0.557**	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	**1.99**	**0.667**	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	**0.859**	**0.535**	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	**1.11**	**0.944**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	**4.15**	**2.44**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	**2.33 JN**	**0.753 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	**1.86 JN**	**0.735 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	**1.03 JN**	**1.23 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	**0.595 JN**	**2.69 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	**1.37 JN**	**1.96 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	**0.835 JN**	**1.46 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	**0.533 JN**	**0.838 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	**0.167 JN**	**0.344 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	**3.27**	**3.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	**5.75**	**3.92**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	**4.63 JN**	**2.69 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	**2.83 JN**	**3.02 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	**1.26 JN**	**3.02 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	**0.436 JN**	**1.76 JN**	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	**0.101**	**0.0715**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	**9.88**	**7.54**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	**0.169**	**1.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	**7.26**	**2.33**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	**1.01 J**	**0.832 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	**0.215**	**0.356**	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.523**	**0.894**	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.186**	**0.732**	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	**0.357**	**0.34**	NA	NA	NA	NA	NA	NA	NA	NA	NA

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m/p-Xylene	0.26	1.6	100	**1**	**0.79**	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	**1.1**	**0.87**	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	**0.0011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	**0.471 J**	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	**0.68**	0.622 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	**0.437 J**	**1.97**	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	**0.564**	**2.37**	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	**0.845**	**1.19**	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.03 U	NA	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	0.05 U
Aroclor 1248	NE	NE	NE	0.03 U	NA	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	0.05 U
Aroclor 1254	NE	NE	NE	**0.6**	NA	NA	NA	**0.3 J**	NA	NA	**0.3 J**	NA	NA	**0.5**
Aroclor 1260	NE	NE	NE	**0.2**	NA	NA	NA	**0.1 J**	NA	NA	**0.1**	NA	NA	**0.2**
Aroclor 1268	NE	NE	NE	0.03 U	NA	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	0.05 U
Total PCB Aroclors	0.1	3.2	1	**0.8**	NA	NA	NA	**0.4**	NA	NA	**0.4**	NA	NA	**0.7**
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0016 U	NA	NA	NA	0.0017 U	NA	NA	0.0017 U	NA	NA	0.0017 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Chlordane (Technical)	NE	NE	NE	**0.105 J**	NA	NA	NA	**0.125 J**	NA	NA	**0.144 J**	NA	NA	**0.0685 J**
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	**0.0153 J**	NA	NA	NA	**0.0185**	NA	NA	**0.0173**	NA	NA	**0.0159**
gamma-Chlordane	NE	14*	NE	**0.0121 J**	NA	NA	NA	**0.0164 J**	NA	NA	**0.0193 J**	NA	NA	**0.0127 J**
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	**0.0658 J**	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0027 U	NA	NA	NA	**0.0047 J**	NA	NA	**0.0058 J**	NA	NA	**0.0068 J**
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Dieldrin	0.005	0.1	0.2	**0.016 JN**	NA	NA	NA	**0.0108**	NA	NA	**0.0061 JN**	NA	NA	**0.0102 JN**
alpha-Endosulfan (I)	2.4	102	24	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
beta-Endosulfan (II)	2.4	102	24	**0.0263 J**	NA	NA	NA	0.0029 UJ	NA	NA	0.0028 U	NA	NA	**0.0033 JN**
Endosulfan sulfate	2.4	1000	24	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Endrin	0.014	0.06	11	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Endrin aldehyde	NE	NE	NE	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Endrin ketone	NE	NE	NE	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Heptachlor	0.042	0.38	2.1	**0.0033 J**	NA	NA	NA	**0.0023 J**	NA	NA	**0.0013 J**	NA	NA	0.0029 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-204 (0-5) 7/21/2022	WW-SB-204 (5-10) 8/11/2022	WW-SB-204 (7-9) 7/21/2022	WW-SB-204 (28-30) 7/21/2022	WW-SB-205 (0.4-5) 7/12/2022	WW-SB-205 (10-12) 7/21/2022	WW-SB-205 (28-30) 7/21/2022	WW-SB-206 (0-5) 7/18/2022	WW-SB-206 (5-10) 7/20/2022	WW-SB-206 (28-30) 7/20/2022	WW-SB-207 (0.4-5) 7/15/2022
Heptachlor epoxide	NE	0.02*	NE	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Hexachlorobenzene	0.33	3.2	1.2	0.0027 U	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Methoxychlor	NE	900*	NE	**0.0096 JN**	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA	NA	0.0029 U
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.201 U	NA	NA	NA	0.203 U	NA	NA	0.21 U	NA	NA	0.206 U
Dicamba	NE	NE	NE	0.01 U	NA	NA	NA	0.01 U	NA	NA	0.01 U	NA	NA	0.01 U
Dichloroprop	NE	NE	NE	0.201 U	NA	NA	NA	0.203 U	NA	NA	0.21 U	NA	NA	0.206 U
Mecoprop (MCPP)	NE	NE	NE	20.1 U	NA	NA	NA	20.3 U	NA	NA	**4.51 J**	NA	NA	**2.1 J**
Methylchlorophenoxyacetic acid	NE	NE	NE	19.9 U	NA	NA	NA	20.1 U	NA	NA	**1.97 J**	NA	NA	20.3 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.01 U	NA	NA	NA	0.01 U	NA	NA	0.011 U	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	0.01 U	NA	NA	NA	0.01 U	NA	NA	0.011 U	NA	NA	0.01 U
Metals (mg/kg)														
Aluminum	NE	NE	NE	**5510**	NA	**8600**	**4400**	**3750**	**6920**	**6920**	**4060 J**	**7050**	**5180**	**4800**
Antimony	NE	NE	NE	**0.91 J**	NA	2.14 U	2.71 U	2.07 U	2.58 U	2.74 U	**1.82 J**	2.25 UJ	1.87 UJ	**0.94 J**
Arsenic	13	16	16	**8.97**	NA	**2.43**	**0.76 J**	**2.65**	**1.83 J**	**1.09 J**	**13.9 J**	**40.5 J**	1.87 UJ	**7.9**
Barium	350	820	400	**104**	NA	**32.8**	**20.2 J**	**44**	**29.6**	**25.4 J**	**96.9 J**	**64.1**	**46.1**	**137**
Beryllium	7.2	47	72	**0.34 J**	NA	**0.34 J**	**0.39 J**	**0.26 J**	**0.44 J**	**0.43 J**	**0.41 J**	**0.66 J**	**0.39 J**	**0.27 J**
Cadmium	2.5	7.5	4.3	**0.74 J**	NA	1.71 U	2.17 U	1.65 U	2.06 U	2.19 U	**1.4 J**	**1.01 J**	1.5 U	**2.15**
Calcium	NE	NE	NE	**15500**	NA	**1500**	**1090**	**28500 J**	**910**	**1850**	**9960 J**	**33600 J**	**1160 J**	**8530**
Chromium	30	NE	180	**14.8**	NA	**13.1**	**10.1 J**	**7.49 J**	**16.1**	**28.1**	**48.8 J**	**12.9 J**	**12.5 J**	**23.9**
Cobalt	NE	NE	NE	**3.26 J**	NA	**6.25 J**	**4.37 J**	**1.53 J**	**6.93 J**	**8.28 J**	**5.58 J**	**4.78 J**	**4.69 J**	**3.96 J**
Copper	50	1720	270	**96.7**	NA	**14.5 J**	**10 J**	**19.2 J**	**12.1 J**	**13.1 J**	**93.1 J**	**39.1 J**	**10.9 J**	**109**
Iron	NE	NE	NE	**13800**	NA	**16300**	**14900**	**6310 J**	**24500**	**40400**	**20100 J**	**19500 J**	**12900 J**	**16000**
Lead	63	450	400	**274**	NA	**16.6 J**	**4.24 J**	**58.8**	**6.85 J**	**12.4 J**	**206 J**	**199 J**	**4.41 J**	**394**
Magnesium	NE	NE	NE	**2760**	NA	**2380**	**2040**	**4700 J**	**2220**	**2060**	**3010 J**	**5180 J**	**2550 J**	**2590**
Manganese	1600	2000	2000	**195 J**	NA	**199 J**	**114 J**	**121**	**249 J**	**644 J**	**215 J**	**294**	**80.3**	**211**
Mercury	0.18	0.73	0.81	**0.597**	NA	**0.064**	0.039 U	**0.193**	0.032 U	0.034 U	**1.31**	**0.049**	0.025 U	**1.2**
Nickel	30	130	310	**19.1 J**	NA	**11.6 J**	**8.5 J**	**9.67 J**	**10.1 J**	**11.1 J**	**17.9 J**	**13.9 J**	**9.27 J**	**19.1 J**
Potassium	NE	NE	NE	**696 J**	NA	**948 J**	**1170 J**	**474 J**	**1010 J**	**678 J**	**610 J**	2250 UJ	1870 UJ	**605 J**
Selenium	3.9	4	180	**2.01 J**	NA	2.14 U	2.71 U	2.07 U	2.58 U	2.74 U	2.51 UJ	**1.55 J**	1.87 U	**1.37 J**
Silver	2	8.3	180	2.12 U	NA	1.71 U	2.17 U	1.65 U	2.06 U	2.19 U	2.01 U	1.8 U	1.5 U	1.72 U
Sodium	NE	NE	NE	2650 U	NA	2140 U	2710 U	2070 U	2580 U	2740 U	2510 UJ	2250 U	1870 U	**135 J**
Thallium	NE	NE	NE	2.65 U	NA	2.14 U	2.71 U	2.07 U	2.58 U	2.74 U	2.51 UJ	**1.19 J**	1.87 U	2.15 U
Tin	NE	NE	NE	53.1 U	NA	42.8 U	54.2 U	41.3 U	51.5 U	54.8 U	50.3 UJ	45 UJ	37.5 UJ	43.1 UJ
Vanadium	NE	NE	NE	**16.3**	NA	**19.7**	**17.7**	**11.7**	**29.7**	**47.7**	**17.7 J**	**22.6**	**17**	**16.4**
Zinc	109	2480	10000	**335**	NA	**52.6**	**34.4**	**78.3**	**32.4**	**46.1**	**436 J**	**166 J**	**41.5 J**	**576**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.221 U	NA	0.247 U	0.261 U	0.226 U	0.237 U	0.226 U	0.223 U	0.254 U	0.227 U	0.225 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	**0.0441**	**0.493**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	**0.0344**	**0.33**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	**0.0239**	**0.206**	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Brooklyn, New York

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	**0.0146**	**0.171**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	**0.0563**	**0.615**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	**0.0191**	**0.149**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	**0.0185**	**0.145**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	**0.00882**	**0.132**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	**0.0197**	**0.148**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	**0.0156**	**0.15**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	**0.0135**	**0.141**	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	**0.154**	**1.35**	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	**0.169**	**1.42**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	0.00541 U	**0.127**	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	**0.0435**	**0.238**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	**0.0187**	**0.175**	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	**0.0175**	**0.129**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	**0.512**	**3.63**	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	**0.204**	**1.35**	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	**0.0467**	**0.337**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	**0.1**	**0.805**	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	**0.118**	**0.574**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	**0.807**	**5.77**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	**0.0229**	**0.121**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	**0.218**	**1.26**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	**0.16**	**1.04**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	0.00541 U	0.0311 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	**0.122**	**0.699**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	**0.107**	**0.707**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	**0.0681**	**0.345**	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	**0.044**	**0.24**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	**0.0449**	**0.208**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	**0.0299**	**0.14**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	**0.0415**	**0.159**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	**0.0183**	**0.0856**	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	**0.0394**	**0.956**	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	**0.0313**	**0.553**	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	**0.0555**	**0.619**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	**0.226**	**1.29**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	**0.0354**	**0.584**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	**0.0324**	**0.583**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	**0.168**	**1.37**	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	0.00541 U	**0.0852**	NA	NA	NA	NA	NA	NA	NA	NA	NA

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	**0.0543**	**0.312**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	**0.152**	**0.511**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	**0.0811**	**0.601**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	**0.136**	**0.772**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	**0.0541**	**0.544**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	**0.126**	**0.543**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	**0.148**	**0.971**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	**0.0907**	**0.569**	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	**0.095**	**0.755**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	82.9 U	**286**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	**254**	**1570**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	**339**	**1010**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	**429**	**1030**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	**1780**	**3200**	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	**914**	**6820**	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	**1670**	**9950**	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-207 (7-10) 7/22/2022	WW-SB-207 (68-70) 7/22/2022	WW-SB-208 (0-5) 7/18/2022	WW-SB-208 (23-25) 8/8/2022	WW-SB-208 (38-40) 8/8/2022	Duplicate of WW-SB-208 (38-40) 8/8/2022	WW-SB-209 (0-5) 7/19/2022	WW-SB-209 (10-15) 7/26/2022	WW-SB-209 (40-45) 7/27/2022	WW-SB-210 (0-5) 7/19/2022	WW-SB-210 (5-10) 8/11/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0082 J**	0.0028 U	0.0035 U	**119**	**0.0016 J**	**0.0019 J**	0.003 UJ	**10.4**	0.0027 U	0.0033 U	NA
Toluene	0.7	0.7	100	0.0045 U	0.0028 U	0.0035 U	**325**	0.0032 U	0.0033 U	0.003 UJ	**1.45**	0.0027 U	0.0033 U	NA
Ethylbenzene	1	1	41	0.0045 U	0.0028 U	0.0035 U	**113**	0.0032 U	0.0033 U	0.003 UJ	**245**	0.0027 U	0.0033 U	NA
o-Xylene	0.26	1.6	100	0.0045 U	0.0028 U	0.0035 U	**119**	0.0032 U	0.0033 U	0.003 UJ	**8.39**	0.0027 U	0.0033 U	NA
m/p-Xylene	0.26	1.6	100	0.009 U	0.0056 U	0.007 U	**297**	0.0064 U	0.0065 U	0.006 UJ	**6.07**	0.0055 U	0.0067 U	NA
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.0082**	ND	ND	**973**	**0.0016**	**0.0019**	ND	**271.31**	ND	ND	NA
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.0449 UJ	0.0279 UJ	0.0351 U	467 U	0.0319 UJ	0.0327 UJ	**0.0311 J**	5.02 U	0.0273 U	**0.0899**	NA
n-Butylbenzene	12	12	100	0.0045 UJ	0.0028 U	0.0035 U	**8.59 J**	0.0032 U	0.0033 U	0.003 UJ	**9.11**	0.0027 U	0.0033 U	NA
sec-Butylbenzene	11	11	100	**0.0427 J**	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	**1.56**	0.0027 U	0.0033 U	NA
tert-Butylbenzene	5.9	5.9	100	**0.0173 J**	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	**0.136 J**	0.0027 U	0.0033 U	NA
Carbon disulfide	NE	2.7*	NE	**0.0035 J**	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Chlorobenzene	1.1	1.1	100	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Chloroform (Trichloromethane)	0.37	0.37	49	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Cyclohexane	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	**6.19**	0.0027 U	0.0033 U	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0045 U	0.0028 U	0.0035 U	**12.7 J**	0.0032 U	0.0033 U	0.003 UJ	**9.9**	0.0027 U	0.0033 U	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0045 UJ	0.0028 U	0.0035 U	112 UJ	0.0032 UJ	0.0033 UJ	0.003 UJ	1.2 U	0.0027 UJ	0.0033 UJ	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0045 UJ	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0045 UJ	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
1,1-Dichloroethane	0.27	0.27	26	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
1,1-Dichloroethene	0.33	0.33	100	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
cis-1,2-Dichloroethene	0.25	0.25	100	**0.0018 J**	0.0028 U	0.0035 U	18.7 U	**0.0022 J**	**0.0035**	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
trans-1,2-Dichloroethene	0.19	0.19	100	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
1,2-Dichloropropane	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Isopropylbenzene	NE	2.3*	NE	**0.0121 J**	0.0028 U	0.0035 U	**9.71 J**	0.0032 U	0.0033 U	0.003 UJ	**23.7**	0.0027 U	0.0033 U	NA
Methyl acetate	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	187 U	0.0032 U	0.0033 U	0.003 UJ	2.01 U	0.0027 U	0.0033 U	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.0124 J**	0.0279 U	0.0351 U	467 U	0.0319 U	0.0327 U	0.03 UJ	5.02 U	0.0273 U	0.0334 U	NA
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0449 U	0.0279 U	0.0351 U	187 U	0.0319 U	0.0327 U	0.03 UJ	2.01 U	0.0273 U	0.0334 U	NA
Methylcyclohexane	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	**17.2**	0.0027 U	0.0033 U	NA
Methylene chloride	0.05	0.05	100	0.0224 U	0.0139 U	0.0176 U	93.3 U	0.016 U	0.0163 U	0.015 UJ	1 U	0.0136 U	0.0167 U	NA
Naphthalene	12	12	100	**0.0036 J**	0.0028 U	0.0039 U	**6580**	**0.0045**	**0.0124**	0.003 UJ	**2100**	0.0027 U	**0.0009 J**	NA
n-Propylbenzene	3.9	3.9	100	0.0045 UJ	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	**9.89**	0.0027 U	0.0033 U	NA
Styrene	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	**14.2 J**	0.0032 U	0.0033 U	0.003 UJ	**0.253**	0.0027 U	0.0033 U	NA
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0045 UJ	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Tetrachloroethene (PCE)	1.3	1.3	19	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Tetrahydrofuran	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	NA	0.0032 U	0.0033 U	0.003 UJ	NA	0.0027 U	0.0033 U	NA
1,2,3-Trichlorobenzene	NE	NE	NE	0.0045 UJ	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA
Trichloroethene (TCE)	0.47	0.47	21	0.0045 U	0.0028 U	0.0035 U	18.7 U	0.0032 U	0.0033 U	0.003 UJ	0.201 U	0.0027 U	0.0033 U	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-207 (7-10) 7/22/2022	WW-SB-207 (68-70) 7/22/2022	WW-SB-208 (0-5) 7/18/2022	WW-SB-208 (23-25) 8/8/2022	WW-SB-208 (38-40) 8/8/2022	Duplicate of WW-SB-208 (38-40) 8/8/2022	WW-SB-209 (0-5) 7/19/2022	WW-SB-209 (10-15) 7/26/2022	WW-SB-209 (40-45) 7/27/2022	WW-SB-210 (0-5) 7/19/2022	WW-SB-210 (5-10) 8/11/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.0022 J**	0.0028 U	0.0035 U	**165**	0.0032 U	0.0033 U	0.003 UJ	**124**	0.0027 U	0.0033 U	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0045 UJ	0.0028 U	0.0035 U	**66.8**	0.0032 U	0.0033 U	0.003 UJ	**29.9**	0.0027 U	0.0033 U	NA
Vinyl chloride	0.02	0.02	0.9	0.009 U	0.0056 U	0.007 U	18.7 U	0.0064 U	0.0065 U	0.006 UJ	0.201 U	0.0055 U	0.0067 U	NA
Total VOCs	NE	NE	NE	**0.1038**	ND	ND	**7830**	**0.0083**	**0.0178**	**0.0311**	**2603.149**	ND	**0.0908**	NA
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.117 J**	0.197 U	0.784 U	**311**	0.326 U	0.297 U	0.345 U	**197**	**0.434**	**0.162 J**	NA
Acenaphthylene	100	107	100	**0.635**	0.197 U	**0.171 J**	**245**	0.326 U	0.297 U	**0.441**	**35.4**	**0.304**	**1.37**	NA
Anthracene	100	1000	100	**0.546**	0.197 U	**0.189 J**	**429**	0.326 U	0.297 U	**0.214 J**	**71.5**	**0.189 J**	**0.715**	NA
Benzo(a)anthracene	1	1	1	**3.41**	0.197 U	**0.487 J**	**526**	0.326 U	**0.0238 J**	**0.64**	**51.4**	**0.145 J**	**1.75**	NA
Benzo(b)fluoranthene	1	1.7	1	**5.2**	0.197 U	**0.419 J**	**421**	0.326 U	0.297 U	**0.617**	**19.3**	**0.0583 J**	**1.8**	NA
Benzo(k)fluoranthene	0.8	1.7	3.9	**2.92**	0.197 U	**0.367 J**	**172**	0.326 U	0.297 U	**0.618**	**24.6**	**0.0711 J**	**1.66**	NA
Benzo(g,h,i)perylene	100	1000	100	**4.84**	0.197 U	**0.319 J**	**135**	0.326 U	0.297 U	**0.601**	**17.4**	**0.048 J**	**1.93**	NA
Benzo(a)pyrene	1	22	1	**6.34**	0.197 U	**0.512**	**451**	0.326 U	0.297 U	**0.961**	**43.6**	**0.121 J**	**2.8**	NA
Chrysene	1	1	3.9	**3.97**	0.197 U	**0.494**	**448**	0.326 U	0.297 U	**0.575**	**46**	**0.129 J**	**1.65**	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	**2.73**	0.197 U	0.393 U	**45.7**	0.326 U	0.297 U	**0.225**	**5.49**	0.289 U	**0.506**	NA
Fluoranthene	100	1000	100	**3.76**	0.197 U	**0.872**	**1210**	0.326 U	**0.0458 J**	**0.494**	**83**	**0.205 J**	**1.59**	NA
Fluorene	30	386	100	**0.0973 J**	0.197 U	0.784 U	**733**	0.326 U	**0.0257 J**	0.345 U	**122**	**0.245 J**	**0.139 J**	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**6.09**	0.197 U	**0.376 J**	**178**	0.326 U	0.297 U	**0.772**	**21.8 J**	**0.0614 J**	**2.24**	NA
2-Methylnaphthalene	NE	36.4*	NE	**0.11 J**	0.197 U	0.784 U	**1760**	0.326 U	**0.0337 J**	**0.126 J**	**594**	**1.2**	**0.361**	NA
Naphthalene	12	12	100	**0.12 J**	0.197 U	0.784 U	**6770**	**0.0377 J**	**0.0847 J**	**0.251 J**	**1730**	**3.05**	**0.729**	NA
Phenanthrene	100	1000	100	**0.944**	0.197 U	**0.547 J**	**2190**	0.326 U	**0.0938 J**	**0.343 J**	**271**	**0.623**	**1.01**	NA
Pyrene	100	1000	100	**4.02**	0.197 U	**0.881**	**1070**	0.326 U	**0.0415 J**	**0.634**	**123**	**0.297**	**2.31**	NA
Total PAHs	NE	NE	NE	**45.8493**	ND	**5.634**	**17094.7**	**0.0377**	**0.349**	**7.512**	**3456.49**	**7.1808**	**22.722**	NA
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4**
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.858 J**
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**23**
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.25**
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.2**
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.51**
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8.99**
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.36**
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.75**
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.36**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-207 (7-10) 7/22/2022	WW-SB-207 (68-70) 7/22/2022	WW-SB-208 (0-5) 7/18/2022	WW-SB-208 (23-25) 8/8/2022	WW-SB-208 (38-40) 8/8/2022	Duplicate of WW-SB-208 (38-40) 8/8/2022	WW-SB-209 (0-5) 7/19/2022	WW-SB-209 (10-15) 7/26/2022	WW-SB-209 (40-45) 7/27/2022	WW-SB-210 (0-5) 7/19/2022	WW-SB-210 (5-10) 8/11/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.33**
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8.2**
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.7**
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.871 U
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.33**
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.04**
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	0.2 U	0.197 U	1.57 U	1.93 U	0.326 U	0.297 U	0.691 U	1.44 U	0.289 U	0.709 U	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.02 U	0.0197 U	0.784 U	**215**	0.0326 U	0.0297 U	0.345 U	**36.3**	**0.0987**	0.354 U	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Butyl benzyl phthalate	NE	122*	NE	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Caprolactam	NE	NE	NE	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Carbazole	NE	NE	NE	0.2 U	0.197 U	0.784 U	**203**	0.326 U	0.297 U	0.345 U	**6**	0.289 U	**0.0903 J**	NA
2-Chloronaphthalene	NE	NE	NE	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Dibenzofuran	7	210, 6.2*	59	**0.123 J**	0.197 U	0.784 U	**445**	0.326 U	0.297 U	0.345 U	**16.6**	**0.0462 J**	**0.0812 J**	NA
Diethyl phthalate	NE	7.1*	NE	**0.0968 J**	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
2,4-Dimethylphenol	NE	NE	NE	0.2 U	0.197 U	0.784 U	**16.2**	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Di-n-butyl phthalate	NE	8.1*	NE	**0.344**	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
2,6-Dinitrotoluene	NE	1*	NE	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Di-n-octyl phthalate	NE	120*	NE	0.399 U	0.394 U	0.784 U	3.85 U	0.652 U	0.594 U	0.345 U	2.89 U	0.578 U	0.354 U	NA
2-Methylnaphthalene	NE	36.4*	NE	**0.11 J**	0.197 U	0.784 U	**1760**	0.326 U	**0.0337 J**	**0.126 J**	**594**	**1.2**	**0.361**	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.2 U	0.197 U	0.784 U	**0.68 J**	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.2 U	0.197 U	1.57 U	**0.528 J**	0.326 U	0.297 U	0.691 U	**0.279 J**	0.289 U	0.709 U	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.399 U	0.394 U	0.784 U	3.85 U	0.652 U	0.594 U	0.345 U	2.89 U	0.578 U	0.354 U	NA
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Phenol	0.33	0.33	100	0.2 U	0.197 U	0.784 U	1.93 U	0.326 U	0.297 U	0.345 U	1.44 U	0.289 U	0.354 U	NA
Total SVOCs	NE	NE	NE	**46.4131**	ND	**5.634**	**17975.108**	**0.0377**	**0.349**	**7.512**	**3515.669**	**7.3257**	**22.8935**	NA
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**31.4 J**
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**22.1 J**
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**25.5 J**
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.46 J**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-207 (7-10) 7/22/2022	WW-SB-207 (68-70) 7/22/2022	WW-SB-208 (0-5) 7/18/2022	WW-SB-208 (23-25) 8/8/2022	WW-SB-208 (38-40) 8/8/2022	Duplicate of WW-SB-208 (38-40) 8/8/2022	WW-SB-209 (0-5) 7/19/2022	WW-SB-209 (10-15) 7/26/2022	WW-SB-209 (40-45) 7/27/2022	WW-SB-210 (0-5) 7/19/2022	WW-SB-210 (5-10) 8/11/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.14 JN**
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.19 JN**
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.3 JN**
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.18 JN**
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.54 JN**
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**27.7 J**
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**19.3 J**
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**19.8 J**
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.38 J**
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.4 J**
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.24 J**
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18.9 J**
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**33.5 J**
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17.7 J**
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.3 J**
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.35 JN**
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.86 JN**
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.81 JN**
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.56 JN**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.1 J**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.235 J**
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0825 J**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20.3 JN**
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.4 JN**
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.24 JN**
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.71 JN**
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**24.3 J**
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.83 J**
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.164 J**
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.466 J**
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.18 J**
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.3 JN**
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**24.2 JN**
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**24 JN**
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**23.5 JN**
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.4 J**
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.45 J**
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.77 J**
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.74 JN**
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.5 JN**

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

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C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.59 JN**
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.17 JN**
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.38 J**
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**32.3 J**
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**48.1 JN**
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18 JN**
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.18 JN**
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.83 J**
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.38 JN**
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12.7 JN**
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.58 JN**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**24.6 J**
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.241 J**
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.77 J**
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.85 J**
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.35 J**
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.98 J**
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.59 J**
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17.8 J**
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8.71 JN**
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14.5 JN**
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**26.1 JN**
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17.9 JN**
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.86 JN**
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.83 JN**
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.93 JN**
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.545 JN**
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.71 J**
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.67 J**
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**24.9 JN**
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**23.8 JN**
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.89 JN**
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.24 JN**
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.456 J**
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**51.5 J**
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.477 J**
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.87 J**
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.62 J**
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.491 J**
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.49 J**
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.338 J**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.05 J**

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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.34 J**
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.71 J**
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**11.1**
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.97**
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12.7**
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12.6**
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**11.1**
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA
Aroclor 1248	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA
Aroclor 1254	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA
Aroclor 1260	NE	NE	NE	NA	NA	**0.08**	NA	NA	NA	0.05 U	NA	NA	**0.03 J**	NA
Aroclor 1268	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	**0.08**	NA	NA	NA	ND	NA	NA	**0.03**	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	**0.001 J**	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0017 U	NA	NA	NA	0.0016 U	NA	NA	0.0016 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	**0.111 J**	NA	NA	NA	0.0319 U	NA	NA	**0.0194 J**	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	**0.0155**	NA	NA	NA	0.0027 U	NA	NA	**0.0024 J**	NA
gamma-Chlordane	NE	14*	NE	NA	NA	**0.012 J**	NA	NA	NA	0.0027 U	NA	NA	**0.0024 J**	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	**0.0032 JN**	NA	NA	NA	0.0027 U	NA	NA	**0.0031 J**	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	**0.0029 J**	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0029 U	NA	NA	NA	0.0027 UJ	NA	NA	0.0026 U	NA
Dieldrin	0.005	0.1	0.2	NA	NA	**0.0047**	NA	NA	NA	0.0027 U	NA	NA	**0.0088 J**	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0029 UJ	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Endrin	0.014	0.06	11	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Endrin aldehyde	NE	NE	NE	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Endrin ketone	NE	NE	NE	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Heptachlor	0.042	0.38	2.1	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA

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Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 UJ	NA
Methoxychlor	NE	900*	NE	NA	NA	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	0.0026 U	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.212 U	NA	NA	NA	0.187 U	NA	NA	0.19 U	NA
Dicamba	NE	NE	NE	NA	NA	0.011 U	NA	NA	NA	0.009 U	NA	NA	0.01 U	NA
Dichloroprop	NE	NE	NE	NA	NA	0.212 U	NA	NA	NA	0.187 U	NA	NA	0.19 U	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	**6.66 J**	NA	NA	NA	18.7 U	NA	NA	19 U	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	**1.81 J**	NA	NA	NA	18.5 U	NA	NA	18.8 U	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.011 U	NA	NA	NA	0.009 U	NA	NA	0.01 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.011 U	NA	NA	NA	0.009 U	NA	NA	0.01 U	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**2850**	**5700**	**3180 J**	**5970**	**3150**	**3550**	**2160**	**7830**	**2880**	**5830**	NA
Antimony	NE	NE	NE	2.78 U	2.65 U	2.59 UJ	2.28 UJ	1.73 UJ	2.9 UJ	2.58 U	3.82 U	2.77 U	2.36 U	NA
Arsenic	13	16	16	**9.62**	**1.19 J**	**2.33 J**	**1.7 J**	1.73 U	2.9 U	**3.29**	**9.44**	2.77 U	**4.06**	NA
Barium	350	820	400	**16.6 J**	**24.4 J**	**31.1 J**	**48.7 J**	**8.01 J**	**9.32 J**	**17.5 J**	**80**	**10.9 J**	**59.5 J**	NA
Beryllium	7.2	47	72	1.22 U	**0.87 J**	**0.28 J**	**0.47 J**	**0.24 J**	**0.27 J**	1.14 U	**0.68 J**	**0.24 J**	**0.33 J**	NA
Cadmium	2.5	7.5	4.3	2.22 U	2.12 U	2.07 UJ	1.82 U	1.38 U	2.32 U	2.07 U	3.06 U	2.21 U	1.89 U	NA
Calcium	NE	NE	NE	**2590**	**1390**	**49400 J**	**326 J**	**6720 J**	**7470 J**	**4250 J**	**5800 J**	**962 J**	**14900 J**	NA
Chromium	30	NE	180	**5.92 J**	**12.7**	**7.47 J**	**14.7**	**4.49 J**	**5.04 J**	**6.13 J**	**13 J**	**5.44 J**	**10.9 J**	NA
Cobalt	NE	NE	NE	**3.11 J**	**5.18 J**	**1.61 J**	**3.03 J**	**3.19 J**	**2.35 J**	**1.7 J**	**4.93 J**	**2.16 J**	**3.48 J**	NA
Copper	50	1720	270	**14.5 J**	**19.3 J**	**24.3 J**	**14.3 J**	**4.74 J**	**5.01 J**	**4.74 J**	**42.3 J**	27.7 UJ	**24.3 J**	NA
Iron	NE	NE	NE	**7410**	**28200**	**7070 J**	**20700**	**6930**	**8330**	**5150 J**	**23000 J**	**9210 J**	**11800 J**	NA
Lead	63	450	400	**33.4 J**	**10.7 J**	**40.2 J**	**6.65 J**	**2 J**	**3.44 J**	**16.9 J**	**188 J**	55.3 UJ	**77.9 J**	NA
Magnesium	NE	NE	NE	**1450**	**676**	**19200 J**	**1890 J**	**5390 J**	**5860 J**	**3390 J**	**2030 J**	**1560 J**	**4020 J**	NA
Manganese	1600	2000	2000	**160**	**157**	**113 J**	**100**	**94.4**	**116**	**82.5**	**181**	**61.1**	**206**	NA
Mercury	0.18	0.73	0.81	**0.038 J**	**0.025 J**	**0.163**	0.028 U	0.024 U	0.036 U	**0.038**	**0.121**	0.036 U	**0.146**	NA
Nickel	30	130	310	**6.49 J**	**9.08 J**	**6.28 J**	**9.13 J**	**7.72 J**	**7.14 J**	**25.5 J**	**14.1 J**	**5.8 J**	**12.2 J**	NA
Potassium	NE	NE	NE	**511 J**	**637 J**	**578 J**	**1200 J**	**498 J**	**594 J**	**655 J**	**1050 J**	**660 J**	**1010 J**	NA
Selenium	3.9	4	180	**4.71**	2.65 U	2.59 UJ	2.28 UJ	1.73 UJ	2.9 UJ	**1.3 J**	**2.69 J**	**0.96 J**	**1.01 J**	NA
Silver	2	8.3	180	2.22 U	2.12 U	**4.54**	1.82 U	1.38 U	2.32 U	2.07 U	3.06 U	2.21 U	1.89 U	NA
Sodium	NE	NE	NE	2780 U	**887 J**	**505 J**	**211 J**	**160 J**	**228 J**	**165 J**	**407 J**	**234 J**	**235 J**	NA
Thallium	NE	NE	NE	2.78 U	2.65 U	2.59 UJ	2.28 U	1.73 U	2.9 U	2.58 U	3.82 U	2.77 U	2.36 U	NA
Tin	NE	NE	NE	55.5 U	52.9 U	51.7 UJ	45.6 U	34.6 U	58 U	51.6 U	76.4 U	55.3 U	47.2 U	NA
Vanadium	NE	NE	NE	**8.28 J**	**24.2**	**12.8 J**	**28.7**	**6.85 J**	**7.3 J**	**5.15 J**	**24.2**	**11.7**	**16.3**	NA
Zinc	109	2480	10000	**20.8 J**	**22 J**	**89.3 J**	**29.6 J**	**15.7 J**	**17.7 J**	**35.7 J**	**75.8 J**	**12.9 J**	**94.4 J**	NA
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.244 U	0.234 U	0.227 U	0.227 U	0.247 U	0.247 U	0.209 U	0.32 U	0.236 U	0.211 U	NA
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.206**
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.121**
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0683**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-207 (7-10) 7/22/2022	WW-SB-207 (68-70) 7/22/2022	WW-SB-208 (0-5) 7/18/2022	WW-SB-208 (23-25) 8/8/2022	WW-SB-208 (38-40) 8/8/2022	Duplicate of WW-SB-208 (38-40) 8/8/2022	WW-SB-209 (0-5) 7/19/2022	WW-SB-209 (10-15) 7/26/2022	WW-SB-209 (40-45) 7/27/2022	WW-SB-210 (0-5) 7/19/2022	WW-SB-210 (5-10) 8/11/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0486**
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0321 J**
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0473**
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0374 J**
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.036 J**
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0418 J**
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.051**
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.034 J**
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0443**
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0819**
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0365 J**
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0431 J**
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0426 J**
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.197**
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0468**
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.029 J**
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0397 J**
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0333 J**
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.285**
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0312 J**
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0951**
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.103**
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0821**
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0534**
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0462**
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0389 J**
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0436 U
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.121**
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0702**
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0604**
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.218**
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.127**
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.122**
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.308**
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0356 J**

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-207 (7-10) 7/22/2022	WW-SB-207 (68-70) 7/22/2022	WW-SB-208 (0-5) 7/18/2022	WW-SB-208 (23-25) 8/8/2022	WW-SB-208 (38-40) 8/8/2022	Duplicate of WW-SB-208 (38-40) 8/8/2022	WW-SB-209 (0-5) 7/19/2022	WW-SB-209 (10-15) 7/26/2022	WW-SB-209 (40-45) 7/27/2022	WW-SB-210 (0-5) 7/19/2022	WW-SB-210 (5-10) 8/11/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0509**
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.179**
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.105**
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.146**
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.15**
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.133**
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.156**
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.131**
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.111**
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1040**
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**414**
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1300**
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1460**
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	**477**	**4910**
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7250**
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8710**

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-210 (7-10) 7/27/2022	WW-SB-210 (10-15) 8/11/2022	Duplicate of WW-SB-210 (10-15) 8/11/2022	WW-SB-211 (0.5-5) 8/3/2022	Duplcaite of WW-SB-211 (0.5-5) 8/3/2022	WW-SB-211 (5-10) 8/8/2022	WW-SB-211 (10-12) 8/8/2022	WW-SB-211 (30-35) 8/8/2022	WW-SB-212 (1.5-5) 8/10/2022	WW-SB-212 (10-15) 8/11/2022	WW-SB-212 (75-76) 8/11/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0227**	**0.0798**	**0.0559 J**	0.0041 U	0.0037 UJ	**0.0134**	**0.654**	0.0034 U	0.0044 U	**0.011 J**	0.0019 U
Toluene	0.7	0.7	100	**0.0086**	**0.0951**	**0.0356 J**	0.0041 U	0.0037 UJ	**0.0135**	0.224 U	0.0034 U	0.0044 U	0.0042 UJ	0.0019 U
Ethylbenzene	1	1	41	**0.0042**	**1.19**	**1.51 J**	0.0041 U	0.0037 UJ	**0.0065**	**0.501**	0.0034 U	0.0044 UJ	**0.0074 J**	0.0019 U
o-Xylene	0.26	1.6	100	**0.0027**	**0.308**	**0.0642 J**	0.0041 U	0.0037 UJ	**0.0245**	**0.121 J**	0.0034 U	0.0044 UJ	**0.0099 J**	0.0019 U
m/p-Xylene	0.26	1.6	100	**0.0027 J**	**0.261**	**0.109 J**	0.0083 U	0.0074 UJ	**0.0341**	0.448 U	0.0068 U	0.0088 UJ	**0.0206 J**	0.0037 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.0409**	**1.9339**	**1.7747**	ND	ND	**0.092**	**1.276**	ND	ND	**0.0489**	ND
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.0214 U	0.0332 U	0.0302 U	0.0415 U	0.0372 UJ	**0.152 J**	5.6 U	0.034 UJ	**0.0779 J**	0.0416 U	0.0185 UJ
n-Butylbenzene	12	12	100	**0.003**	**0.0096**	**0.0052 J**	0.0041 U	0.0037 UJ	**0.0089**	**4.04**	0.0034 U	0.0044 UJ	**0.154 J**	0.0019 U
sec-Butylbenzene	11	11	100	**0.0021 J**	**0.0042**	**0.0023 J**	0.0041 U	0.0037 UJ	**0.0062**	**2.01**	0.0034 U	0.0044 UJ	**0.131 J**	0.0019 U
tert-Butylbenzene	5.9	5.9	100	0.0021 U	0.0033 U	**0.0014 J**	0.0041 U	0.0037 UJ	0.0053 U	**0.233**	0.0034 U	0.0044 UJ	**0.0139**	0.0019 U
Carbon disulfide	NE	2.7*	NE	0.0021 U	**0.003 J**	**0.0048**	**0.0171**	**0.01 J**	0.0053 U	0.224 U	0.0034 U	**0.0023 J**	**0.0021 J**	0.0019 U
Chlorobenzene	1.1	1.1	100	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 UJ	0.0042 U	0.0019 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0021 U	**0.0019 J**	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
Cyclohexane	NE	NE	NE	**0.001 J**	**0.0038**	**0.0067 J**	0.0041 U	0.0037 UJ	**0.0018 J**	**0.73**	0.0034 U	0.0044 UJ	**0.0778 J**	0.0019 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**0.001 J**	**0.009**	**0.0042**	0.0041 U	0.0037 UJ	**0.0026 J**	**0.125 J**	0.0034 U	0.0044 UJ	**0.0023 J**	0.0019 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0021 UJ	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 UJ	1.34 UJ	0.0034 UJ	0.0044 UJ	0.0042 U	0.0019 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 UJ	0.0042 U	0.0019 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 UJ	0.0042 U	0.0019 U
1,1-Dichloroethane	0.27	0.27	26	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
1,1-Dichloroethene	0.33	0.33	100	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
1,2-Dichloropropane	NE	NE	NE	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
Isopropylbenzene	NE	2.3*	NE	**0.0034**	**0.0707**	**0.042 J**	0.0041 U	0.0037 UJ	0.0053 U	**3.55**	0.0034 U	0.0044 UJ	**1.91 J**	0.0019 U
Methyl acetate	NE	NE	NE	0.0021 U	0.0033 U	**0.0119**	0.0041 U	0.0037 UJ	0.0053 U	2.24 U	0.0034 U	0.0044 R	0.0042 U	0.0019 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0214 U	0.0332 U	0.0302 U	**0.0071 J**	**0.0071 J**	0.0529 U	5.6 U	0.034 U	0.0439 U	**0.0154 J**	0.0185 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0214 U	0.0332 U	0.0302 U	0.0415 U	0.0372 UJ	0.0529 U	2.24 U	0.034 U	0.0439 U	0.0416 U	0.0185 U
Methylcyclohexane	NE	NE	NE	0.0021 U	**0.0063**	**0.0079 J**	0.0041 U	0.0037 UJ	**0.0063**	**12.2**	0.0034 U	0.0044 UJ	**4.74 J**	0.0019 U
Methylene chloride	0.05	0.05	100	0.0107 U	0.0166 U	0.0151 U	0.0207 U	0.0186 UJ	0.0265 U	1.12 U	0.017 U	0.0219 U	0.0208 U	0.0093 U
Naphthalene	12	12	100	**0.021**	**9.61**	**16.6 J**	**0.0076**	**0.0055 J**	**13.1**	**3.39**	0.0034 U	0.0044 UJ	**0.0857 J**	**0.0005 J**
n-Propylbenzene	3.9	3.9	100	**0.0018 J**	**0.0181**	**0.0101 J**	0.0041 U	0.0037 UJ	**0.0038 J**	**3.91**	0.0034 U	0.0044 UJ	**2.05 J**	0.0019 U
Styrene	NE	NE	NE	**0.001 J**	**0.0038**	**0.002 J**	0.0041 U	0.0037 UJ	**0.0058**	0.224 U	0.0034 U	0.0044 UJ	0.0042 U	0.0019 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 R	0.0042 U	0.0019 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
Tetrahydrofuran	NE	NE	NE	0.0021 U	0.0033 U	0.003 U	**0.002 J**	**0.0015 J**	0.0053 U	NA	0.0034 U	0.0044 U	0.0042 U	0.0019 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 UJ	0.0042 U	0.0019 U
1,1,2-Trichloroethane	NE	NE	NE	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U
Trichloroethene (TCE)	0.47	0.47	21	0.0021 U	0.0033 U	0.003 U	0.0041 U	0.0037 UJ	0.0053 U	0.224 U	0.0034 U	0.0044 U	0.0042 U	0.0019 U

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1,2,4-Trimethylbenzene	3.6	3.6	52	**0.0012 J**	**0.458**	**0.086 J**	0.0041 U	0.0037 UJ	**0.0738**	**0.224**	0.0034 U	0.0044 UJ	**0.0068 J**	0.0019 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0021 U	**0.0658**	**0.0236 J**	0.0041 U	0.0037 UJ	**0.021**	**0.233**	0.0034 U	0.0044 UJ	**0.004 J**	0.0019 U
Vinyl chloride	0.02	0.02	0.9	0.0043 U	0.0066 U	0.006 U	0.0083 U	0.0074 UJ	0.0106 U	0.224 U	0.0068 U	0.0088 U	0.0083 U	0.0037 U
Total VOCs	NE	NE	NE	**0.0764**	**12.1981**	**18.5828**	**0.0338**	**0.0241**	**13.4742**	**31.921**	ND	**0.0802**	**9.2419**	**0.0005**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**25.1**	**6.97**	**12.6**	**2.58**	**1.71**	**1.09**	**9.43**	0.293 U	**0.227 J**	**21.1 J**	**0.0221 J**
Acenaphthylene	100	107	100	**8.11**	**5.66**	**7.1 J**	**2.17**	**1.89**	**2.18**	**1.36**	0.293 U	**0.564 J**	**2.18**	0.287 U
Anthracene	100	1000	100	**13.6**	**10.8**	**12.6**	**2.3**	**1.64**	**1.67**	**5.55**	0.293 U	**0.433 J**	**11.6**	0.287 U
Benzo(a)anthracene	1	1	1	**11.9**	**13.4**	**11.9**	**3.35**	**2.55**	**2.84**	**3.45**	0.293 U	**0.846 J**	**16.1**	0.287 U
Benzo(b)fluoranthene	1	1.7	1	**7.81**	**12.1**	**10.2**	**3.47**	**2.72**	**4.49**	**2.33**	0.293 U	**1.07**	**23.2**	0.287 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**6.36**	**4.1**	**3.96 J**	**3.21**	**2.4**	**1.59**	**0.969**	0.293 U	**0.348 J**	**8.97 J**	0.287 U
Benzo(g,h,i)perylene	100	1000	100	**6.25**	**5.49**	**4.83 J**	**3.3**	**2.54**	**3.5**	**1.28**	0.293 U	**0.581 J**	**14.4 J**	0.287 U
Benzo(a)pyrene	1	22	1	**12.6**	**12.2**	**11.6 J**	**5.5**	**4.23**	**4.58**	**3.12**	0.293 U	**1.04 J**	**26.6 J**	0.287 U
Chrysene	1	1	3.9	**11.7**	**13**	**12.6**	**3.28**	**2.55**	**2.93**	**3.28**	0.293 U	**0.936 J**	**15.2**	0.287 U
Dibenz(a,h)anthracene	0.33	1000	0.33	**1.53**	**1.7**	**1.49 J**	**0.973**	**0.813**	**0.788**	**0.401**	0.293 U	**0.158 J**	**4.46 J**	0.287 U
Fluoranthene	100	1000	100	**18.6**	**26.5**	**22.6**	**4.02**	**2.92**	**3.65**	**4.79**	0.293 U	**1.32**	**15.5**	**0.0278 J**
Fluorene	30	386	100	**3.59**	**6.14**	**12.6**	**0.425**	**0.342**	**1.58**	**5.83**	0.293 U	**0.197 J**	**10.7**	**0.022 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**7.81**	**6.61 J**	**5.76 J**	**3.9**	**3.04**	**4.37**	**1.46**	0.293 U	**0.619 J**	**18 J**	0.287 UJ
2-Methylnaphthalene	NE	36.4*	NE	**3.56**	**6.43**	**4.37 J**	**0.527**	**0.533**	**3.96**	**31.6**	0.293 U	**0.126 J**	**8.45 J**	**0.0457 J**
Naphthalene	12	12	100	**9.98**	**18.4**	**11.8**	**0.9**	**0.949**	**5.09**	**8.92**	**0.0289 J**	**0.228 J**	**14**	**0.11 J**
Phenanthrene	100	1000	100	**18.1**	**28.1**	**29.1**	**1.95**	**1.77**	**3.93**	**18.5**	0.293 U	**0.998 J**	**34.5**	**0.0521 J**
Pyrene	100	1000	100	**26.8**	**29.5**	**26.2**	**6.45**	**4.8**	**4.29**	**7.43**	0.293 U	**1.36**	**20.1**	**0.0274 J**
Total PAHs	NE	NE	NE	**193.4**	**207.1**	**201.31**	**48.305**	**37.397**	**52.528**	**109.7**	**0.0289**	**11.051**	**265.06**	**0.3071**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	**1.7**	**2.78**	NA	NA	NA	NA	NA	NA	**6.71**	NA
C-11	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	**7.76**	NA
C-12	NE	NE	NE	NA	**17.3 J**	**2.48 J**	NA	NA	NA	NA	NA	NA	**29.4**	NA
C-13	NE	NE	NE	NA	**0.773**	**1.41**	NA	NA	NA	NA	NA	NA	**13.2**	NA
C-14	NE	NE	NE	NA	**1.94**	**3.9 J**	NA	NA	NA	NA	NA	NA	**10.1**	NA
C-15	NE	NE	NE	NA	**0.647**	**2.18 J**	NA	NA	NA	NA	NA	NA	**4.19**	NA
C-16	NE	NE	NE	NA	**0.72**	**2.54 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-17	NE	NE	NE	NA	**1.71 J**	**4.58 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-18	NE	NE	NE	NA	**1.41**	**3.64 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-19	NE	NE	NE	NA	**1.71 J**	**4.01 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-20	NE	NE	NE	NA	**1.75 J**	**5.2 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-21	NE	NE	NE	NA	**1.91 J**	**4.37 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-22	NE	NE	NE	NA	0.568 U	**1.31**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-23	NE	NE	NE	NA	**4.38 J**	**9.98 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-24	NE	NE	NE	NA	**1.53**	**3.49**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-25	NE	NE	NE	NA	**1.52**	**3.41**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-26	NE	NE	NE	NA	0.568 U	**0.952**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-27	NE	NE	NE	NA	**2.75 J**	**6.32 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-210 (7-10) 7/27/2022	WW-SB-210 (10-15) 8/11/2022	Duplicate of WW-SB-210 (10-15) 8/11/2022	WW-SB-211 (0.5-5) 8/3/2022	Duplcaite of WW-SB-211 (0.5-5) 8/3/2022	WW-SB-211 (5-10) 8/8/2022	WW-SB-211 (10-12) 8/8/2022	WW-SB-211 (30-35) 8/8/2022	WW-SB-212 (1.5-5) 8/10/2022	WW-SB-212 (10-15) 8/11/2022	WW-SB-212 (75-76) 8/11/2022
C-28	NE	NE	NE	NA	0.568 U	**1.06**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-29	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-30	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-31	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-32	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-33	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-34	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-35	NE	NE	NE	NA	**1.67**	**2.52**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-36	NE	NE	NE	NA	**0.433 J**	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-37	NE	NE	NE	NA	**3.1 J**	**5.63 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-38	NE	NE	NE	NA	**2.26 J**	**7.2 J**	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-39	NE	NE	NE	NA	**0.559 J**	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-40	NE	NE	NE	NA	**0.516 J**	0.678 U	NA	NA	NA	NA	NA	NA	0.682 U	NA
C-8	NE	NE	NE	NA	0.568 U	0.678 U	NA	NA	NA	NA	NA	NA	**3.35**	NA
C-9	NE	NE	NE	NA	**0.83**	**0.979**	NA	NA	NA	NA	NA	NA	**2.29**	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	0.286 U	0.616 U	0.61 U	**0.046 J**	**0.0389 J**	**0.213 J**	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.641**	**0.995**	**0.63**	**0.103**	**0.0965**	**0.391**	**0.378**	0.0293 U	0.106 U	0.0325 U	0.0287 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.14 J**	0.616 U	**3.05 J**	**0.0844 J**	**0.0702 J**	0.288 U	0.337 U	0.293 U	**0.419 J**	0.325 UJ	0.287 U
Butyl benzyl phthalate	NE	122*	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Caprolactam	NE	NE	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Carbazole	NE	NE	NE	**0.831**	**1.29**	**1.02**	**0.152 J**	**0.18 J**	**0.238 J**	0.337 U	0.293 U	1.06 U	**1.39**	0.287 U
2-Chloronaphthalene	NE	NE	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Dibenzofuran	7	210, 6.2*	59	**1.88**	**1.31**	**1.68**	**0.304**	**0.33**	**0.593**	**1.55**	0.293 U	1.06 U	**2.85**	0.287 U
Diethyl phthalate	NE	7.1*	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
2,4-Dimethylphenol	NE	NE	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Di-n-butyl phthalate	NE	8.1*	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
2,6-Dinitrotoluene	NE	1*	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Di-n-octyl phthalate	NE	120*	NE	0.573 U	1.23 U	**0.172 J**	0.539 U	0.555 U	0.576 U	0.673 U	0.586 U	2.13 U	0.65 U	0.575 U
2-Methylnaphthalene	NE	36.4*	NE	**3.56**	**6.43**	**4.37 J**	**0.527**	**0.533**	**3.96**	**31.6**	0.293 U	**0.126 J**	**8.45 J**	**0.0457 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.286 U	0.616 U	**0.0444 J**	0.269 U	0.277 U	**0.039 J**	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.286 U	**0.102 J**	**0.118 J**	0.269 U	0.277 U	**0.0585 J**	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.573 U	1.23 U	1.22 U	0.539 U	0.555 U	0.576 U	0.673 U	0.586 U	2.13 U	0.65 U	0.575 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.286 U	0.616 U	0.61 U	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Phenol	0.33	0.33	100	0.286 U	0.616 U	**0.139 J**	0.269 U	0.277 U	0.288 U	0.337 U	0.293 U	1.06 U	0.325 U	0.287 U
Total SVOCs	NE	NE	NE	**196.892**	**210.797**	**208.1634**	**48.9944**	**38.1126**	**54.0605**	**111.628**	**0.0289**	**11.47**	**269.3**	**0.3071**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	**7.08 J**	**12.5 J**	NA	NA	NA	NA	NA	NA	**14 J**	NA
Acenaphthylene	100	107	100	NA	**8.01 J**	**22 J**	NA	NA	NA	NA	NA	NA	**1.88 J**	NA
Anthracene	100	1000	100	NA	**11.2 J**	**21.3 J**	NA	NA	NA	NA	NA	NA	**8.73 J**	NA
Benzene	0.06	0.06	4.8	NA	0.00568 UJ	**4.38 J**	NA	NA	NA	NA	NA	NA	**15.2 J**	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-210 (7-10) 7/27/2022	WW-SB-210 (10-15) 8/11/2022	Duplicate of WW-SB-210 (10-15) 8/11/2022	WW-SB-211 (0.5-5) 8/3/2022	Duplcaite of WW-SB-211 (0.5-5) 8/3/2022	WW-SB-211 (5-10) 8/8/2022	WW-SB-211 (10-12) 8/8/2022	WW-SB-211 (30-35) 8/8/2022	WW-SB-212 (1.5-5) 8/10/2022	WW-SB-212 (10-15) 8/11/2022	WW-SB-212 (75-76) 8/11/2022
C1-Benzene	NE	NE	NE	NA	**1.35 JN**	**2.37 JN**	NA	NA	NA	NA	NA	NA	**1.28 JN**	NA
C2-Benzenes	NE	NE	NE	NA	**2.43 JN**	**3.33 JN**	NA	NA	NA	NA	NA	NA	**7.52 JN**	NA
C3-Benzenes	NE	NE	NE	NA	**1.23 JN**	**1.95 JN**	NA	NA	NA	NA	NA	NA	**6.52 JN**	NA
C4-Benzenes	NE	NE	NE	NA	**1.19 JN**	**2.15 JN**	NA	NA	NA	NA	NA	NA	**37.9 JN**	NA
C5-Benzenes	NE	NE	NE	NA	**1.08 JN**	**2.03 JN**	NA	NA	NA	NA	NA	NA	**49.6 JN**	NA
Benzo(a)anthracene	1	1	1	NA	**10.4 J**	**30.9 J**	NA	NA	NA	NA	NA	NA	**12 J**	NA
Benzo(b)fluoranthene	1	1.7	1	NA	**7.73 J**	**22.7 J**	NA	NA	NA	NA	NA	NA	**10.5 J**	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	**6.14 J**	**20.7 J**	NA	NA	NA	NA	NA	NA	**10.9 J**	NA
Benzo(b)fluorene	NE	NE	NE	NA	**1.89 J**	**4.47 J**	NA	NA	NA	NA	NA	NA	**1.5 J**	NA
Benzo(c)fluorene	NE	NE	NE	NA	**0.786 J**	**2.02 J**	NA	NA	NA	NA	NA	NA	**0.683 J**	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	**1.76 J**	**4.83 J**	NA	NA	NA	NA	NA	NA	**2.4 J**	NA
Benzo(g,h,i)perylene	100	1000	100	NA	**5.56 J**	**16.9 J**	NA	NA	NA	NA	NA	NA	**9.87 J**	NA
Benzo(a)pyrene	1	22	1	NA	**9.82 J**	**29.5 J**	NA	NA	NA	NA	NA	NA	**16.2 J**	NA
Benzo(e)pyrene	NE	NE	NE	NA	**5.99 J**	**18.2 J**	NA	NA	NA	NA	NA	NA	**9.41 J**	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	**0.796**	**1.15 J**	NA	NA	NA	NA	NA	NA	**1.55 J**	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	**0.993 JN**	**1.96 JN**	NA	NA	NA	NA	NA	NA	**8.54 JN**	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	**1.3 JN**	**2.47 JN**	NA	NA	NA	NA	NA	NA	**13.9 JN**	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	**0.994 JN**	**1.81 JN**	NA	NA	NA	NA	NA	NA	**12.2 JN**	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	**0.48 JN**	**0.88 JN**	NA	NA	NA	NA	NA	NA	**6.76 JN**	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	**0.633**	**0.886 J**	NA	NA	NA	NA	NA	NA	**0.778 J**	NA
n-Butylbenzene	12	12	100	NA	**0.06 J**	**0.124 J**	NA	NA	NA	NA	NA	NA	**3.03 J**	NA
sec-Butylbenzene	11	11	100	NA	**0.0172 J**	**0.0378 J**	NA	NA	NA	NA	NA	NA	**1.12 J**	NA
tert-Butylbenzene	5.9	5.9	100	NA	0.00568 U	0.0339 U	NA	NA	NA	NA	NA	NA	**0.0687 J**	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**6.93 JN**	**19.2 JN**	NA	NA	NA	NA	NA	NA	**10.7 JN**	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**3.26 JN**	**9.02 JN**	NA	NA	NA	NA	NA	NA	**6.56 JN**	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**1.34 JN**	**3.77 JN**	NA	NA	NA	NA	NA	NA	**3.76 JN**	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**0.618 JN**	**1.7 JN**	NA	NA	NA	NA	NA	NA	**1.98 JN**	NA
Chrysene/triphenylene	NE	NE	NE	NA	**9.51 J**	**28.4 J**	NA	NA	NA	NA	NA	NA	**10.9 J**	NA
Coronene	NE	NE	NE	NA	**1.67 J**	**4.7 J**	NA	NA	NA	NA	NA	NA	**2.82 J**	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	**0.0502 J**	**0.0988 J**	NA	NA	NA	NA	NA	NA	**0.198 J**	NA
cis-Decalin	NE	NE	NE	NA	**0.0454 J**	**0.0777 J**	NA	NA	NA	NA	NA	NA	**3.17 J**	NA
trans-Decalin	NE	NE	NE	NA	**0.156 J**	**0.338 J**	NA	NA	NA	NA	NA	NA	**9.99 J**	NA
C1-Decalins	NE	NE	NE	NA	**1.06 JN**	**1.91 JN**	NA	NA	NA	NA	NA	NA	**47.2 JN**	NA
C2-Decalins	NE	NE	NE	NA	**2 JN**	**3.65 JN**	NA	NA	NA	NA	NA	NA	**63 JN**	NA
C3-Decalins	NE	NE	NE	NA	**1.76 JN**	**3.35 JN**	NA	NA	NA	NA	NA	NA	**44.9 JN**	NA
C4-Decalins	NE	NE	NE	NA	**2.21 JN**	**4.01 JN**	NA	NA	NA	NA	NA	NA	**32.1 JN**	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	**2.2 J**	**5.73 J**	NA	NA	NA	NA	NA	NA	**4.14 J**	NA
Dibenzofuran	7	210, 6.2*	59	NA	**0.939 J**	**1.75 J**	NA	NA	NA	NA	NA	NA	**2.83 J**	NA
Dibenzothiophene	NE	NE	NE	NA	**3.34**	**5.51 J**	NA	NA	NA	NA	NA	NA	**5.71 J**	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	**4.07 JN**	**7.67 JN**	NA	NA	NA	NA	NA	NA	**12.7 JN**	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	**3.25 JN**	**7.65 JN**	NA	NA	NA	NA	NA	NA	**14 JN**	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-210 (7-10) 7/27/2022	WW-SB-210 (10-15) 8/11/2022	Duplicate of WW-SB-210 (10-15) 8/11/2022	WW-SB-211 (0.5-5) 8/3/2022	Duplcaite of WW-SB-211 (0.5-5) 8/3/2022	WW-SB-211 (5-10) 8/8/2022	WW-SB-211 (10-12) 8/8/2022	WW-SB-211 (30-35) 8/8/2022	WW-SB-212 (1.5-5) 8/10/2022	WW-SB-212 (10-15) 8/11/2022	WW-SB-212 (75-76) 8/11/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	**1.52 JN**	**3.9 JN**	NA	NA	NA	NA	NA	NA	**8.83 JN**	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	**0.581 JN**	**1.49 JN**	NA	NA	NA	NA	NA	NA	**3.9 JN**	NA
Ethylbenzene	1	1	41	NA	**2.31**	**2.76 J**	NA	NA	NA	NA	NA	NA	**6.98 J**	NA
Fluoranthene	100	1000	100	NA	**18.4 J**	**43.3 J**	NA	NA	NA	NA	NA	NA	**10.9 J**	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	**16 JN**	**40.7 JN**	NA	NA	NA	NA	NA	NA	**16 JN**	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	**6.47 JN**	**18.4 JN**	NA	NA	NA	NA	NA	NA	**9.76 JN**	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	**2.44 JN**	**7.08 JN**	NA	NA	NA	NA	NA	NA	**6.02 JN**	NA
Fluorene	30	386	100	NA	**5.27 J**	**9.27 J**	NA	NA	NA	NA	NA	NA	**8.83 J**	NA
C1-Fluorenes	NE	NE	NE	NA	**3.98 JN**	**7.99 JN**	NA	NA	NA	NA	NA	NA	**10.9 JN**	NA
C2-Fluorenes	NE	NE	NE	NA	**2.79 JN**	**7.41 JN**	NA	NA	NA	NA	NA	NA	**15.1 JN**	NA
C3-Fluorenes	NE	NE	NE	NA	**1.9 JN**	**4.94 JN**	NA	NA	NA	NA	NA	NA	**12.4 JN**	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	**7.35 J**	**22.3 J**	NA	NA	NA	NA	NA	NA	**13.3 J**	NA
Isopropylbenzene	NE	NE	NE	NA	**0.121 J**	**0.235 J**	NA	NA	NA	NA	NA	NA	**2.23 J**	NA
Methylcyclohexane	NE	NE	NE	NA	**0.0747 J**	**0.167 J**	NA	NA	NA	NA	NA	NA	**3.28 J**	NA
1-Methylnaphthalene	NE	NE	NE	NA	**9.53 J**	**20.2 J**	NA	NA	NA	NA	NA	NA	**14.8 J**	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	**3.52**	**5.68 J**	NA	NA	NA	NA	NA	NA	**10.6 J**	NA
1-Methylpyrene	NE	NE	NE	NA	**1.93 J**	**4.77 J**	NA	NA	NA	NA	NA	NA	**1.85 J**	NA
2-Methylpyrene	NE	NE	NE	NA	**2.12 J**	**5.82 J**	NA	NA	NA	NA	NA	NA	**2.89 J**	NA
Naphthalene	12	12	100	NA	**14**	**17.8 J**	NA	NA	NA	NA	NA	NA	**17.4 J**	NA
C1-Naphthalenes	NE	NE	NE	NA	**7.83 JN**	**15.4 JN**	NA	NA	NA	NA	NA	NA	**15.7 JN**	NA
C2-Naphthalenes	NE	NE	NE	NA	**9.06 JN**	**17.8 JN**	NA	NA	NA	NA	NA	NA	**106 JN**	NA
C3-Naphthalenes	NE	NE	NE	NA	**7.4 JN**	**13.3 JN**	NA	NA	NA	NA	NA	NA	**78 JN**	NA
C4-Naphthalenes	NE	NE	NE	NA	**3.83 JN**	**7.06 JN**	NA	NA	NA	NA	NA	NA	**41.3 JN**	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	**2.5 JN**	**6.44 JN**	NA	NA	NA	NA	NA	NA	**4.59 JN**	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	**1.38 JN**	**3.72 JN**	NA	NA	NA	NA	NA	NA	**3.27 JN**	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	**0.762 JN**	**2.01 JN**	NA	NA	NA	NA	NA	NA	**1.79 JN**	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	**0.238 JN**	**0.623 JN**	NA	NA	NA	NA	NA	NA	**0.626 JN**	NA
Perylene	NE	NE	NE	NA	**1.93 J**	**5.92 J**	NA	NA	NA	NA	NA	NA	**3.36 J**	NA
Phenanthrene	100	1000	100	NA	**18.7 J**	**33 J**	NA	NA	NA	NA	NA	NA	**27 J**	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	**16.5 JN**	**34 JN**	NA	NA	NA	NA	NA	NA	**37.3 JN**	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	**8.28 JN**	**19.7 JN**	NA	NA	NA	NA	NA	NA	**26.1 JN**	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	**2.93 JN**	**7.14 JN**	NA	NA	NA	NA	NA	NA	**12.9 JN**	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	**0.871 JN**	**2.13 JN**	NA	NA	NA	NA	NA	NA	**5.22 JN**	NA
n-Propylbenzene	3.9	3.9	100	NA	**0.121 J**	**0.228 J**	NA	NA	NA	NA	NA	NA	**3.77 J**	NA
Pyrene	100	1000	100	NA	**24.1 J**	**53.6 J**	NA	NA	NA	NA	NA	NA	**15.5 J**	NA
Retene	NE	NE	NE	NA	**0.275 J**	**0.517 J**	NA	NA	NA	NA	NA	NA	0.0341 U	NA
Styrene	NE	NE	NE	NA	**1.72 J**	**4.11 J**	NA	NA	NA	NA	NA	NA	**0.251 J**	NA
Toluene	0.7	0.7	100	NA	**1.53 J**	**2.71 J**	NA	NA	NA	NA	NA	NA	**1.47 J**	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	**0.17 J**	**0.373 J**	NA	NA	NA	NA	NA	NA	**0.823 J**	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	**0.591**	**0.837 J**	NA	NA	NA	NA	NA	NA	**1.82 J**	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	**0.137**	**0.191 J**	NA	NA	NA	NA	NA	NA	**0.266 J**	NA
o-Xylene	0.26	1.6	100	NA	**0.48**	**0.762 J**	NA	NA	NA	NA	NA	NA	**0.51 J**	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-210 (7-10) 7/27/2022	WW-SB-210 (10-15) 8/11/2022	Duplicate of WW-SB-210 (10-15) 8/11/2022	WW-SB-211 (0.5-5) 8/3/2022	Duplcaite of WW-SB-211 (0.5-5) 8/3/2022	WW-SB-211 (5-10) 8/8/2022	WW-SB-211 (10-12) 8/8/2022	WW-SB-211 (30-35) 8/8/2022	WW-SB-212 (1.5-5) 8/10/2022	WW-SB-212 (10-15) 8/11/2022	WW-SB-212 (75-76) 8/11/2022
m/p-Xylene	0.26	1.6	100	NA	**1.21 J**	**2.06 J**	NA	NA	NA	NA	NA	NA	**5.25 J**	NA
4-methylpyrene	NE	NE	NE	NA	**1.97 J**	**5.45 J**	NA	NA	NA	NA	NA	NA	**2.5 J**	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.00055 J**	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	**0.0003 J**	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	**0.00037 J**	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	**2.91 J**	**5.37 J**	NA	NA	NA	NA	NA	NA	**48.5**	NA
Pristane (C19)	NE	NE	NE	NA	**3.3 J**	**6.49 J**	NA	NA	NA	NA	NA	NA	**60.3**	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	**2.38**	**4.18**	NA	NA	NA	NA	NA	NA	**55.2**	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	**2.82**	**5.16**	NA	NA	NA	NA	NA	NA	**57.8**	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	**2.22**	**3.66**	NA	NA	NA	NA	NA	NA	**50.4**	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	**0.02 J**	**0.02 J**	NA	NA	NA	0.05 U	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	**0.02**	**0.02**	NA	NA	NA	ND	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.0016 U	0.0017 U	NA	NA	NA	0.0077 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	**0.0158 J**	**0.0119 J**	NA	NA	NA	0.155 U	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	**0.002 J**	**0.0016 J**	NA	NA	NA	0.0129 U	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	**0.0016 J**	**0.0012 J**	NA	NA	NA	0.0129 U	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	**0.0038 J**	**0.0046**	NA	NA	NA	0.0129 U	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 UJ	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	**0.0016 J**	**0.0014 J**	NA	NA	NA	0.0129 UJ	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 UJ	NA	NA
Endrin	0.014	0.06	11	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 UJ	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA

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Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	0.0027 U	0.0028 U	NA	NA	NA	0.0129 U	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.192 U	0.198 U	NA	NA	NA	0.191 U	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	0.192 U	0.198 U	NA	NA	NA	0.191 U	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	19.2 U	19.8 U	NA	NA	NA	**8.99 J**	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	19 U	19.6 U	NA	NA	NA	18.9 U	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**5780**	**4110 J**	**4510 J**	**4670**	**4470**	**3570**	**6980**	**3360**	**3730 J**	**6350 J**	**5740 J**
Antimony	NE	NE	NE	2.78 U	2.59 UJ	**0.72 J**	2.15 U	2.55 U	2.63 UJ	2.28 UJ	2 UJ	2.21 UJ	2.82 UJ	1.81 UJ
Arsenic	13	16	16	**8.8**	**7.47 J**	**10.9 J**	**6.59**	**3.92**	**5.83**	**10.3**	**0.88 J**	**1.33 J**	**9.53 J**	1.81 U
Barium	350	820	400	**101**	**84.7 J**	**120 J**	**63.6**	**48.6**	**40.8 J**	**41.1 J**	**32.7 J**	**39.2 J**	**44.2 J**	**65.4 J**
Beryllium	7.2	47	72	**0.42 J**	**0.25 J**	1.25 UJ	**0.28 J**	1.12 U	**0.35 J**	**0.59 J**	**0.25 J**	**0.29 J**	**0.26 J**	**0.24 J**
Cadmium	2.5	7.5	4.3	**0.59 J**	**0.63 J**	**1.04 J**	1.72 U	2.04 U	2.11 U	1.82 U	1.6 U	1.77 UJ	2.26 UJ	1.44 UJ
Calcium	NE	NE	NE	**6510 J**	**20800**	**18900**	**11700 J**	**21900 J**	**4850 J**	**2830 J**	**813 J**	**46700 J**	**3880**	**8860**
Chromium	30	NE	180	**10.7 J**	**14.2 J**	**26.4 J**	**10.7**	**12.6**	**8.58 J**	**22.5**	**5.28 J**	**8.84 J**	**11.6 J**	**11.1 J**
Cobalt	NE	NE	NE	**5.15 J**	**4.87 J**	**7.48 J**	**4.32 J**	**3.18 J**	**5.34 J**	**4.92 J**	**4.19 J**	**3.27 J**	**5.07 J**	**5.16 J**
Copper	50	1720	270	**42.4 J**	**51.5 J**	**70.9 J**	**32.4**	**22.5 J**	**39.7**	**22.8**	**7.8 J**	**22.8 J**	**19.8 J**	**11.4 J**
Iron	NE	NE	NE	**17000 J**	**18500 J**	**26400 J**	**12000**	**10300**	**13700**	**24300**	**9870**	**8540 J**	**15300 J**	**11300 J**
Lead	63	450	400	**259 J**	**368**	**456**	**120**	**86.1**	**396**	**38.3 J**	**5.24 J**	**39.7 J**	**76.6**	**5.14 J**
Magnesium	NE	NE	NE	**2290 J**	**5340 J**	**6020 J**	**3530**	**8300**	**1290 J**	**2320 J**	**1690 J**	**14800 J**	**1990 J**	**5290 J**
Manganese	1600	2000	2000	**235**	**196 J**	**237 J**	**149**	**149**	**117**	**335**	**80.9**	**145 J**	**156 J**	**275 J**
Mercury	0.18	0.73	0.81	**0.246**	**1.14 J**	**2.26 J**	**0.24**	**0.222**	**0.32**	**0.04**	0.017 U	**0.099 J**	**0.098 J**	0.021 UJ
Nickel	30	130	310	**15.8 J**	**19.3 J**	**30.4 J**	**13.7 J**	**11.3 J**	**16.1 J**	**12.9 J**	**10.2 J**	**8.32 J**	**11.8 J**	**10.6 J**
Potassium	NE	NE	NE	**836 J**	**573 J**	**640 J**	**1100 J**	**1030 J**	**446 J**	**890 J**	**500 J**	**857 J**	**1260 J**	**1620 J**
Selenium	3.9	4	180	**2.57 J**	**1.15 J**	2.85 UJ	2.15 U	2.55 U	**3.95 J**	2.28 UJ	2 UJ	2.21 UJ	2.82 UJ	1.81 UJ
Silver	2	8.3	180	2.22 U	2.07 UJ	2.28 UJ	1.72 U	2.04 U	2.11 U	1.82 U	1.6 U	1.77 U	2.26 UJ	1.44 UJ
Sodium	NE	NE	NE	**328 J**	**537 J**	**610 J**	**267 J**	**275 J**	**388 J**	**209 J**	**172 J**	**151 J**	2820 UJ	**1390 J**
Thallium	NE	NE	NE	2.78 U	2.59 R	2.85 R	2.15 U	2.55 U	2.63 U	2.28 U	2 U	2.21 UJ	2.82 R	1.81 R
Tin	NE	NE	NE	55.6 U	51.8 UJ	**19.2 J**	43 U	51 U	52.7 U	45.5 U	40 U	**8.36 J**	56.4 UJ	36.1 UJ
Vanadium	NE	NE	NE	**19.7**	**11.9 J**	**20.3 J**	**16.5**	**13.1**	**16.4**	**25.5**	**10.3**	**16.2 J**	**18.9 J**	**16.7 J**
Zinc	109	2480	10000	**203 J**	**310 J**	**572 J**	**127**	**105**	**136 J**	**95.2 J**	**18.9 J**	**94.6 J**	**50.4 J**	**25.5 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.227 U	0.239 U	0.241 U	0.214 U	0.215 U	0.237 U	0.255 U	0.236 U	0.205 U	0.252 U	0.228 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	**0.0664 J**	**0.143 J**	NA	NA	NA	NA	NA	NA	**0.365**	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	**0.0555 J**	**0.101 J**	NA	NA	NA	NA	NA	NA	**0.236**	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	**0.0324 J**	**0.0556 J**	NA	NA	NA	NA	NA	NA	**0.117**	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	**0.0142 J**	**0.0442 J**	NA	NA	NA	NA	NA	NA	**0.0818**	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	**0.0191 J**	**0.0477 J**	NA	NA	NA	NA	NA	NA	**0.0419**	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	**0.0213 J**	**0.0503 J**	NA	NA	NA	NA	NA	NA	**0.0836**	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	**0.0194 J**	**0.0466 J**	NA	NA	NA	NA	NA	NA	**0.0643**	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	**0.0182 J**	**0.0574 J**	NA	NA	NA	NA	NA	NA	**0.0678**	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	**0.0227 J**	**0.0461 J**	NA	NA	NA	NA	NA	NA	**0.0558**	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	**0.0196 J**	**0.0536 J**	NA	NA	NA	NA	NA	NA	**0.0602**	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	**0.0193 J**	**0.0431 J**	NA	NA	NA	NA	NA	NA	**0.0481**	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	**0.0441 J**	**0.0915 J**	NA	NA	NA	NA	NA	NA	**0.0616**	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	**0.0531 J**	**0.124 J**	NA	NA	NA	NA	NA	NA	**0.0808**	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	**0.0208 J**	**0.0476 J**	NA	NA	NA	NA	NA	NA	**0.0308 J**	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	**0.0184 J**	**0.0579 J**	NA	NA	NA	NA	NA	NA	**0.0369**	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	**0.0236 J**	**0.0577 J**	NA	NA	NA	NA	NA	NA	**0.0494**	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	**0.0111**	**0.0325 J**	NA	NA	NA	NA	NA	NA	**0.0296 J**	NA
30-Norhopane (T15)	NE	NE	NE	NA	**0.136 J**	**0.315 J**	NA	NA	NA	NA	NA	NA	**0.186**	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	**0.0353 J**	**0.0801 J**	NA	NA	NA	NA	NA	NA	**0.0378**	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	**0.0112**	**0.0239 J**	NA	NA	NA	NA	NA	NA	**0.0237 J**	NA
30-Normoretane (T17)	NE	NE	NE	NA	**0.0243 J**	**0.067 J**	NA	NA	NA	NA	NA	NA	**0.0237 J**	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	**0.0257 J**	**0.0549 J**	NA	NA	NA	NA	NA	NA	**0.0239 J**	NA
Hopane (T19)	NE	NE	NE	NA	**0.211 J**	**0.483 J**	NA	NA	NA	NA	NA	NA	**0.274**	NA
Moretane (T20)	NE	NE	NE	NA	**0.017 J**	**0.0426 J**	NA	NA	NA	NA	NA	NA	0.0341 U	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	**0.0619 J**	**0.146 J**	NA	NA	NA	NA	NA	NA	**0.0796**	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	**0.0606 J**	**0.175 J**	NA	NA	NA	NA	NA	NA	**0.0814**	NA
Gammacerane	NE	NE	NE	NA	**0.00538 J**	0.0339 U	NA	NA	NA	NA	NA	NA	0.0341 U	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	**0.0497 J**	**0.112 J**	NA	NA	NA	NA	NA	NA	**0.0577**	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	**0.0381 J**	**0.0846 J**	NA	NA	NA	NA	NA	NA	**0.041**	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	**0.0327 J**	**0.111 J**	NA	NA	NA	NA	NA	NA	**0.0415**	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	**0.0295**	**0.0426**	NA	NA	NA	NA	NA	NA	**0.0328 J**	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	**0.03**	0.0339 U	NA	NA	NA	NA	NA	NA	0.0341 U	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	**0.0231**	0.0339 U	NA	NA	NA	NA	NA	NA	0.0341 U	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	**0.0242 J**	**0.069 J**	NA	NA	NA	NA	NA	NA	0.0341 U	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	**0.0192**	**0.0265 J**	NA	NA	NA	NA	NA	NA	0.0341 U	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	**0.062 J**	**0.117 J**	NA	NA	NA	NA	NA	NA	**0.245**	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	**0.0395 J**	**0.0749 J**	NA	NA	NA	NA	NA	NA	**0.135**	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	**0.0417 J**	**0.0862 J**	NA	NA	NA	NA	NA	NA	**0.0946**	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	**0.127 J**	**0.229 J**	NA	NA	NA	NA	NA	NA	**0.303**	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	**0.0505 J**	**0.0884 J**	NA	NA	NA	NA	NA	NA	**0.185**	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	**0.0488 J**	**0.0854 J**	NA	NA	NA	NA	NA	NA	**0.162**	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	**0.13 J**	**0.267 J**	NA	NA	NA	NA	NA	NA	**0.402**	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	**0.0141**	0.0339 U	NA	NA	NA	NA	NA	NA	**0.0303 J**	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-210 (7-10) 7/27/2022	WW-SB-210 (10-15) 8/11/2022	Duplicate of WW-SB-210 (10-15) 8/11/2022	WW-SB-211 (0.5-5) 8/3/2022	Duplcaite of WW-SB-211 (0.5-5) 8/3/2022	WW-SB-211 (5-10) 8/8/2022	WW-SB-211 (10-12) 8/8/2022	WW-SB-211 (30-35) 8/8/2022	WW-SB-212 (1.5-5) 8/10/2022	WW-SB-212 (10-15) 8/11/2022	WW-SB-212 (75-76) 8/11/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	**0.0147**	**0.0356**	NA	NA	NA	NA	NA	NA	**0.0383**	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	**0.0726 J**	**0.149 J**	NA	NA	NA	NA	NA	NA	**0.15**	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	**0.0546 J**	**0.0998 J**	NA	NA	NA	NA	NA	NA	**0.134**	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	**0.0792 J**	**0.163 J**	NA	NA	NA	NA	NA	NA	**0.197**	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	**0.0618 J**	**0.136 J**	NA	NA	NA	NA	NA	NA	**0.135**	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	**0.0745 J**	**0.16 J**	NA	NA	NA	NA	NA	NA	**0.149**	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	**0.103 J**	**0.2 J**	NA	NA	NA	NA	NA	NA	**0.207**	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	**0.0473**	**0.076**	NA	NA	NA	NA	NA	NA	**0.139**	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	**0.067 J**	**0.145 J**	NA	NA	NA	NA	NA	NA	**0.141**	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	**233**	**379**	NA	NA	NA	NA	NA	NA	**3190**	NA
C19-C36 Aliphatics	NE	NE	NE	NA	**250 J**	**753 J**	NA	NA	NA	NA	NA	NA	**1010**	NA
C11-C22 Aromatics	NE	NE	NE	NA	**830**	**1310**	NA	NA	NA	NA	NA	NA	**2230**	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	**1030**	**1530**	NA	NA	NA	NA	NA	NA	**2300**	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	**2460**	**3180**	NA	NA	NA	NA	NA	NA	**8330**	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	**1660 J**	**2980 J**	NA	NA	NA	NA	NA	NA	**11600**	NA
C9-C40	NE	NE	NE	NA	**2240 J**	**4220 J**	NA	NA	NA	NA	NA	NA	**12500**	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.0038 U	**0.0107**	**0.419**	0.002 U	0.0035 U	**0.0199**	**2.42**	0.0018 U	**0.0015 J**	**0.0013 J**	**8.32 J**
Toluene	0.7	0.7	100	0.0038 U	**0.0067**	**0.143 J**	0.002 U	0.0035 U	**0.0096**	**0.342**	0.0018 U	0.0037 U	**0.0012 J**	21.9 U
Ethylbenzene	1	1	41	0.0038 U	**0.0009 J**	**21.6**	0.002 U	0.0035 UJ	**0.0054**	**0.91**	0.0018 U	0.0037 U	**0.0008 J**	**419**
o-Xylene	0.26	1.6	100	0.0038 U	**0.0012 J**	**3.23**	0.002 U	0.0035 UJ	**0.0027**	**0.256**	0.0018 U	0.0037 U	**0.001 J**	**101**
m/p-Xylene	0.26	1.6	100	0.0076 U	**0.0024 J**	**1.66**	0.004 U	0.007 UJ	**0.0053**	**0.926**	0.0036 U	0.0074 U	**0.0014 J**	**41.6 J**
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	**0.0219**	**27.052**	ND	ND	**0.0429**	**4.854**	ND	**0.0015**	**0.0057**	**569.92**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.011 J**	**0.0166**	4.47 U	0.0201 U	0.0351 UJ	0.0211 UJ	4.15 U	0.0182 UJ	**0.065 J**	**0.0249 J**	547 U
n-Butylbenzene	12	12	100	0.0038 U	0.0015 U	**17**	0.002 U	0.0035 UJ	**0.0008 J**	**4.58**	0.0018 U	0.0037 U	0.002 UJ	**39.8**
sec-Butylbenzene	11	11	100	0.0038 U	0.0015 U	**3.34**	0.002 U	0.0035 UJ	**0.0007 J**	**2.71**	0.0018 U	0.0037 U	0.002 UJ	21.9 U
tert-Butylbenzene	5.9	5.9	100	0.0038 U	0.0015 U	**0.236**	0.002 U	0.0035 UJ	0.0021 U	**0.246**	0.0018 U	0.0037 U	0.002 UJ	21.9 U
Carbon disulfide	NE	2.7*	NE	0.0038 U	**0.0007 J**	0.179 U	0.002 U	0.0035 U	**0.0022**	0.166 U	0.0018 U	0.0037 U	**0.0041 J**	21.9 U
Chlorobenzene	1.1	1.1	100	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 UJ	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0038 U	**0.0017**	0.179 U	0.002 U	0.0035 U	**0.002 J**	0.166 U	0.0018 U	0.0037 U	**0.0052 J**	21.9 U
Cyclohexane	NE	NE	NE	0.0038 U	**0.0006 J**	**2.32**	0.002 U	0.0035 U	**0.0092**	**1.37**	0.0018 U	0.0037 U	**0.0008 J**	**22.8**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0038 U	0.0015 U	**9.25**	0.002 U	0.0035 UJ	**0.0031**	**0.222**	0.0018 U	0.0037 U	0.002 UJ	**28.5**
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0038 UJ	0.0015 U	1.07 UJ	0.002 U	0.0035 UJ	0.0021 UJ	0.996 UJ	0.0018 UJ	0.0037 UJ	0.002 UJ	131 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 UJ	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 UJ	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
1,1-Dichloroethane	0.27	0.27	26	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
1,1-Dichloroethene	0.33	0.33	100	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
1,2-Dichloropropane	NE	NE	NE	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
Isopropylbenzene	NE	2.3*	NE	0.0038 U	**0.001 J**	**19.7**	0.002 U	0.0035 UJ	**0.0014 J**	**6.52**	0.0018 U	0.0037 U	0.002 UJ	**72.7**
Methyl acetate	NE	NE	NE	0.0038 U	0.0015 U	1.79 U	0.002 U	0.0035 R	**0.0238**	1.66 U	0.0018 U	0.0037 U	0.002 UJ	219 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0378 U	0.0146 U	4.47 U	0.0201 U	0.0351 U	0.0211 U	4.15 U	0.0182 U	0.037 U	0.0195 UJ	547 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0378 U	0.0146 U	1.79 U	0.0201 U	0.0351 U	0.0211 U	1.66 U	0.0182 U	0.037 U	0.0195 UJ	219 U
Methylcyclohexane	NE	NE	NE	0.0038 U	**0.0012 J**	**10.9**	0.002 U	0.0035 UJ	**0.0188**	**16**	0.0018 U	0.0037 U	**0.001 J**	**38.5**
Methylene chloride	0.05	0.05	100	0.0189 U	0.0073 U	0.895 U	0.01 U	0.0176 U	0.0105 U	0.83 U	0.0091 U	0.0185 U	0.0098 UJ	109 U
Naphthalene	12	12	100	0.0038 U	**0.004**	**242**	0.002 U	0.0035 UJ	**0.0652**	**7.14**	**0.0005 J**	**0.0032 J**	**0.0115 J**	**4670**
n-Propylbenzene	3.9	3.9	100	0.0038 U	**0.0005 J**	**12.2**	0.002 U	0.0035 UJ	**0.002 J**	**6.72**	0.0018 U	0.0037 U	0.002 UJ	**27.1**
Styrene	NE	NE	NE	0.0038 U	**0.0006 J**	**0.0966 J**	0.002 U	0.0035 UJ	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 R	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
Tetrahydrofuran	NE	NE	NE	0.0038 U	0.0015 U	NA	**0.0009 J**	0.0035 U	0.0021 U	NA	0.0018 U	0.0037 U	0.002 UJ	NA
1,2,3-Trichlorobenzene	NE	NE	NE	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 UJ	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
1,1,2-Trichloroethane	NE	NE	NE	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 UJ	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U
Trichloroethene (TCE)	0.47	0.47	21	0.0038 U	0.0015 U	0.179 U	0.002 U	0.0035 U	0.0021 U	0.166 U	0.0018 U	0.0037 U	0.002 UJ	21.9 U

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0038 U	**0.0015**	**29.2**	0.002 U	0.0035 UJ	**0.0045**	**0.704**	0.0018 U	0.0037 U	**0.0012 J**	**269**
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0038 U	**0.0005 J**	**7.64**	0.002 U	0.0035 UJ	**0.0016 J**	**0.617**	0.0018 U	0.0037 U	0.002 UJ	**78.8**
Vinyl chloride	0.02	0.02	0.9	0.0076 U	0.0029 U	0.179 U	0.004 U	0.007 U	0.0042 U	0.166 U	0.0036 U	0.0074 U	0.0039 UJ	21.9 U
Total VOCs	NE	NE	NE	**0.011**	**0.0508**	**380.9346**	**0.0009**	ND	**0.1782**	**51.683**	**0.0005**	**0.0697**	**0.0544**	**5817.12**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.637**	**0.0849 J**	**388**	**0.0322 J**	**0.0297 J**	**2.95**	**42.9**	0.307 U	**1.38**	**0.388**	**293**
Acenaphthylene	100	107	100	**3.19**	**0.244 J**	**70.7**	**0.0421 J**	**0.0374 J**	**2.35**	**5.57**	0.307 U	**9.27**	**0.204 J**	**38.2**
Anthracene	100	1000	100	**2.15**	**0.132 J**	**261**	0.283 U	**0.0455 J**	**2.8**	**31.6**	0.307 U	**7.53**	**0.244 J**	**115**
Benzo(a)anthracene	1	1	1	**9.46**	**0.46**	**179**	0.283 U	**0.135 J**	**7.29**	**96.2**	0.307 U	**14.7**	**0.519**	**72.4**
Benzo(b)fluoranthene	1	1.7	1	**8.04**	**0.453**	**59.4**	0.283 U	**0.129 J**	**6.75**	**91.6**	0.307 U	**13.9**	**0.482**	**23.1**
Benzo(k)fluoranthene	0.8	1.7	3.9	**8.63**	**0.445**	**77.2**	0.283 U	**0.103 J**	**6.58**	**91.6**	0.307 U	**9.54**	**0.504**	**31.5**
Benzo(g,h,i)perylene	100	1000	100	**8.49**	**0.431**	**33.6**	0.283 U	**0.103 J**	**6.26**	**75.1**	0.307 U	**13.1**	**0.412**	**17.1**
Benzo(a)pyrene	1	22	1	**13.5**	**0.7**	**133**	0.283 U	**0.161 J**	**11.3**	**146**	0.307 U	**20.6**	**0.76**	**55.7**
Chrysene	1	1	3.9	**8.26**	**0.467**	**162**	0.283 U	**0.136 J**	**6.74**	**76**	0.307 U	**14.5**	**0.507**	**62**
Dibenz(a,h)anthracene	0.33	1000	0.33	**3.55**	**0.131 J**	**17.2**	0.283 U	**0.03 J**	**1.78**	**25.3**	0.307 U	**7.61**	**0.131 J**	**5.79**
Fluoranthene	100	1000	100	**8.67**	**0.524**	**285**	0.283 U	**0.216 J**	**8.11**	**65.8**	0.307 U	**22.7**	**0.813**	**110**
Fluorene	30	386	100	**0.476**	**0.0564 J**	**180**	0.283 U	**0.0196 J**	**1.21 J**	**25.5**	0.307 U	**3.25**	**0.112 J**	**115**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**10.8**	**0.514**	**42**	0.283 U	**0.111 J**	**7.47**	**105**	0.307 U	**15.2**	**0.48**	**20.4**
2-Methylnaphthalene	NE	36.4*	NE	**0.629**	**0.0926 J**	**54.2**	0.283 U	**0.102 J**	**0.664 J**	**4.35**	0.307 U	**2.3**	**0.0643 J**	**550**
Naphthalene	12	12	100	**1.16**	**0.235 J**	**118**	**0.0233 J**	**0.347**	**2.72**	**7.85**	0.307 U	**4.16**	**0.114 J**	**908**
Phenanthrene	100	1000	100	**5.05**	**0.386**	**847**	0.283 U	**0.131 J**	**6.54**	**84.8**	0.307 U	**15.5**	**0.363**	**394**
Pyrene	100	1000	100	**10.1**	**0.716**	**427**	0.283 U	**0.205 J**	**10.7**	**73.3**	0.307 U	**27.5**	**0.952**	**167**
Total PAHs	NE	NE	NE	**102.792**	**6.0719**	**3334.3**	**0.0976**	**2.0412**	**92.214**	**1048.47**	ND	**202.74**	**7.0493**	**2978.19**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	**0.129 J**	**0.0354 J**	0.641 U	0.283 U	**0.0283 J**	1.28 U	3.83 U	0.307 U	**0.289 J**	0.273 U	3.67 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.106**	0.0283 U	**8.24**	0.0283 U	0.0266 U	**0.295**	0.383 U	0.0307 U	**0.63**	0.0273 U	**45.2**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**22.4**	**0.0492 J**	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	**0.235 J**	**0.0658 J**	3.67 U
Butyl benzyl phthalate	NE	122*	NE	**0.0779 J**	0.283 U	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
Caprolactam	NE	NE	NE	**0.148 J**	0.283 U	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
Carbazole	NE	NE	NE	**0.542**	**0.0291 J**	**3.64**	0.283 U	0.266 U	**0.57 J**	**7.94**	0.307 U	**1.31**	**0.03 J**	**2.94 J**
2-Chloronaphthalene	NE	NE	NE	0.291 U	0.283 U	**0.811**	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
Dibenzofuran	7	210, 6.2*	59	**0.416**	**0.0283 J**	**54.7**	0.283 U	0.266 U	**0.356 J**	**5.89**	0.307 U	**2.31**	**0.041 J**	**15.5**
Diethyl phthalate	NE	7.1*	NE	0.291 U	0.283 U	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
2,4-Dimethylphenol	NE	NE	NE	0.291 U	0.283 U	0.641 U	0.283 U	0.266 UJ	1.28 U	3.83 U	0.307 U	**0.166 J**	0.273 UJ	3.67 U
Di-n-butyl phthalate	NE	8.1*	NE	0.291 U	0.283 U	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
2,6-Dinitrotoluene	NE	1*	NE	0.291 U	0.283 U	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
Di-n-octyl phthalate	NE	120*	NE	0.582 U	0.566 U	1.28 U	0.565 U	0.531 U	2.57 U	7.67 U	0.613 U	0.586 U	0.546 U	7.34 U
2-Methylnaphthalene	NE	36.4*	NE	**0.629**	**0.0926 J**	**54.2**	0.283 U	**0.102 J**	**0.664 J**	**4.35**	0.307 U	**2.3**	**0.0643 J**	**550**
2-Methylphenol (o-Cresol)	0.33	0.33	100	**0.0365 J**	0.283 U	0.641 U	0.283 U	0.266 UJ	1.28 U	3.83 U	0.307 U	**0.128 J**	0.273 UJ	3.67 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	**0.0609 J**	0.283 U	**0.234 J**	0.283 U	0.266 UJ	1.28 U	3.83 U	0.307 U	**0.275 J**	0.273 UJ	3.67 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.582 U	0.566 U	1.28 U	0.565 U	0.531 U	2.57 U	7.67 U	0.613 U	0.586 U	0.546 U	7.34 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.291 U	0.283 U	0.641 U	0.283 U	0.266 U	1.28 U	3.83 U	0.307 U	0.293 U	0.273 U	3.67 U
Phenol	0.33	0.33	100	0.291 U	0.283 U	0.641 U	0.283 U	0.266 UJ	1.28 U	3.83 U	0.307 U	0.293 U	0.273 UJ	3.67 U
Total SVOCs	NE	NE	NE	**126.7083**	**6.2139**	**3401.925**	**0.0976**	**2.0695**	**93.435**	**1062.3**	ND	**208.083**	**7.1861**	**3041.83**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.06 U	NA	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Aroclor 1248	NE	NE	NE	0.06 U	NA	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Aroclor 1254	NE	NE	NE	0.06 U	NA	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Aroclor 1260	NE	NE	NE	**0.05 J**	NA	NA	NA	0.05 U	NA	NA	NA	**0.08**	NA	NA
Aroclor 1268	NE	NE	NE	0.06 U	NA	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Total PCB Aroclors	0.1	3.2	1	**0.05**	NA	NA	NA	ND	NA	NA	NA	**0.08**	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0017 U	NA	NA	NA	0.0016 U	NA	NA	NA	0.0018 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Chlordane (Technical)	NE	NE	NE	**0.075**	NA	NA	NA	**0.0304 J**	NA	NA	NA	**0.0669**	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	**0.0145 J**	NA	NA	NA	**0.0034 J**	NA	NA	NA	**0.0094**	NA	NA
gamma-Chlordane	NE	14*	NE	**0.0107**	NA	NA	NA	**0.0046 J**	NA	NA	NA	**0.0075**	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	**0.0165 J**	NA	NA	NA	0.0027 U	NA	NA	NA	**0.0157 J**	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0029 U	NA	NA	NA	**0.0023 J**	NA	NA	NA	**0.0024 J**	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Dieldrin	0.005	0.1	0.2	**0.0047 JN**	NA	NA	NA	**0.0174 J**	NA	NA	NA	**0.0037 JN**	NA	NA
alpha-Endosulfan (I)	2.4	102	24	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	0.0029 U	NA	NA	NA	0.0027 UJ	NA	NA	NA	0.0029 U	NA	NA
Endosulfan sulfate	2.4	1000	24	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Endrin	0.014	0.06	11	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Endrin aldehyde	NE	NE	NE	0.0029 U	NA	NA	NA	0.0027 UJ	NA	NA	NA	0.0029 U	NA	NA
Endrin ketone	NE	NE	NE	0.0029 U	NA	NA	NA	0.0027 UJ	NA	NA	NA	0.0029 U	NA	NA
Heptachlor	0.042	0.38	2.1	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-213 (0-5) 8/2/2022	WW-SB-213 (5-10) 8/3/2022	WW-SB-213 (20-25) 8/3/2022	WW-SB-213 (35-40) 8/3/2022	WW-SB-214 (0.5-5) 8/4/2022	WW-SB-214 (5-10) 8/5/2022	WW-SB-214 (10-13) 8/5/2022	WW-SB-214 (30-35) 8/5/2022	WW-SB-215 (0-5) 7/29/2022	WW-SB-215 (5-10) 8/5/2022	WW-SB-215 (15-20) 8/5/2022
Heptachlor epoxide	NE	0.02*	NE	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Methoxychlor	NE	900*	NE	0.0029 U	NA	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.211 U	NA	NA	NA	0.195 U	NA	NA	NA	0.207 U	NA	NA
Dicamba	NE	NE	NE	0.011 U	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA
Dichloroprop	NE	NE	NE	0.211 U	NA	NA	NA	0.195 U	NA	NA	NA	0.207 U	NA	NA
Mecoprop (MCPP)	NE	NE	NE	21.1 U	NA	NA	NA	19.5 U	NA	NA	NA	20.7 U	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	20.9 U	NA	NA	NA	**2.16 J**	NA	NA	NA	**3.03 J**	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.011 U	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.011 U	NA	NA	NA	0.01 U	NA	NA	NA	**0.003 J**	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**8400 J**	**3250**	**4800**	**5440**	**6630**	**6610**	**3090**	**4280**	**6140**	**2570**	**2730**
Antimony	NE	NE	NE	2.23 UJ	2.13 U	**2.2 J**	2.51 U	2.52 U	2.45 U	1.87 U	1.78 U	2.65 U	1.55 U	2.6 U
Arsenic	13	16	16	**16.8**	**3.22**	**38.7**	**5.32**	**2.34 J**	**29.3**	**8.2**	**0.98 J**	**11.5**	**1.82**	**4.43**
Barium	350	820	400	**160 J**	**73.4**	**141**	**29.5**	**64.6**	**96**	**35.2**	**29.9**	**119**	**18**	**62.2**
Beryllium	7.2	47	72	**0.57 J**	0.94 U	**0.39 J**	**0.68 J**	**0.35 J**	**0.59 J**	**0.3 J**	**0.41 J**	**0.44 J**	**0.14 J**	**0.45 J**
Cadmium	2.5	7.5	4.3	**1.22 J**	1.71 U	2.31 U	**0.78 J**	2.02 U	**0.54 J**	1.49 U	1.42 U	2.12 U	1.24 U	2.08 U
Calcium	NE	NE	NE	**24000 J**	**16500 J**	**18100 J**	**412 J**	**12900**	**36400**	**20500**	**1310**	**18100**	**58000**	**9180**
Chromium	30	NE	180	**31.1 J**	**14.5**	**28.6**	**34.5**	**15.8**	**41.2**	**7.06 J**	**9.7**	**18.3**	**5.38 J**	**5.26 J**
Cobalt	NE	NE	NE	**9.63**	**2.1 J**	**9.45 J**	**10.8**	**4 J**	**10.7**	**2.91 J**	**4.59 J**	**5.3 J**	**2.16 J**	**7.29 J**
Copper	50	1720	270	**218 J**	**16.4 J**	**88.9**	**8.56 J**	**14.8 J**	**69.9**	**11.7 J**	**11.7 J**	**62.2**	**8.86 J**	**667**
Iron	NE	NE	NE	**24600 J**	**6900**	**38900**	**77200**	**9420**	**21400**	**11400**	**17600**	**15400**	**6060**	**16500**
Lead	63	450	400	**303 J**	**97**	**3100**	**11.1 J**	**59.4**	**179**	**9.22 J**	**5.69 J**	**219**	**8.62 J**	**161**
Magnesium	NE	NE	NE	**6550 J**	**4680**	**863**	**848**	**4460 J**	**7590 J**	**1660 J**	**1950 J**	**3720**	**22000 J**	**1340 J**
Manganese	1600	2000	2000	**495 J**	**86.7**	**399**	**808**	**249**	**223**	**217**	**185**	**242**	**148**	**306**
Mercury	0.18	0.73	0.81	**0.34 J**	**0.241**	**1.2**	0.031 U	**0.092**	**0.316**	**0.018 J**	0.017 U	**0.493**	**0.035**	**0.14**
Nickel	30	130	310	**36.3**	**7.48 J**	**19.5 J**	**8.89 J**	**15.5 J**	**21.3 J**	**7.25 J**	**9.97 J**	**19.5 J**	**5.15 J**	**13.7 J**
Potassium	NE	NE	NE	**1560 J**	**1060 J**	**598 J**	**393 J**	**1540 J**	**1050 J**	**368 J**	**1080 J**	**1030 J**	**458 J**	**431 J**
Selenium	3.9	4	180	**0.73 J**	2.13 U	2.89 U	2.51 U	2.52 UJ	2.45 UJ	1.87 UJ	1.78 UJ	2.65 U	1.55 UJ	2.6 UJ
Silver	2	8.3	180	1.79 U	1.71 U	**51.8**	2.01 U	2.02 U	1.96 U	1.49 U	1.42 U	2.12 U	1.24 U	2.08 U
Sodium	NE	NE	NE	**523 J**	**268 J**	**1100 J**	**698 J**	2520 U	**444 J**	1870 U	**283 J**	2650 U	1550 U	2600 U
Thallium	NE	NE	NE	2.23 U	2.13 U	2.89 U	2.51 U	2.52 U	2.45 U	1.87 U	1.78 U	2.65 U	1.55 U	2.6 U
Tin	NE	NE	NE	44.6 U	42.7 U	**3550**	50.3 U	50.4 U	**11.2 J**	37.3 U	35.5 U	53.1 UJ	**11.6 J**	**15.2 J**
Vanadium	NE	NE	NE	**30.8 J**	**11.5**	**17.4**	**49.4**	**18.8**	**21.6**	**11.7**	**20.9**	**19.6**	**3.33 J**	**9.9 J**
Zinc	109	2480	10000	**394 J**	**70.4**	**273**	**49**	**52.6 J**	**243 J**	**18.8 J**	**23.1 J**	**259**	**21.1 J**	**619 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.229 U	0.23 U	0.262 U	0.234 U	0.212 U	0.264 U	0.25 U	0.243 U	0.225 U	0.22 U	0.238 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	**83.7 J**	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-215 (35-40) 8/5/2022	WW-SB-216 (0-5) 8/8/2022	WW-SB-216 (20-25) 8/16/2022	WW-SB-216 (38-40) 8/16/2022	WW-SB-217 (0-5) 8/1/2022	WW-SB-217 (5-10) 8/3/2022	WW-SB-217 (20-25) 8/3/2022	WW-SB-217 (40-45) 8/3/2022	WW-SB-218 (0-5) 8/1/2022	WW-SB-218 (5-10) 8/9/2022	WW-SB-218 (15-20) 8/9/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.0025 U	0.0036 U	**7.01**	**0.0141**	0.0021 UJ	**0.0029**	**1.48 J**	0.0029 U	0.0032 U	**0.0016 J**	**2.05**
Toluene	0.7	0.7	100	0.0025 U	0.0036 U	**17 J**	0.0025 U	0.0021 UJ	**0.0024 J**	**0.95 J**	0.0029 U	0.0032 U	0.0035 U	**0.295**
Ethylbenzene	1	1	41	0.0025 U	0.0036 U	**170**	**0.06**	0.0021 UJ	0.0025 U	**36.8**	0.0029 U	0.0032 U	0.0035 U	**4.34**
o-Xylene	0.26	1.6	100	0.0025 U	0.0036 U	**89.4**	**0.0065**	0.0021 UJ	0.0025 U	**13.6**	0.0029 U	0.0032 U	0.0035 U	**0.291**
m/p-Xylene	0.26	1.6	100	0.005 U	0.0073 U	**116**	**0.0077**	0.0043 UJ	0.005 U	**13.3**	0.0058 U	0.0064 U	0.007 U	**1.08**
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	ND	**399.41**	**0.0883**	ND	**0.0053**	**66.13**	ND	ND	**0.0016**	**8.056**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.025 UJ	0.0363 UJ	19.9 U	0.025 UJ	**0.0356 J**	0.0249 UJ	65.9 U	0.0292 UJ	**0.0673 J**	0.0352 UJ	5.2 U
n-Butylbenzene	12	12	100	0.0025 U	0.0036 U	**23.4**	**0.0019 J**	0.0021 UJ	0.0025 UJ	**6.86**	0.0029 U	0.0032 U	0.0035 U	**3.5**
sec-Butylbenzene	11	11	100	0.0025 U	0.0036 U	**4.78**	0.0025 U	0.0021 UJ	0.0025 UJ	2.64 U	0.0029 U	0.0032 U	0.0035 U	**1.8**
tert-Butylbenzene	5.9	5.9	100	0.0025 U	0.0036 U	**0.461 J**	0.0025 U	0.0021 UJ	0.0025 UJ	2.64 U	0.0029 U	0.0032 U	0.0035 U	**0.15 J**
Carbon disulfide	NE	2.7*	NE	0.0025 U	0.0036 U	**1.81**	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Chlorobenzene	1.1	1.1	100	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Cyclohexane	NE	NE	NE	0.0025 U	0.0036 U	**11.4**	**0.0009 J**	0.0021 UJ	0.0025 U	**3.11**	0.0029 U	0.0032 U	0.0035 U	**2.2**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0025 U	0.0036 U	**24.9**	**0.0013 J**	0.0021 UJ	0.0025 U	**7.6**	0.0029 U	0.0032 U	0.0035 U	**0.615**
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0025 UJ	0.0036 UJ	4.77 U	0.0025 U	0.0021 UJ	0.0025 UJ	15.8 UJ	0.0029 UJ	0.0032 UJ	0.0035 UJ	1.25 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 UJ	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 UJ	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
1,1-Dichloroethane	0.27	0.27	26	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
1,1-Dichloroethene	0.33	0.33	100	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
1,2-Dichloropropane	NE	NE	NE	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Isopropylbenzene	NE	2.3*	NE	0.0025 U	0.0036 U	**34.1**	**0.0036**	0.0021 UJ	0.0025 UJ	**11.3**	0.0029 U	0.0032 U	0.0035 U	**3.82**
Methyl acetate	NE	NE	NE	0.0025 U	0.0036 U	**5.63 J**	0.0025 U	0.0021 UJ	0.0025 U	26.4 U	0.0029 U	0.0032 U	0.0035 U	**1.33 J**
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.025 U	0.0363 U	19.9 UJ	0.025 U	0.0213 UJ	0.0249 U	65.9 U	0.0292 U	**0.0053 J**	0.0352 U	5.2 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.025 U	0.0363 U	7.95 U	0.025 U	0.0213 UJ	0.0249 U	26.4 U	0.0292 U	0.0318 U	0.0352 U	2.08 U
Methylcyclohexane	NE	NE	NE	0.0025 U	0.0036 U	**56.3**	**0.0018 J**	0.0021 UJ	0.0025 U	**7.49**	0.0029 U	0.0032 U	0.0035 U	**6.77**
Methylene chloride	0.05	0.05	100	0.0125 U	0.0182 U	3.97 U	0.0125 U	0.0107 UJ	0.0124 U	**1.32 J**	0.0146 U	0.0159 U	0.0176 U	**0.166 J**
Naphthalene	12	12	100	0.0025 U	0.0036 U	**2220**	**0.605**	0.0021 UJ	**0.0017 J**	**1090**	**0.0017 J**	**0.0009 J**	0.0035 U	**22.6**
n-Propylbenzene	3.9	3.9	100	0.0025 U	0.0036 U	**16.2**	**0.0015 J**	0.0021 UJ	0.0025 UJ	**4.38**	0.0029 U	0.0032 U	0.0035 U	**2.91**
Styrene	NE	NE	NE	0.0025 U	0.0036 U	0.795 U	**0.0014 J**	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 UJ	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Tetrahydrofuran	NE	NE	NE	0.0025 U	0.0036 U	NA	0.0025 U	0.0021 UJ	0.0025 U	NA	0.0029 U	0.0032 U	0.0035 U	NA
1,2,3-Trichlorobenzene	NE	NE	NE	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 UJ	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
1,1,2-Trichloroethane	NE	NE	NE	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U
Trichloroethene (TCE)	0.47	0.47	21	0.0025 U	0.0036 U	0.795 U	0.0025 U	0.0021 UJ	0.0025 U	2.64 U	0.0029 U	0.0032 U	0.0035 U	0.208 U

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Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-215 (35-40) 8/5/2022	WW-SB-216 (0-5) 8/8/2022	WW-SB-216 (20-25) 8/16/2022	WW-SB-216 (38-40) 8/16/2022	WW-SB-217 (0-5) 8/1/2022	WW-SB-217 (5-10) 8/3/2022	WW-SB-217 (20-25) 8/3/2022	WW-SB-217 (40-45) 8/3/2022	WW-SB-218 (0-5) 8/1/2022	WW-SB-218 (5-10) 8/9/2022	WW-SB-218 (15-20) 8/9/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0025 U	0.0036 U	**207**	**0.0172**	0.0021 UJ	**0.0012 J**	**53.8**	0.0029 U	0.0032 U	0.0035 U	**0.686**
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0025 U	0.0036 U	**53.5**	**0.0021 J**	0.0021 UJ	0.0025 UJ	**18.6**	0.0029 U	0.0032 U	0.0035 U	**0.125 J**
Vinyl chloride	0.02	0.02	0.9	0.005 U	0.0073 U	0.795 U	0.005 U	0.0043 UJ	0.005 U	2.64 U	0.0058 U	0.0064 U	0.007 U	0.208 U
Total VOCs	NE	NE	NE	ND	ND	**3058.891**	**0.725**	**0.0356**	**0.0082**	**1270.59**	**0.0017**	**0.0735**	**0.0016**	**54.728**
PAHs (mg/kg)														
Acenaphthene	20	98	100	0.298 U	**0.235 J**	**111**	**0.124 J**	0.277 U	**0.328**	**17.2**	0.297 U	**0.352**	**1.09**	**15.2**
Acenaphthylene	100	107	100	0.298 U	**1.75**	**7.28**	**0.0222 J**	0.277 U	**3.25**	**3.77**	0.297 U	**2.31**	**3.98**	**1.92**
Anthracene	100	1000	100	0.298 U	**1.08**	**58.9**	**0.0658 J**	0.277 U	**1.4**	**17.8**	0.297 U	**1.06**	**3.5**	**7.34**
Benzo(a)anthracene	1	1	1	0.298 U	**4.09**	**30.9**	0.272 U	0.277 U	**3.42**	**18.5**	0.297 U	**4.26**	**9.41**	**3.39**
Benzo(b)fluoranthene	1	1.7	1	0.298 U	**5.46**	**14.2**	0.272 U	0.277 U	**3.17**	**11.7**	0.297 U	**5.66**	**13.4**	**1.98**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.298 U	**1.89**	**5.08**	0.272 U	0.277 U	**2.69**	**8.85**	0.297 U	**4.45**	**4.39**	**0.66**
Benzo(g,h,i)perylene	100	1000	100	0.298 U	**2.93**	**5.05**	0.272 U	0.277 U	**3.23**	**6**	0.297 U	**6.34**	**7.61**	**0.727**
Benzo(a)pyrene	1	22	1	0.298 U	**5.39**	**22.1**	0.272 U	0.277 U	**4.83**	**15.8**	0.297 U	**8.36**	**13.7**	**2.57**
Chrysene	1	1	3.9	0.298 U	**4.04**	**29.6**	0.272 U	0.277 U	**3.3**	**16.9**	0.297 U	**4.43**	**9.09**	**3.24**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.298 U	**0.713**	**1.81**	0.272 U	0.277 U	**0.885**	**1.81**	0.297 U	**1.68**	**2**	**0.261 J**
Fluoranthene	100	1000	100	0.298 U	**6.78**	**54.8**	**0.0568 J**	0.277 U	**3.91**	**32.4**	0.297 U	**4.04**	**14**	**6.31**
Fluorene	30	386	100	0.298 U	**0.291 J**	**56.9**	**0.0636 J**	0.277 U	**0.269 J**	**12.3**	0.297 U	**0.23 J**	**1.13**	**5.39**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.298 U	**3.29**	**5.61**	0.272 U	0.277 U	**3.74 J**	**8.37 J**	0.297 U	**6.79**	**8.47**	**0.822**
2-Methylnaphthalene	NE	36.4*	NE	**0.0234 J**	**0.45 J**	**203**	**0.153 J**	0.277 U	**1.11**	**12.2**	0.297 U	**0.924**	**1.59**	**8.53**
Naphthalene	12	12	100	**0.0322 J**	**0.96**	**339**	**0.57**	0.277 U	**2.31**	**32.7**	0.297 U	**1.64**	**3.17**	**41.9**
Phenanthrene	100	1000	100	0.298 U	**2.66**	**176**	**0.242 J**	0.277 U	**2.36**	**45.4**	0.297 U	**2.35**	**7.38**	**28.1**
Pyrene	100	1000	100	0.298 U	**6.75**	**68.6**	**0.0634 J**	**0.0196 J**	**4.93**	**34**	0.297 U	**5.54**	**12.7**	**9.29**
Total PAHs	NE	NE	NE	**0.0556**	**48.759**	**1189.83**	**1.3608**	**0.0196**	**45.132**	**295.7**	ND	**60.416**	**116.61**	**137.63**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	0.298 U	**0.137 J**	0.586 U	0.272 U	0.277 U	**0.324**	0.358 U	0.297 U	**0.147 J**	**0.288 J**	0.373 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.0298 U	**0.0617**	**14.9**	**0.0329**	0.0277 U	**0.143**	**1.73**	0.0297 U	**0.136**	**0.231**	0.0373 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.298 U	**0.681 J**	0.586 U	0.272 U	**0.0639 J**	0.316 U	0.358 U	0.297 U	**0.156 J**	**0.32 J**	0.373 U
Butyl benzyl phthalate	NE	122*	NE	0.298 U	**0.165 J**	0.586 U	0.272 U	0.277 U	0.316 U	0.358 U	0.297 U	0.278 U	**0.11 J**	0.373 U
Caprolactam	NE	NE	NE	0.298 U	0.572 U	0.586 U	0.272 U	0.277 U	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
Carbazole	NE	NE	NE	0.298 U	**0.207 J**	**1.51**	0.272 U	0.277 U	**0.191 J**	**1.56**	0.297 U	**0.19 J**	**0.566 J**	**0.91**
2-Chloronaphthalene	NE	NE	NE	0.298 U	0.572 U	0.586 U	0.272 U	0.277 U	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
Dibenzofuran	7	210, 6.2*	59	0.298 U	**0.0994 J**	**6.1**	**0.0237 J**	0.277 U	**0.243 J**	**5.41**	0.297 U	**0.169 J**	**0.614**	0.373 U
Diethyl phthalate	NE	7.1*	NE	0.298 U	0.572 U	0.586 U	0.272 U	0.277 U	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
2,4-Dimethylphenol	NE	NE	NE	0.298 U	0.572 U	0.586 U	0.272 U	0.277 R	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	**5.43**
Di-n-butyl phthalate	NE	8.1*	NE	0.298 U	0.572 U	0.586 U	0.272 U	**0.139 J**	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
2,6-Dinitrotoluene	NE	1*	NE	0.298 U	0.572 U	0.586 U	0.272 U	0.277 U	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
Di-n-octyl phthalate	NE	120*	NE	0.596 U	1.14 U	1.17 U	0.543 U	**0.0332 J**	0.632 U	0.716 U	0.594 U	0.557 U	1.17 U	0.746 U
2-Methylnaphthalene	NE	36.4*	NE	**0.0234 J**	**0.45 J**	**203**	**0.153 J**	0.277 U	**1.11**	**12.2**	0.297 U	**0.924**	**1.59**	**8.53**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.298 U	0.572 U	0.586 U	0.272 U	0.277 R	0.316 U	0.358 U	0.297 U	**0.0192 J**	0.583 U	0.373 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.298 U	0.572 U	**0.63**	0.272 U	0.277 R	**0.0503 J**	**0.193 J**	0.297 U	0.278 U	0.583 U	**0.609**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.596 U	1.14 U	1.17 U	0.543 U	0.554 U	0.632 U	0.716 U	0.594 U	0.557 U	1.17 U	0.746 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.298 U	0.572 U	0.586 U	0.272 U	0.277 U	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
Phenol	0.33	0.33	100	0.298 U	0.572 U	0.586 U	0.272 U	0.277 R	0.316 U	0.358 U	0.297 U	0.278 U	0.583 U	0.373 U
Total SVOCs	NE	NE	NE	**0.0556**	**50.1101**	**1212.97**	**1.4174**	**0.2557**	**46.0833**	**304.593**	ND	**61.2332**	**118.739**	**144.579**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	0.06 U	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Aroclor 1248	NE	NE	NE	NA	0.06 U	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Aroclor 1254	NE	NE	NE	NA	0.06 U	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Aroclor 1260	NE	NE	NE	NA	**0.2**	NA	NA	0.05 U	NA	NA	NA	**0.05 J**	NA	NA
Aroclor 1268	NE	NE	NE	NA	0.06 U	NA	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	**0.2**	NA	NA	ND	NA	NA	NA	**0.05**	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	0.0017 U	NA	NA	0.0016 U	NA	NA	NA	0.0017 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	**0.301**	NA	NA	0.0319 U	NA	NA	NA	**0.109 J**	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	**0.0429 J**	NA	NA	0.0027 U	NA	NA	NA	**0.0164 J**	NA	NA
gamma-Chlordane	NE	14*	NE	NA	**0.0456**	NA	NA	0.0027 U	NA	NA	NA	**0.0129**	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	**0.0241 J**	NA	NA	0.0027 U	NA	NA	NA	**0.0094 J**	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	**0.0053 J**	NA	NA	0.0027 U	NA	NA	NA	**0.0021 J**	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Dieldrin	0.005	0.1	0.2	NA	**0.0144 J**	NA	NA	0.0027 U	NA	NA	NA	**0.0044 JN**	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	0.0029 UJ	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Endrin	0.014	0.06	11	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Endrin aldehyde	NE	NE	NE	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Endrin ketone	NE	NE	NE	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Heptachlor	0.042	0.38	2.1	NA	**0.0021 J**	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA

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Heptachlor epoxide	NE	0.02*	NE	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Methoxychlor	NE	900*	NE	NA	0.0029 U	NA	NA	0.0027 U	NA	NA	NA	0.0029 U	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	0.212 U	NA	NA	0.196 U	NA	NA	NA	0.2 U	NA	NA
Dicamba	NE	NE	NE	NA	0.011 U	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA
Dichloroprop	NE	NE	NE	NA	0.212 U	NA	NA	0.196 U	NA	NA	NA	0.2 U	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	**2.99 J**	NA	NA	**6.65 J**	NA	NA	NA	20 U	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	21 U	NA	NA	**2.16 J**	NA	NA	NA	19.8 U	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	0.011 U	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	0.011 U	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**3470**	**6380**	**9920**	**5050**	**6500**	**7980**	**5650**	**2260**	**5500**	**6140 J**	**11300 J**
Antimony	NE	NE	NE	1.64 U	2.23 UJ	4.5 U	2.06 U	2.35 U	2.64 U	**1.4 J**	2.31 U	2.21 U	2.35 UJ	3.2 UJ
Arsenic	13	16	16	**1.1 J**	**10.7**	**260 J**	**1.09 J**	**1.1 J**	**12.5**	**42.5**	**0.69 J**	**6.3**	**9.14 J**	**21.1 J**
Barium	350	820	400	**25.7**	**170 J**	**769**	**44.4**	**47**	**148**	**179**	**8.71 J**	**85.6**	**154 J**	**386 J**
Beryllium	7.2	47	72	**0.34 J**	**0.47 J**	1.98 U	**0.36 J**	**0.49 J**	**0.45 J**	**0.39 J**	1.02 U	**0.39 J**	**0.49 J**	**1.26 J**
Cadmium	2.5	7.5	4.3	1.31 U	**0.83 J**	**0.99 J**	**1.78**	1.88 U	2.11 U	2.54 U	1.85 U	**0.54 J**	**0.47 J**	2.56 UJ
Calcium	NE	NE	NE	**6770**	**37900 J**	**3890**	**5760**	**62300**	**22700 J**	**11700 J**	**2100 J**	**40300**	**27400 J**	**7390 J**
Chromium	30	NE	180	**12.6**	**18.6**	**162**	**11.3**	**13**	**19.6**	**8.67 J**	**5.14 J**	**15.2**	**16.5 J**	**18 J**
Cobalt	NE	NE	NE	**5.69 J**	**5.06 J**	**4.92 J**	**7.66 J**	**3.8 J**	**6.58 J**	**9.85 J**	**2.41 J**	**4.49 J**	**6.84 J**	**10.7 J**
Copper	50	1720	270	**9.24 J**	**314**	**370**	**16 J**	**26.9**	**70**	**99.2**	**4.15 J**	**56.9**	**62.6 J**	**171 J**
Iron	NE	NE	NE	**16000**	**14700**	90.1 UJ	**26100 J**	**11000**	**21900**	**59400**	**9550**	**16500**	**17000 J**	**25100 J**
Lead	63	450	400	**4.78 J**	**354**	**1760**	**8.57 J**	**102**	**328**	**564**	46.1 U	**205**	**622 J**	**2000 J**
Magnesium	NE	NE	NE	**4860 J**	**10600 J**	**4260**	**4610**	**9940**	**3990**	**1230**	**1870**	**16300**	**4300 J**	**2320 J**
Manganese	1600	2000	2000	**605**	**273**	**242**	**1470**	**221**	**255**	**238**	**187**	**197**	**242 J**	**278 J**
Mercury	0.18	0.73	0.81	0.019 U	**0.525**	**19.1 J**	0.026 UJ	**0.014 J**	**0.495**	**2.31**	0.03 U	**0.405**	**0.357 J**	**1.46 J**
Nickel	30	130	310	**8.94 J**	**18.4 J**	**28 J**	**12.4 J**	**5.93 J**	**20 J**	**23.6 J**	**4.01 J**	**13.6 J**	**19 J**	**23 J**
Potassium	NE	NE	NE	**842 J**	**940 J**	4500 U	2060 U	**1100 J**	**1240 J**	**811 J**	**518 J**	**1230 J**	**960 J**	**1910 J**
Selenium	3.9	4	180	1.64 UJ	2.23 UJ	4.5 U	2.06 U	2.35 UJ	2.64 U	3.18 U	2.31 U	**0.46 J**	2.35 UJ	**1.49 J**
Silver	2	8.3	180	1.31 U	1.79 U	**4.62 J**	1.65 U	1.88 U	2.11 U	2.54 U	1.85 U	1.77 U	1.88 U	2.56 U
Sodium	NE	NE	NE	**348 J**	**290 J**	4500 U	2060 U	**931 J**	**406 J**	**1440 J**	**667 J**	**1290 J**	**733 J**	**2520 J**
Thallium	NE	NE	NE	1.64 U	2.23 U	4.5 U	2.06 U	2.35 U	2.64 U	3.18 U	2.31 U	2.21 U	2.35 UJ	3.2 UJ
Tin	NE	NE	NE	32.8 U	**22.4 J**	90.1 U	41.2 U	46.9 U	**12 J**	**2390**	46.1 U	44.2 U	**11.8 J**	**38.5 J**
Vanadium	NE	NE	NE	**16.3**	**25.3**	**24.4**	**22.9**	**9.89**	**24.7**	**19.1**	**11.7**	**17.5**	**32.4 J**	**45.4 J**
Zinc	109	2480	10000	**25.2 J**	**432 J**	**402 J**	**33.1 J**	**108**	**311**	**201**	**12.7 J**	**204**	**307 J**	**210 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.232 U	0.232 U	0.474 U	0.225 U	0.215 U	0.243 U	0.285 U	0.236 U	0.223 U	0.223 U	0.295 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-215 (35-40) 8/5/2022	WW-SB-216 (0-5) 8/8/2022	WW-SB-216 (20-25) 8/16/2022	WW-SB-216 (38-40) 8/16/2022	WW-SB-217 (0-5) 8/1/2022	WW-SB-217 (5-10) 8/3/2022	WW-SB-217 (20-25) 8/3/2022	WW-SB-217 (40-45) 8/3/2022	WW-SB-218 (0-5) 8/1/2022	WW-SB-218 (5-10) 8/9/2022	WW-SB-218 (15-20) 8/9/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-215 (35-40) 8/5/2022	WW-SB-216 (0-5) 8/8/2022	WW-SB-216 (20-25) 8/16/2022	WW-SB-216 (38-40) 8/16/2022	WW-SB-217 (0-5) 8/1/2022	WW-SB-217 (5-10) 8/3/2022	WW-SB-217 (20-25) 8/3/2022	WW-SB-217 (40-45) 8/3/2022	WW-SB-218 (0-5) 8/1/2022	WW-SB-218 (5-10) 8/9/2022	WW-SB-218 (15-20) 8/9/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.0021 U	**0.0023 J**	**0.0021 J**	**5.12**	0.0026 U	0.0039 UJ	**15.9**	**8.76**	0.0025 U	0.0037 UJ	0.0036 U
Toluene	0.7	0.7	100	0.0021 U	0.0036 UJ	0.0043 U	**0.626**	0.0026 U	0.0039 UJ	**12.5 J**	**0.276**	0.0025 U	0.0037 UJ	0.0036 U
Ethylbenzene	1	1	41	0.0021 U	0.0036 UJ	0.0043 U	**33.5**	0.0026 U	0.0039 UJ	**201**	**15.1**	0.0025 U	0.0037 UJ	0.0036 U
o-Xylene	0.26	1.6	100	0.0021 U	0.0036 UJ	0.0043 U	**2**	0.0026 U	0.0039 UJ	**70.6**	**0.771**	0.0025 U	0.0037 UJ	0.0036 U
m/p-Xylene	0.26	1.6	100	0.0042 U	0.0071 UJ	0.0086 U	**3.77**	0.0052 U	0.0078 UJ	**78.7**	**1.37**	0.0049 U	0.0073 UJ	0.0072 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	**0.0023**	**0.0021**	**45.016**	ND	ND	**378.7**	**26.277**	ND	ND	ND
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.0209 UJ	**0.125 J**	**0.18 J**	7.05 U	0.026 UJ	**0.0652 J**	326 U	5.84 U	0.0246 UJ	**0.15 J**	0.0361 UJ
n-Butylbenzene	12	12	100	0.0021 U	0.0036 UJ	0.0043 U	**22.5**	0.0026 U	0.0039 UJ	**15.1**	**8.81**	0.0025 U	0.0037 UJ	0.0036 U
sec-Butylbenzene	11	11	100	0.0021 U	0.0036 UJ	0.0043 U	**7.04**	0.0026 U	0.0039 UJ	13 U	**2.08**	0.0025 U	0.0037 UJ	0.0036 U
tert-Butylbenzene	5.9	5.9	100	0.0021 U	0.0036 UJ	0.0043 U	**0.395**	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Carbon disulfide	NE	2.7*	NE	0.0021 U	**0.0068 J**	**0.0018 J**	**0.0676 J**	0.0026 U	**0.0083 J**	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Chlorobenzene	1.1	1.1	100	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Cyclohexane	NE	NE	NE	0.0021 U	0.0036 UJ	**0.0072**	**36.1**	0.0026 U	0.0039 UJ	13 U	**19.3**	0.0025 U	0.0037 UJ	0.0036 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0021 U	0.0036 UJ	0.0043 U	**10.2**	0.0026 U	0.0039 UJ	**13.3**	**4.3**	0.0025 U	0.0037 UJ	0.0036 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0021 UJ	0.0036 UJ	0.0043 UJ	1.69 UJ	0.0026 UJ	0.0039 UJ	78.2 UJ	1.4 UJ	0.0025 UJ	0.0037 UJ	0.0036 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
1,1-Dichloroethane	0.27	0.27	26	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
1,1-Dichloroethene	0.33	0.33	100	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
1,2-Dichloropropane	NE	NE	NE	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Isopropylbenzene	NE	2.3*	NE	0.0021 U	0.0036 UJ	0.0043 U	**31.1**	0.0026 U	0.0039 UJ	**24.5**	**12.4**	0.0025 U	0.0037 UJ	0.0036 U
Methyl acetate	NE	NE	NE	0.0021 U	0.0036 UJ	0.0043 U	2.82 U	0.0026 U	0.0039 UJ	130 U	**1.32 J**	0.0025 U	0.0037 UJ	0.0036 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0209 U	**0.0102 J**	0.0429 U	7.05 U	0.026 U	0.0391 UJ	326 U	5.84 U	0.0246 U	**0.0108 J**	0.0361 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0209 U	0.0357 UJ	0.0429 U	2.82 U	0.026 U	0.0391 UJ	130 U	2.34 U	0.0246 U	0.0367 UJ	0.0361 U
Methylcyclohexane	NE	NE	NE	0.0021 U	0.0036 UJ	**0.0091**	**76.1**	0.0026 U	0.0039 UJ	**8.34 J**	**50.4**	0.0025 U	0.0037 UJ	0.0036 U
Methylene chloride	0.05	0.05	100	0.0104 U	0.0179 UJ	0.0214 U	1.41 U	0.013 U	0.0195 UJ	65.2 U	1.17 U	0.0123 U	0.0184 UJ	0.0181 U
Naphthalene	12	12	100	**0.001 J**	**0.0049 J**	0.0043 U	**200**	**0.0014 J**	**0.0013 J**	**6880**	**157**	0.0025 U	**0.0012 J**	0.0036 U
n-Propylbenzene	3.9	3.9	100	0.0021 U	0.0036 UJ	0.0043 U	**21.3**	0.0026 U	0.0039 UJ	**6.78 J**	**8.74**	0.0025 U	0.0037 UJ	0.0036 U
Styrene	NE	NE	NE	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	**3.65 J**	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Tetrahydrofuran	NE	NE	NE	0.0021 U	0.0036 UJ	0.0043 U	NA	0.0026 U	0.0039 UJ	NA	NA	0.0025 U	0.0037 UJ	0.0036 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
1,1,2-Trichloroethane	NE	NE	NE	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U
Trichloroethene (TCE)	0.47	0.47	21	0.0021 U	0.0036 UJ	0.0043 U	0.282 U	0.0026 U	0.0039 UJ	13 U	0.234 U	0.0025 U	0.0037 UJ	0.0036 U

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Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0021 U	0.0036 UJ	0.0043 U	**12.5**	0.0026 U	0.0039 UJ	**160**	**25.5**	0.0025 U	0.0037 UJ	0.0036 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0021 U	0.0036 UJ	0.0043 U	**33.1**	0.0026 U	0.0039 UJ	**51.6**	**3.59**	0.0025 U	0.0037 UJ	0.0036 U
Vinyl chloride	0.02	0.02	0.9	0.0042 U	0.0071 UJ	0.0086 U	0.282 U	0.0052 U	0.0078 UJ	13 U	0.234 U	0.0049 U	0.0073 UJ	0.0072 U
Total VOCs	NE	NE	NE	**0.001**	**0.1492**	**0.2002**	**495.4186**	**0.0014**	**0.0748**	**7541.97**	**319.717**	ND	**0.162**	ND
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.0199 J**	**1.29**	**0.394**	**266**	**0.0528 J**	**0.501**	**1260**	**103**	**0.0302 J**	**0.359**	**0.278 J**
Acenaphthylene	100	107	100	**0.0175 J**	**4**	**0.34**	**20.1**	**0.0324 J**	**2.38**	**128**	**5.3**	**0.0171 J**	**2.42**	**2.73**
Anthracene	100	1000	100	0.27 U	**3.15**	**0.828**	**121**	**0.0198 J**	**1.67**	**415**	**37.9**	0.275 U	**1.15**	**1.04**
Benzo(a)anthracene	1	1	1	0.27 U	**8.23**	**2.44**	**75.9**	**0.0314 J**	**5.04**	**244**	**23.8**	0.275 U	**4.18**	**3.13**
Benzo(b)fluoranthene	1	1.7	1	0.27 U	**7.14**	**2.49**	**67.4**	0.296 U	**4.92**	**73.5**	**17.5**	0.275 U	**5.31**	**3.09**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.27 U	**5.73**	**1.88**	**24.6**	0.296 U	**4.29**	**98.6**	**6.66**	0.275 U	**4.42**	**2.82**
Benzo(g,h,i)perylene	100	1000	100	0.27 U	**6.76**	**1.46**	**29**	0.296 U	**4.61**	**50.4**	**7.33**	0.275 U	**5.63**	**3.44**
Benzo(a)pyrene	1	22	1	0.27 U	**10.6**	**2.79**	**82.2**	0.296 U	**7.44**	**172**	**22.6**	0.275 U	**8.04**	**5.03**
Chrysene	1	1	3.9	0.27 U	**7.48**	**2.41**	**68.7**	**0.0228 J**	**4.67**	**207**	**21.4**	0.275 U	**4.2**	**3.05**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.27 U	**1.75**	**0.404**	**11.1**	0.296 U	**1.09**	**16.9**	**2.61**	0.275 U	**1.56**	**0.906**
Fluoranthene	100	1000	100	0.27 U	**9.49**	**5.7**	**112**	**0.0474 J**	**6.11**	**492**	**34.9**	0.275 U	**4.44**	**3.28**
Fluorene	30	386	100	0.27 U	**0.644**	**0.44**	**112**	**0.0313 J**	**0.325**	**686**	**35.5**	**0.0187 J**	**0.238 J**	**0.214 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.27 U	**7.84**	**1.75**	**35.3**	0.296 U	**5.75**	**62.8**	**8.62**	0.275 U	**6.53**	**4 J**
2-Methylnaphthalene	NE	36.4*	NE	0.27 U	**0.947**	**0.112 J**	**891**	**0.0677 J**	**0.49**	**2250**	**199**	**0.0485 J**	**1.22**	**0.642**
Naphthalene	12	12	100	**0.0212 J**	**1.81**	**0.259 J**	**244**	**0.0625 J**	**0.969**	**4780**	**286**	**0.0236 J**	**2.34**	**1.33**
Phenanthrene	100	1000	100	**0.0243 J**	**5.39**	**3.01**	**369**	**0.0841 J**	**2.49**	**1680**	**130**	**0.04 J**	**2.62**	**1.94**
Pyrene	100	1000	100	0.27 U	**12.2**	**4.55**	**146**	**0.048 J**	**7.13**	**707**	**47.5**	**0.0193 J**	**5.45**	**4.1**
Total PAHs	NE	NE	NE	**0.0829**	**94.451**	**31.257**	**2675.3**	**0.5002**	**59.875**	**13323.2**	**989.62**	**0.1974**	**60.107**	**41.02**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	0.27 U	**0.137 J**	0.289 U	3.04 U	0.296 U	**0.0723 J**	0.586 U	1.27 U	0.275 U	**0.191 J**	**0.258 J**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.027 U	**0.201**	**0.0365**	0.304 U	0.0296 U	**0.0914**	**165**	**3.4**	0.0275 U	**0.158**	**0.0828**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.27 U	**0.255 J**	**2.57**	3.04 U	0.296 U	**1.02**	0.586 U	1.27 U	0.275 U	**0.178 J**	**0.154 J**
Butyl benzyl phthalate	NE	122*	NE	0.27 U	0.279 U	**11.6**	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Caprolactam	NE	NE	NE	0.27 U	0.279 U	0.289 U	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Carbazole	NE	NE	NE	0.27 U	**0.436**	**0.351**	**3.97**	0.296 U	**0.201 J**	**16.2**	**2.2**	0.275 U	**0.261 J**	**0.191 J**
2-Chloronaphthalene	NE	NE	NE	0.27 U	0.279 U	0.289 U	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Dibenzofuran	7	210, 6.2*	59	0.27 U	**0.618**	**0.2 J**	**16.6**	0.296 U	**0.225 J**	**57.9**	**4.39**	0.275 U	**0.201 J**	**0.186 J**
Diethyl phthalate	NE	7.1*	NE	0.27 U	0.279 U	0.289 U	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
2,4-Dimethylphenol	NE	NE	NE	0.27 U	0.279 R	0.289 U	3.04 U	0.296 U	0.288 R	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Di-n-butyl phthalate	NE	8.1*	NE	0.27 U	0.279 U	**0.0531 J**	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
2,6-Dinitrotoluene	NE	1*	NE	0.27 U	0.279 U	0.289 U	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Di-n-octyl phthalate	NE	120*	NE	0.539 U	0.558 U	0.577 U	6.07 U	0.591 U	0.577 U	1.17 U	2.55 U	0.551 U	0.55 U	0.62 U
2-Methylnaphthalene	NE	36.4*	NE	0.27 U	**0.947**	**0.112 J**	**891**	**0.0677 J**	**0.49**	**2250**	**199**	**0.0485 J**	**1.22**	**0.642**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.27 U	**0.0466 J**	0.289 U	3.04 U	0.296 U	0.288 R	0.586 U	1.27 U	0.275 U	**0.0251 J**	0.31 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.27 U	**0.0859 J**	**0.0614 J**	3.04 U	0.296 U	0.288 R	**0.931**	1.27 U	0.275 U	**0.0449 J**	**0.0503 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.539 U	0.558 U	0.577 U	6.07 U	0.591 U	0.577 U	1.17 U	2.55 U	0.551 U	0.55 U	0.62 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.27 U	0.279 U	0.289 U	3.04 U	0.296 U	0.288 U	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Phenol	0.33	0.33	100	0.27 U	0.279 R	0.289 U	3.04 U	0.296 U	0.288 R	0.586 U	1.27 U	0.275 U	0.275 U	0.31 U
Total SVOCs	NE	NE	NE	**0.0829**	**96.2305**	**46.129**	**2695.87**	**0.5002**	**61.4847**	**13563.231**	**999.61**	**0.1974**	**61.166**	**41.9421**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA
Aroclor 1248	NE	NE	NE	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA
Aroclor 1254	NE	NE	NE	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA
Aroclor 1260	NE	NE	NE	NA	**0.06**	NA	NA	NA	**0.05 J**	NA	NA	NA	**0.08 J**	NA
Aroclor 1268	NE	NE	NE	NA	0.05 U	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA
Total PCB Aroclors	0.1	3.2	1	NA	**0.06**	NA	NA	NA	**0.05**	NA	NA	NA	**0.08**	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	0.0017 U	NA	NA	NA	0.0017 U	NA	NA	NA	0.0017 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Chlordane (Technical)	NE	NE	NE	NA	**0.0756 J**	NA	NA	NA	**0.126 J**	NA	NA	NA	**0.144 J**	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	**0.0093 J**	NA	NA	NA	**0.0166 J**	NA	NA	NA	**0.0265 J**	NA
gamma-Chlordane	NE	14*	NE	NA	**0.0083**	NA	NA	NA	**0.0131**	NA	NA	NA	**0.0212**	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	**0.0091 J**	NA	NA	NA	**0.0157**	NA	NA	NA	**0.0068 JN**	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	0.0028 U	NA	NA	NA	**0.0067**	NA	NA	NA	**0.0023 J**	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	**0.0029 JN**	NA	NA	NA	**0.013 J**	NA	NA	NA	0.0028 U	NA
Dieldrin	0.005	0.1	0.2	NA	**0.0026 J**	NA	NA	NA	**0.0069 JN**	NA	NA	NA	**0.0052 J**	NA
alpha-Endosulfan (I)	2.4	102	24	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
beta-Endosulfan (II)	2.4	102	24	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Endosulfan sulfate	2.4	1000	24	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Endrin	0.014	0.06	11	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Endrin aldehyde	NE	NE	NE	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Endrin ketone	NE	NE	NE	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Heptachlor	0.042	0.38	2.1	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	**0.0017 J**	NA

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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Heptachlor epoxide	NE	0.02*	NE	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	0.0028 U	NA	NA	NA	0.0029 U	NA	NA	NA	0.0028 U	NA
Methoxychlor	NE	900*	NE	NA	0.0028 U	NA	NA	NA	**0.0091 J**	NA	NA	NA	0.0028 U	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	0.192 U	NA	NA	NA	0.209 U	NA	NA	NA	0.204 U	NA
Dicamba	NE	NE	NE	NA	**0.021**	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA
Dichloroprop	NE	NE	NE	NA	0.192 U	NA	NA	NA	0.209 U	NA	NA	NA	0.204 U	NA
Mecoprop (MCPP)	NE	NE	NE	NA	19.2 U	NA	NA	NA	**16.1 J**	NA	NA	NA	**13 J**	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	19 U	NA	NA	NA	20.7 U	NA	NA	NA	20.1 U	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	0.01 U	NA	NA	NA	0.011 U	NA	NA	NA	0.01 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	0.01 U	NA	NA	NA	0.011 U	NA	NA	NA	0.01 U	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**3570 J**	**6010**	**6390**	**5080 J**	**2490 J**	**6080**	**3630**	**5860 J**	**2370 J**	**5760**	**4980 J**
Antimony	NE	NE	NE	2.36 UJ	2.52 U	2.18 U	3.39 UJ	1.78 UJ	2.63 U	2.3 U	3.06 UJ	2.27 UJ	2.59 U	2.27 UJ
Arsenic	13	16	16	**2.25 J**	**8.29**	**4.94**	**4.55 J**	**1.8 J**	**9.23**	**5.8**	**17.3 J**	2.27 UJ	**7.48**	**9.84**
Barium	350	820	400	**20.4 J**	**100**	**194**	**52.3 J**	**26.3 J**	**95.9**	**36.9**	**306 J**	**10.1 J**	**74.9**	**115 J**
Beryllium	7.2	47	72	**0.49 J**	**0.39 J**	**0.47 J**	**0.39 J**	**0.35 J**	**0.4 J**	**0.28 J**	**0.72 J**	**0.37 J**	**0.34 J**	**0.39 J**
Cadmium	2.5	7.5	4.3	1.89 UJ	2.01 U	**1.19 J**	2.71 UJ	**1.68 J**	2.1 UJ	1.84 U	2.45 UJ	1.82 UJ	2.08 U	1.81 U
Calcium	NE	NE	NE	**277 J**	**31800**	**49400**	**3690 J**	**2300 J**	**37500**	**15400**	**16500 J**	**1820 J**	**20900**	**11300 J**
Chromium	30	NE	180	**13 J**	**16.1**	**15.9**	**4.81 J**	**8 J**	**35.1**	**10.4**	**11.4 J**	**5.77 J**	**27.9**	**25.2 J**
Cobalt	NE	NE	NE	**4.96 J**	**4.65 J**	**4.7 J**	**3.85 J**	**4.66 J**	**4.31 J**	**6.07 J**	**4.51 J**	**6.6 J**	**6.21 J**	**6.17 J**
Copper	50	1720	270	**5.03 J**	**52.1**	**47.4**	**11.7 J**	**4.36 J**	**39.8**	**30.9**	**167 J**	**7.15 J**	**87.8**	**59.5 J**
Iron	NE	NE	NE	**56800 J**	**13600**	**10400**	**12000 J**	**36800 J**	**15200**	**15100**	**18200 J**	**27500 J**	**23400**	**16100 J**
Lead	63	450	400	**13.5 J**	**219**	**220**	**23 J**	35.6 UJ	**154**	**201**	**1230 J**	45.4 UJ	**123**	**254 J**
Magnesium	NE	NE	NE	**726 J**	**6580**	**16400 J**	**823 J**	**1760 J**	**4860**	**8420 J**	**1230 J**	**1750 J**	**3480**	**4220 J**
Manganese	1600	2000	2000	**403 J**	**187**	**279**	**126 J**	**664 J**	**217**	**89.9**	**426 J**	**894 J**	**324**	**247 J**
Mercury	0.18	0.73	0.81	0.029 UJ	**0.361**	**0.414**	0.033 UJ	0.032 UJ	**0.338**	**0.12**	**1.36 J**	0.025 UJ	**0.25**	**0.599 J**
Nickel	30	130	310	**4.45 J**	**17.9 J**	**19.9 J**	**11.6 J**	**5.15 J**	**38.5**	**13.1 J**	**12.2 J**	**5.4 J**	**30.1**	**37.2**
Potassium	NE	NE	NE	**246 J**	**1110 J**	**973 J**	**421 J**	**346 J**	**1070 J**	**847 J**	**620 J**	**366 J**	**1290 J**	**894 J**
Selenium	3.9	4	180	2.36 UJ	2.52 U	2.18 UJ	3.39 UJ	1.78 UJ	**1.52 J**	2.3 UJ	**2.26 J**	2.27 UJ	2.59 UJ	**0.54 J**
Silver	2	8.3	180	1.89 U	2.01 U	1.74 U	2.71 U	**0.88 J**	2.1 UJ	1.84 U	2.45 U	1.82 U	2.08 U	1.81 U
Sodium	NE	NE	NE	**646 J**	**603 J**	**334 J**	**296 J**	1780 U	**274 J**	2300 U	**808 J**	**315 J**	**808 J**	**630 J**
Thallium	NE	NE	NE	2.36 UJ	2.52 U	2.18 U	3.39 UJ	1.78 UJ	2.63 U	2.3 U	3.06 UJ	2.27 UJ	2.59 U	2.27 U
Tin	NE	NE	NE	47.1 UJ	50.3 UJ	**17.4 J**	67.8 UJ	35.6 UJ	52.6 UJ	45.9 U	**63.2 J**	45.4 UJ	51.9 U	45.3 U
Vanadium	NE	NE	NE	**29.3 J**	**18.7**	**27.7**	**10.8 J**	**17.1 J**	**16.6**	**16**	**25.3 J**	**14.9 J**	**17.4**	**22.3 J**
Zinc	109	2480	10000	**25.9 J**	**218**	**262 J**	**16.5 J**	**15.7 J**	**175**	**107 J**	**163 J**	**20.3 J**	**226**	**243 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.228 U	0.214 U	0.234 U	0.301 U	0.247 U	0.227 U	0.231 U	0.281 U	0.228 U	0.223 U	0.243 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-218 (35-40) 8/9/2022	WW-SB-219 (0-5) 7/29/2022	WW-SB-219 (5-10) 8/5/2022	WW-SB-219 (10-15) 8/10/2022	WW-SB-219 (35-40) 8/10/2022	WW-SB-220 (0-5) 7/26/2022	WW-SB-220 (5-10) 8/5/2022	WW-SB-220 (15-20) 8/10/2022	WW-SB-220 (35-40) 8/10/2022	WW-SB-221 (0-5) 8/1/2022	WW-SB-221 (8-10) 8/2/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	**781**	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-221 (15-18) 8/2/2022	WW-SB-221 (67-70) 8/2/2022	Duplicate of WW-SB-221 (67-70) 8/2/2022	WW-SB-222 (0-5) 7/25/2022	WW-SB-222 (8-10) 8/1/2022	WW-SB-222 (11-15) 8/1/2022	WW-SB-222 (48-50) 8/1/2022	WW-SB-223 (0-5) 7/26/2022	WW-SB-223 (7-10) 8/2/2022	WW-SB-223 (16-20) 8/2/2022	WW-SB-223 (42-45) 8/2/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**1.45**	0.0027 U	0.0031 U	0.004 U	**0.0125**	**3.86**	0.0028 U	0.0032 U	**0.0018 J**	**0.475**	0.0025 U
Toluene	0.7	0.7	100	**1.36**	0.0027 U	0.0031 U	0.004 U	**0.007**	**1.52**	0.0028 U	0.0032 U	**0.0012 J**	**0.274 J**	0.0025 U
Ethylbenzene	1	1	41	**7.28**	0.0027 U	0.0031 U	0.004 U	**0.0018 J**	**51.2**	0.0028 U	0.0032 U	0.0028 U	**6.8**	0.0025 U
o-Xylene	0.26	1.6	100	**2.46**	0.0027 U	0.0031 U	0.004 U	**0.0021 J**	**5.35**	0.0028 U	0.0032 U	0.0028 U	**0.838**	0.0025 U
m/p-Xylene	0.26	1.6	100	**1.89**	0.0055 U	0.0063 U	0.008 U	**0.0027 J**	**3.63**	0.0057 U	0.0065 U	0.0057 U	**0.467 J**	0.0049 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**14.44**	ND	ND	ND	**0.0261**	**65.56**	ND	ND	**0.003**	**8.854**	ND
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	4.99 U	0.0275 UJ	0.0314 UJ	0.0399 UJ	**0.053 J**	8.12 U	**0.0131 J**	0.0324 UJ	**0.0211 J**	10.1 U	0.0247 U
n-Butylbenzene	12	12	100	**8.86**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**22.2**	0.0028 U	0.0032 U	0.0028 U	**8.48**	0.0025 U
sec-Butylbenzene	11	11	100	**15.8**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**21.4**	0.0028 U	0.0032 U	**0.0019 J**	**24.3**	0.0025 U
tert-Butylbenzene	5.9	5.9	100	**1.56**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**3.45**	0.0028 U	0.0032 U	0.0028 U	**4.5**	0.0025 U
Carbon disulfide	NE	2.7*	NE	**0.0959 J**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**0.104 J**	0.0028 U	0.0032 U	0.0028 U	**0.145 J**	0.0025 U
Chlorobenzene	1.1	1.1	100	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Cyclohexane	NE	NE	NE	**10.3**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**20**	0.0028 U	0.0032 U	0.0028 U	**4.46**	0.0025 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**11.3**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**19.3**	0.0028 U	0.0032 U	**0.0015 J**	**1.11**	0.0025 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	1.2 U	0.0027 UJ	0.0031 UJ	0.004 U	0.0038 UJ	1.95 U	0.0028 U	0.0032 U	0.0028 UJ	2.42 UJ	0.0025 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
1,1-Dichloroethane	0.27	0.27	26	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
1,1-Dichloroethene	0.33	0.33	100	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
1,2-Dichloropropane	NE	NE	NE	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Isopropylbenzene	NE	2.3*	NE	**12.8**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**17.4**	0.0028 U	0.0032 U	0.0028 U	**16.2**	0.0025 U
Methyl acetate	NE	NE	NE	2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	3.25 U	0.0028 U	0.0032 U	0.0028 U	4.03 U	0.0025 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	4.99 U	0.0275 U	0.0314 U	0.0399 U	0.0381 U	8.12 U	**0.0065 J**	0.0324 U	0.0285 U	10.1 U	0.0247 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	2 U	0.0275 U	0.0314 U	0.0399 U	0.0381 U	3.25 U	0.0284 U	0.0324 U	0.0285 U	4.03 U	0.0247 U
Methylcyclohexane	NE	NE	NE	**47.8**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**122**	0.0028 U	0.0032 U	0.0028 U	**61.4**	0.0025 U
Methylene chloride	0.05	0.05	100	**0.108 J**	0.0137 U	0.0157 U	0.0199 U	0.019 U	1.62 U	0.0142 U	0.0162 U	0.0142 U	2.01 U	0.0124 U
Naphthalene	12	12	100	**7.81**	0.0027 U	0.0031 U	0.004 U	**0.0045**	**497**	**0.0011 J**	**0.0017 J**	**0.0009 J**	**20.3**	0.0025 U
n-Propylbenzene	3.9	3.9	100	**21.9**	0.0027 U	0.0031 U	0.004 U	0.0038 U	**18.8**	0.0028 U	0.0032 U	0.0028 U	**7.59**	0.0025 U
Styrene	NE	NE	NE	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Tetrahydrofuran	NE	NE	NE	NA	0.0027 U	0.0031 U	0.004 U	0.0038 U	NA	0.0028 U	0.0032 U	0.0028 U	NA	0.0025 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 UJ
1,1,2-Trichloroethane	NE	NE	NE	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Trichloroethene (TCE)	0.47	0.47	21	0.2 U	0.0027 U	0.0031 U	0.004 U	0.0038 U	0.325 U	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-221 (15-18) 8/2/2022	WW-SB-221 (67-70) 8/2/2022	Duplicate of WW-SB-221 (67-70) 8/2/2022	WW-SB-222 (0-5) 7/25/2022	WW-SB-222 (8-10) 8/1/2022	WW-SB-222 (11-15) 8/1/2022	WW-SB-222 (48-50) 8/1/2022	WW-SB-223 (0-5) 7/26/2022	WW-SB-223 (7-10) 8/2/2022	WW-SB-223 (16-20) 8/2/2022	WW-SB-223 (42-45) 8/2/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**2.92**	0.0027 U	0.0031 U	0.004 U	**0.0028 J**	**98**	0.0028 U	0.0032 U	0.0028 U	**9.38**	0.0025 U
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.415**	0.0027 U	0.0031 U	0.004 U	**0.0013 J**	**1.45**	0.0028 U	0.0032 U	0.0028 U	0.403 U	0.0025 U
Vinyl chloride	0.02	0.02	0.9	0.2 U	0.0055 U	0.0063 U	0.008 U	0.0076 U	0.325 U	0.0057 U	0.0065 U	0.0057 U	0.403 U	0.0049 UJ
Total VOCs	NE	NE	NE	**156.1089**	ND	ND	ND	**0.0877**	**906.664**	**0.0207**	**0.0017**	**0.0284**	**166.719**	ND
PAHs (mg/kg)														
Acenaphthene	20	98	100	**3.66**	0.295 U	0.299 U	**0.414**	**0.0204 J**	**159**	0.288 U	**0.245 J**	**0.109 J**	**135**	**0.0357 J**
Acenaphthylene	100	107	100	**1.26**	0.295 U	0.299 U	**2.53**	**0.0403 J**	**16.2**	0.288 U	**1.43**	**0.289 J**	**12.6**	0.276 U
Anthracene	100	1000	100	**4.74**	0.295 U	0.299 U	**1.5**	**0.0684 J**	**69**	0.288 U	**0.696**	**0.215 J**	**61**	**0.0192 J**
Benzo(a)anthracene	1	1	1	**14.1**	0.295 U	0.299 U	**4.46**	**0.42**	**39.6**	0.288 U	**2.29**	**0.553**	**39.1**	0.276 U
Benzo(b)fluoranthene	1	1.7	1	**16.1**	0.295 U	0.299 U	**4.83**	**0.476**	**14.7**	0.288 U	**2.4**	**0.495**	**22.8**	0.276 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**10.4**	0.295 U	0.299 U	**3.76**	**0.309**	**16.7**	0.288 U	**1.93**	**0.471**	**17**	0.276 U
Benzo(g,h,i)perylene	100	1000	100	**15.7**	0.295 U	0.299 U	**4.71**	**0.45**	**11.2**	0.288 U	**2.28**	**0.496**	**20.4**	0.276 U
Benzo(a)pyrene	1	22	1	**24.1**	0.295 U	0.299 U	**7.04**	**0.552**	**31.2**	0.288 U	**3.45**	**0.769**	**45.5**	0.276 U
Chrysene	1	1	3.9	**12.4**	0.295 U	0.299 U	**4.28**	**0.515**	**35.8**	0.288 U	**2.32**	**0.545**	**36.4**	0.276 U
Dibenz(a,h)anthracene	0.33	1000	0.33	**11.7**	0.295 U	0.299 U	**1.08**	**0.113 J**	**3.77 J**	0.288 U	**0.604**	**0.139 J**	**15.1**	0.276 U
Fluoranthene	100	1000	100	**12.7**	0.295 U	0.299 U	**5.27**	**0.789**	**69.6**	0.288 U	**2.41**	**0.818**	**54.4**	0.276 U
Fluorene	30	386	100	**2.94**	0.295 U	0.299 U	**0.311**	**0.0329 J**	**66.5**	0.288 U	**0.179 J**	**0.0707 J**	**2.45**	0.276 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**16.7**	0.295 UJ	0.299 UJ	**5.75**	**0.532**	**13**	0.288 U	**2.67**	**0.607**	**23.7**	0.276 UJ
2-Methylnaphthalene	NE	36.4*	NE	**1.86**	0.295 U	0.299 U	**0.53**	**0.0406 J**	**38.1**	0.288 U	**0.242 J**	**0.0584 J**	**3.12**	0.276 U
Naphthalene	12	12	100	**6.26**	0.295 U	0.299 U	**1.1**	**0.14 J**	**225**	**0.0204 J**	**0.556**	**0.113 J**	**9.24**	0.276 U
Phenanthrene	100	1000	100	**12.4**	0.295 U	0.299 U	**3.3**	**0.391**	**194**	0.288 U	**1.26**	**0.61**	**150**	**0.0251 J**
Pyrene	100	1000	100	**14**	0.295 U	0.299 U	**5.93**	**0.785**	**101**	0.288 U	**3.05**	**0.886**	**96.7**	**0.0221 J**
Total PAHs	NE	NE	NE	**181.02**	ND	ND	**56.795**	**5.6746**	**1104.37**	**0.0204**	**28.012**	**7.2441**	**744.51**	**0.1021**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-221 (15-18) 8/2/2022	WW-SB-221 (67-70) 8/2/2022	Duplicate of WW-SB-221 (67-70) 8/2/2022	WW-SB-222 (0-5) 7/25/2022	WW-SB-222 (8-10) 8/1/2022	WW-SB-222 (11-15) 8/1/2022	WW-SB-222 (48-50) 8/1/2022	WW-SB-223 (0-5) 7/26/2022	WW-SB-223 (7-10) 8/2/2022	WW-SB-223 (16-20) 8/2/2022	WW-SB-223 (42-45) 8/2/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	**0.0244 J**	0.438 U	0.276 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.378**	0.0295 U	0.0299 U	**0.096**	0.0284 U	0.509 U	0.0288 U	**0.0438**	0.029 U	0.0438 U	0.0276 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.333 U	0.295 U	0.299 U	**0.215 J**	0.284 U	5.09 U	0.288 U	**0.0652 J**	**0.0908 J**	0.438 U	0.276 U
Butyl benzyl phthalate	NE	122*	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	2.88 U	**0.0446 J**	0.438 U	0.276 U
Caprolactam	NE	NE	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
Carbazole	NE	NE	NE	**1.03**	0.295 U	0.299 U	**0.325**	**0.0236 J**	**1.59 J**	0.288 U	**0.131 J**	**0.0539 J**	**1.23**	0.276 U
2-Chloronaphthalene	NE	NE	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
Dibenzofuran	7	210, 6.2*	59	**0.776**	0.295 U	0.299 U	**0.224 J**	0.284 U	**11.2**	0.288 U	**0.0763 J**	**0.0465 J**	**4.16**	0.276 U
Diethyl phthalate	NE	7.1*	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
2,4-Dimethylphenol	NE	NE	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
Di-n-butyl phthalate	NE	8.1*	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
2,6-Dinitrotoluene	NE	1*	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
Di-n-octyl phthalate	NE	120*	NE	0.666 U	0.59 U	0.597 U	0.537 U	0.568 U	10.2 U	0.576 U	0.595 U	0.581 U	0.876 U	0.551 U
2-Methylnaphthalene	NE	36.4*	NE	**1.86**	0.295 U	0.299 U	**0.53**	**0.0406 J**	**38.1**	0.288 U	**0.242 J**	**0.0584 J**	**3.12**	0.276 U
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.666 U	0.59 U	0.597 U	0.537 U	0.568 U	10.2 U	0.576 U	0.595 U	0.581 U	0.876 U	0.551 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
Phenol	0.33	0.33	100	0.333 U	0.295 U	0.299 U	0.268 U	0.284 U	5.09 U	0.288 U	0.297 U	0.29 U	0.438 U	0.276 U
Total SVOCs	NE	NE	NE	**183.204**	ND	ND	**57.655**	**5.6982**	**1117.16**	**0.0204**	**28.3283**	**7.5043**	**749.9**	**0.1021**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-221 (15-18) 8/2/2022	WW-SB-221 (67-70) 8/2/2022	Duplicate of WW-SB-221 (67-70) 8/2/2022	WW-SB-222 (0-5) 7/25/2022	WW-SB-222 (8-10) 8/1/2022	WW-SB-222 (11-15) 8/1/2022	WW-SB-222 (48-50) 8/1/2022	WW-SB-223 (0-5) 7/26/2022	WW-SB-223 (7-10) 8/2/2022	WW-SB-223 (16-20) 8/2/2022	WW-SB-223 (42-45) 8/2/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	**0.07**	NA	NA	NA	**0.07 J**	NA	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	**0.07**	NA	NA	NA	**0.07**	NA	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.0016 U	NA	NA	NA	0.0018 U	NA	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	**0.102 J**	NA	NA	NA	**0.0798**	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	**0.0126 J**	NA	NA	NA	**0.0127**	NA	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	**0.0105**	NA	NA	NA	**0.0118**	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	**0.0144**	NA	NA	NA	0.003 U	NA	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	**0.0038 J**	NA	NA	NA	0.003 U	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	**0.0076 J**	NA	NA	NA	0.003 U	NA	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	**0.0054 JN**	NA	NA	NA	**0.0092 J**	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	0.0027 U	NA	NA	NA	**0.0047 J**	NA	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	0.0027 U	NA	NA	NA	**0.0028 J**	NA	NA	NA
Endrin	0.014	0.06	11	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	0.0027 U	NA	NA	NA	**0.007**	NA	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA

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Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	0.0027 U	NA	NA	NA	0.003 U	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	0.0027 U	NA	NA	NA	**0.0118**	NA	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.197 U	NA	NA	NA	0.211 U	NA	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	0.01 U	NA	NA	NA	0.011 U	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	0.197 U	NA	NA	NA	0.211 U	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	19.7 U	NA	NA	NA	**9.22 J**	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	19.5 U	NA	NA	NA	20.9 U	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.01 U	NA	NA	NA	0.011 U	NA	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.01 U	NA	NA	NA	0.011 U	NA	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**4030 J**	**3920**	**4400**	**6100**	**4700**	**6690**	**5130**	**6710**	**7250 J**	**3440 J**	**4060 J**
Antimony	NE	NE	NE	1.91 UJ	2.64 U	2.21 U	2.61 U	1.5 U	2.92 U	1.92 U	2.62 U	1.97 UJ	3.19 UJ	1.77 R
Arsenic	13	16	16	**14.1**	**1.35 J**	**1.47 J**	**6.08**	**1.39 J**	**27.1**	**2.47**	**6.2**	**8.91**	**11.5**	**0.74 J**
Barium	350	820	400	**24.3 J**	**26.7**	**23.6**	**113**	**36**	**59.1**	**56.5**	**88.2**	**146 J**	**18.3 J**	**41 J**
Beryllium	7.2	47	72	**0.4 J**	**0.41 J**	**0.4 J**	**0.37 J**	**0.27 J**	**0.68 J**	**0.7 J**	**0.42 J**	**0.4 J**	**0.27 J**	**0.41 J**
Cadmium	2.5	7.5	4.3	1.53 U	2.11 U	1.77 U	2.09 UJ	1.2 U	2.34 U	1.53 U	2.09 UJ	1.57 U	2.55 U	1.42 U
Calcium	NE	NE	NE	**2290 J**	**8730 J**	**6660 J**	**14900**	**18300**	**126000**	**317**	**17000**	**18900 J**	**66800 J**	**13000 J**
Chromium	30	NE	180	**7.05 J**	**10.4 J**	**11.5**	**13**	**7.35**	**9.23 J**	**23**	**13.7**	**20.4 J**	**4.89 J**	**11.4 J**
Cobalt	NE	NE	NE	**4.7 J**	**7.78 J**	**9.3**	**4.2 J**	**3.09 J**	**4.84 J**	**6.94 J**	**4.06 J**	**7.51 J**	**2.1 J**	**5.53 J**
Copper	50	1720	270	**13.5 J**	**10 J**	**12.5 J**	**56.8**	**7.36 J**	**26.3 J**	**10.2 J**	**37.7**	**40.7 J**	**12.9 J**	**9.85 J**
Iron	NE	NE	NE	**11700 J**	**22900**	**23300**	**13200**	**8590**	**10800**	**64800**	**13000**	**17200 J**	**3420 J**	**20300 J**
Lead	63	450	400	**31.8 J**	**4.85 J**	**7.74 J**	**179**	**16.1 J**	**79.5**	**12 J**	**120**	**168 J**	**21.7 J**	**5.64 J**
Magnesium	NE	NE	NE	**1430 J**	**4750**	**3860**	**4310**	**9410**	**3970**	**855**	**4760**	**5020 J**	**890 J**	**4910 J**
Manganese	1600	2000	2000	**73.3 J**	**423**	**382**	**172**	**425**	**182**	**336**	**293**	**283 J**	**82 J**	**359 J**
Mercury	0.18	0.73	0.81	**0.416 J**	0.025 U	**0.012 J**	**0.372**	**0.022 J**	**0.234**	0.032 U	**0.314**	**0.191 J**	**0.42 J**	0.021 U
Nickel	30	130	310	**13.4 J**	**11.4 J**	**12.2 J**	**14.6 J**	**6.23 J**	**13.1 J**	**6.52 J**	**12 J**	**24.4**	**4.13 J**	**9.43 J**
Potassium	NE	NE	NE	**592 J**	**884 J**	**911 J**	**1030 J**	**1070 J**	**1050 J**	**475 J**	**1400 J**	**1280 J**	**744 J**	**953 J**
Selenium	3.9	4	180	1.91 UJ	2.64 U	2.21 U	**1.37 J**	1.5 UJ	**1.15 J**	1.92 UJ	**1.19 J**	1.97 UJ	3.19 UJ	1.77 UJ
Silver	2	8.3	180	1.53 U	2.11 U	1.77 U	2.09 UJ	1.2 U	2.34 U	1.53 U	2.09 UJ	1.57 U	2.55 U	1.42 U
Sodium	NE	NE	NE	**1040 J**	**1490 J**	**1680 J**	**337 J**	**1710**	**3910**	**1200 J**	**424 J**	**549 J**	**2110 J**	**813 J**
Thallium	NE	NE	NE	1.91 U	2.64 U	2.21 U	2.61 U	1.5 U	2.92 U	1.92 U	2.62 U	1.97 U	3.19 U	1.77 U
Tin	NE	NE	NE	38.2 U	52.8 U	44.2 U	52.1 UJ	30 U	58.4 U	38.3 U	52.3 UJ	39.3 U	63.8 U	35.4 U
Vanadium	NE	NE	NE	**16.8 J**	**24.3**	**23.6**	**16.9**	**7.33**	**15.8**	**41.7**	**18**	**21.5 J**	**2.7 J**	**22.1 J**
Zinc	109	2480	10000	**23.4 J**	**32.1**	**39**	**184**	**19.9**	**42.3**	**45.5**	**147**	**211 J**	**22.6 J**	**28 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.272 U	0.242 U	0.241 U	0.222 U	0.228 U	0.293 U	0.236 U	0.233 U	0.237 U	0.335 U	0.219 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-221 (15-18) 8/2/2022	WW-SB-221 (67-70) 8/2/2022	Duplicate of WW-SB-221 (67-70) 8/2/2022	WW-SB-222 (0-5) 7/25/2022	WW-SB-222 (8-10) 8/1/2022	WW-SB-222 (11-15) 8/1/2022	WW-SB-222 (48-50) 8/1/2022	WW-SB-223 (0-5) 7/26/2022	WW-SB-223 (7-10) 8/2/2022	WW-SB-223 (16-20) 8/2/2022	WW-SB-223 (42-45) 8/2/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-221 (15-18) 8/2/2022	WW-SB-221 (67-70) 8/2/2022	Duplicate of WW-SB-221 (67-70) 8/2/2022	WW-SB-222 (0-5) 7/25/2022	WW-SB-222 (8-10) 8/1/2022	WW-SB-222 (11-15) 8/1/2022	WW-SB-222 (48-50) 8/1/2022	WW-SB-223 (0-5) 7/26/2022	WW-SB-223 (7-10) 8/2/2022	WW-SB-223 (16-20) 8/2/2022	WW-SB-223 (42-45) 8/2/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.0046 UJ	**0.0058 J**	**5.15**	0.0016 U	**0.0019 J**	0.002 U	**200**	0.0035 UJ	**0.0323**	**108**	**0.0013 J**
Toluene	0.7	0.7	100	0.0046 UJ	**0.0043 J**	**0.831**	0.0016 U	0.0035 UJ	0.002 U	**215**	0.0035 UJ	**0.0404**	**29.8**	0.0026 U
Ethylbenzene	1	1	41	0.0046 UJ	0.0027 U	**27**	0.0016 U	0.0035 UJ	0.002 U	**364**	0.0035 UJ	**0.0877**	**354**	**0.0073**
o-Xylene	0.26	1.6	100	0.0046 UJ	0.0027 U	**18.1**	0.0016 U	0.0035 UJ	0.002 U	**271**	0.0035 UJ	**0.1**	**136**	**0.0037**
m/p-Xylene	0.26	1.6	100	0.0092 UJ	0.0053 U	**3.64**	0.0031 U	0.007 UJ	0.0041 U	**543**	0.007 UJ	**0.164**	**220**	**0.0043 J**
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	**0.0101**	**54.721**	ND	**0.0019**	ND	**1593**	ND	**0.4244**	**847.8**	**0.0166**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.172 J**	**0.0728 J**	4.74 U	0.0156 UJ	**0.106 J**	0.0204 UJ	350 U	**0.0742 J**	0.0277 UJ	97.3 U	0.0259 UJ
n-Butylbenzene	12	12	100	0.0046 UJ	0.0027 UJ	**9.88**	0.0016 U	0.0035 UJ	0.002 U	**10.1 J**	0.0035 UJ	**0.0038**	**7.08**	0.0026 U
sec-Butylbenzene	11	11	100	0.0046 UJ	0.0027 UJ	**9.37**	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
tert-Butylbenzene	5.9	5.9	100	0.0046 UJ	0.0027 UJ	**1.07**	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Carbon disulfide	NE	2.7*	NE	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Chlorobenzene	1.1	1.1	100	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Cyclohexane	NE	NE	NE	0.0046 UJ	0.0027 U	**36.8**	0.0016 U	0.0035 UJ	0.002 U	**34.8**	0.0035 UJ	**0.006**	**11.1**	0.0026 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0046 UJ	0.0027 UJ	**10**	0.0016 U	0.0035 UJ	0.002 U	**5.89 J**	0.0035 UJ	**0.0023 J**	**8.48**	0.0026 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0046 UJ	0.0027 UJ	1.14 UJ	0.0016 UJ	0.0035 UJ	0.002 UJ	84.1 UJ	0.0035 UJ	0.0028 UJ	23.3 UJ	0.0026 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0046 UJ	0.0027 UJ	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0046 UJ	0.0027 UJ	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
1,1-Dichloroethane	0.27	0.27	26	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
1,1-Dichloroethene	0.33	0.33	100	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
1,2-Dichloropropane	NE	NE	NE	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Isopropylbenzene	NE	2.3*	NE	0.0046 UJ	0.0027 UJ	**10.9**	0.0016 U	0.0035 UJ	0.002 U	**21.9**	0.0035 UJ	**0.0091**	**24.9**	**0.0009 J**
Methyl acetate	NE	NE	NE	0.0046 UJ	0.0027 U	**1.24 J**	0.0016 U	0.0035 UJ	0.002 U	140 U	0.0035 UJ	0.0028 U	38.9 U	0.0026 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.0147 J**	0.0266 U	4.74 U	0.0156 U	**0.01 J**	0.0204 U	350 U	**0.0062 J**	0.0277 U	97.3 U	0.0259 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0458 UJ	0.0266 U	1.9 U	0.0156 U	0.0351 UJ	0.0204 U	140 U	0.035 UJ	0.0277 U	38.9 U	0.0259 U
Methylcyclohexane	NE	NE	NE	0.0046 UJ	0.0027 U	**137 J**	0.0016 U	0.0035 UJ	0.002 U	**37**	0.0035 UJ	**0.008**	**11.8**	**0.0017 J**
Methylene chloride	0.05	0.05	100	0.0229 UJ	0.0133 U	0.948 U	0.0078 U	0.0176 UJ	0.0102 U	**9.53 J**	0.0175 UJ	0.0138 U	**1.87 J**	0.013 U
Naphthalene	12	12	100	0.0046 UJ	**0.001 J**	**137 J**	0.0016 U	0.0035 UJ	**0.0006 J**	**6310**	0.0035 UJ	**76.9**	**3680**	**3.91**
n-Propylbenzene	3.9	3.9	100	0.0046 UJ	0.0027 U	**14.3**	0.0016 U	0.0035 UJ	0.002 U	**21**	0.0035 UJ	**0.0076**	**11.9**	**0.001 J**
Styrene	NE	NE	NE	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	**48.5**	0.0035 UJ	**0.0107**	**1.09 J**	0.0026 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0046 UJ	0.0027 UJ	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Tetrahydrofuran	NE	NE	NE	0.0046 UJ	0.0027 U	NA	0.0016 U	0.0035 UJ	0.002 U	NA	0.0035 UJ	0.0028 U	NA	0.0026 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0046 UJ	0.0027 UJ	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
1,1,2-Trichloroethane	NE	NE	NE	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U
Trichloroethene (TCE)	0.47	0.47	21	0.0046 UJ	0.0027 U	0.19 U	0.0016 U	0.0035 UJ	0.002 U	14 U	0.0035 UJ	0.0028 U	3.89 U	0.0026 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0046 UJ	0.0027 UJ	**86.1 J**	0.0016 U	0.0035 UJ	0.002 U	**228**	0.0035 UJ	**3.12**	**176**	**0.007**
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0046 UJ	0.0027 UJ	**0.243**	0.0016 U	0.0035 UJ	0.002 U	**82.1**	0.0035 UJ	**0.0429**	**60.7**	**0.0019 J**
Vinyl chloride	0.02	0.02	0.9	0.0092 UJ	0.0053 U	0.19 U	0.0031 U	0.007 UJ	0.0041 U	14 U	0.007 UJ	0.0055 U	3.89 U	0.0052 U
Total VOCs	NE	NE	NE	**0.1867**	**0.0839**	**508.624**	ND	**0.1179**	**0.0006**	**8401.82**	**0.0804**	**80.5348**	**4842.72**	**3.9391**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.588**	**3.2**	**28.4**	0.313 U	**0.398**	**0.407**	**367**	**2.04**	**1.49**	**181**	**0.0438 J**
Acenaphthylene	100	107	100	**4.26**	**17.8**	**8.61**	0.313 U	**3.73**	**3.19**	**1910**	**5.23**	**5.45**	**107**	**0.129 J**
Anthracene	100	1000	100	**1.8**	**10.9**	**18.9**	0.313 U	**1.63**	**1.37**	**1720**	**6.78**	**4.69**	**277**	**0.133 J**
Benzo(a)anthracene	1	1	1	**6.05**	**17.5**	**39.7**	0.313 U	**5.8**	**3.82**	**1340**	**13**	**9.51**	**222**	**0.101 J**
Benzo(b)fluoranthene	1	1.7	1	**7.49**	**32.4**	**53.3**	0.313 U	**7.44**	**4.26**	**703**	**11.3**	**12.2**	**143**	**0.0425 J**
Benzo(k)fluoranthene	0.8	1.7	3.9	**5.36**	**10.4**	**20.9**	0.313 U	**5.21**	**4.38**	**672**	**7.57**	**7.23**	**104**	**0.0459 J**
Benzo(g,h,i)perylene	100	1000	100	**6.58**	**27.3**	**30**	0.313 U	**7.57**	**5.49**	**465**	**8.8**	**10.4**	**57.9**	**0.0334 J**
Benzo(a)pyrene	1	22	1	**10.3**	**43.4**	**62.5**	0.313 U	**10.2**	**7.22**	**1070**	**14.4**	**16.5**	**183**	**0.079 J**
Chrysene	1	1	3.9	**5.99**	**18.3**	**35.1**	0.313 U	**5.45**	**3.93**	**1110**	**12.2**	**8.84**	**178**	**0.0846 J**
Dibenz(a,h)anthracene	0.33	1000	0.33	**1.59**	**6.54**	**11.1**	0.313 U	**1.78**	**1.35**	**172**	**2.01**	**4.02**	**22.7**	0.283 U
Fluoranthene	100	1000	100	**8.5**	**16.7**	**31.3**	0.313 U	**5.15**	**3.86**	**2850**	**20.6**	**9.62**	**466**	**0.188 J**
Fluorene	30	386	100	**0.564**	**6.52**	**13.9**	0.313 U	**0.298 J**	**0.472**	**1750**	**3.09**	**3.3**	**284**	**0.12 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**7.03**	**30.5 J**	**42.3 J**	0.313 UJ	**9.01**	**5.68**	**622**	**10.6**	**12.5**	**88.8**	**0.0394 J**
2-Methylnaphthalene	NE	36.4*	NE	**0.856**	**21.2**	**24.2**	0.313 U	**0.81**	**1.36**	**3320**	**1.22**	**8.83**	**595**	**0.179 J**
Naphthalene	12	12	100	**1.58**	**39.2**	**61.8**	**0.021 J**	**1.34**	**2.49**	**10900**	**1.27**	**23.4**	**2000**	**0.61**
Phenanthrene	100	1000	100	**4.1**	**20.7**	**51.9**	0.313 U	**2.84**	**3.27**	**5030**	**17.8**	**12.8**	**745**	**0.46**
Pyrene	100	1000	100	**9.38**	**26.1**	**35.8**	0.313 U	**7.28**	**7.29**	**2450**	**20**	**12.1**	**367**	**0.264 J**
Total PAHs	NE	NE	NE	**82.018**	**348.66**	**569.71**	**0.021**	**75.936**	**59.839**	**36451**	**157.91**	**162.88**	**6021.4**	**2.5526**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	**11.1**	**95.9**	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	**2.72**	**4.65**	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	**3.61**	**144**	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	**4.98**	**6.52**	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	**5.63**	**19**	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	**1.5**	**1.74**	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	**1.11**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	**1.81**	**2.74**	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	**1.66**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	**2.27**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	**4.27**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	**4.63**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	**0.897**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	**6.9**	**9.15**	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	**2.2**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	**2.34**	**6.07**	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	**1.31**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	**7.92**	**13.2**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
C-28	NE	NE	NE	NA	**1.59**	**3.88**	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	**14.7**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	**6.96**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	**6.56**	**5.32**	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	**3.52**	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	0.539 U	**12.5**	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	0.539 U	1.63 U	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	**7.44**	**59.6**	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	**10.6**	**22.7**	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	**0.123 J**	**1.83**	1.5 U	0.313 U	**0.139 J**	**0.118 J**	5.75 U	**0.0875 J**	**0.413**	6.65 U	0.283 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.12**	**2.67**	**4.86**	0.0313 U	**0.127**	**0.156**	**497**	**0.206**	**1.08**	**74.8**	**0.0306**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.137 J**	0.659 U	1.5 U	0.313 U	**0.085 J**	**0.065 J**	5.75 U	**0.0803 J**	**0.231 J**	6.65 U	0.283 U
Butyl benzyl phthalate	NE	122*	NE	**0.0944 J**	0.659 U	**0.348 J**	0.313 U	0.363 U	0.261 U	5.75 U	0.36 U	0.301 U	6.65 U	0.283 U
Caprolactam	NE	NE	NE	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	**0.0688 J**	5.75 U	0.36 U	**0.121 J**	**8.07**	0.283 U
Carbazole	NE	NE	NE	**0.327**	**1.09**	**2.91**	0.313 U	**0.256 J**	**0.187 J**	**629**	**0.955**	**1.31**	**58.5**	**0.0304 J**
2-Chloronaphthalene	NE	NE	NE	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	0.261 U	5.75 U	0.36 U	0.301 U	6.65 U	0.283 U
Dibenzofuran	7	210, 6.2*	59	**0.259 J**	**1.69**	**2.81**	0.313 U	**0.27 J**	**0.196 J**	**1130**	**1.49**	**2.12**	**175**	**0.0598 J**
Diethyl phthalate	NE	7.1*	NE	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	0.261 U	5.75 U	0.36 U	0.301 U	6.65 U	0.283 U
2,4-Dimethylphenol	NE	NE	NE	0.281 U	**0.342 J**	1.5 U	0.313 U	0.363 U	**0.0369 J**	**64.6**	**0.0415 J**	**0.113 J**	**2.18 J**	0.283 U
Di-n-butyl phthalate	NE	8.1*	NE	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	**0.0406 J**	5.75 U	0.36 U	**0.0835 J**	6.65 U	0.283 U
2,6-Dinitrotoluene	NE	1*	NE	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	0.261 U	5.75 U	0.36 U	0.301 U	6.65 U	0.283 U
Di-n-octyl phthalate	NE	120*	NE	0.562 U	1.32 U	3 U	0.626 U	0.727 U	0.522 U	11.5 U	0.719 U	0.603 U	13.3 U	0.565 U
2-Methylnaphthalene	NE	36.4*	NE	**0.856**	**21.2**	**24.2**	0.313 U	**0.81**	**1.36**	**3320**	**1.22**	**8.83**	**595**	**0.179 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.281 U	**0.18 J**	1.5 U	0.313 U	0.363 U	**0.022 J**	**26.7**	**0.0436 J**	**0.0762 J**	6.65 U	0.283 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.281 U	**0.431 J**	1.5 U	0.313 U	0.363 U	**0.039 J**	**59.8**	**0.0945 J**	**0.183 J**	6.65 U	0.283 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.562 U	1.32 U	3 U	0.626 U	0.727 U	0.522 U	11.5 U	0.719 U	0.603 U	13.3 U	0.565 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	0.261 U	5.75 U	0.36 U	0.301 U	6.65 U	0.283 U
Phenol	0.33	0.33	100	0.281 U	0.659 U	1.5 U	0.313 U	0.363 U	0.261 U	**41**	**0.0661 J**	**0.159 J**	**1.83 J**	0.283 U
Total SVOCs	NE	NE	NE	**83.0784**	**356.893**	**580.638**	**0.021**	**76.813**	**60.7683**	**38899.1**	**160.9745**	**168.7697**	**6341.78**	**2.6734**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	**3.63 J**	**43.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	**25.8 J**	**16.8 J**	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	**13.5 J**	**28.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	**3.84 J**	**25.9 J**	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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C1-Benzene	NE	NE	NE	NA	**7.45 JN**	**5.43 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	**16.9 JN**	**35.3 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	**11.7 JN**	**86.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	**4.43 JN**	**73 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	**1.95 JN**	**33.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	**21.2 J**	**50.1 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	**31.6 J**	**58 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	**24.7 J**	**53.1 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	**2.13 J**	**7.18 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	**0.928 J**	**2.48 J**	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	**2.24 J**	**5.96 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	**59.9 J**	**54.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	**46.7 J**	**86.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	**33 J**	**45.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	**1.32 J**	**8.56 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	**1.07 JN**	**7.52 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	**1.05 JN**	**7.74 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	**0.787 JN**	**5.66 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	**0.448 JN**	**2.66 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	**3.12 J**	**8.47 J**	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	**0.289 J**	**4.67 J**	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	**0.0773 J**	**5.19 J**	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**20 JN**	**34.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**13.1 JN**	**20.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**7.21 JN**	**11 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**3.8 JN**	**5.45 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	**20.2 J**	**42 J**	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	**16.6 J**	**17.1 J**	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	**0.335 J**	**7.95 J**	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	**0.0548 J**	**2.46 J**	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	**0.237 J**	**15.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	**0.822 JN**	**35.4 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	**1.31 JN**	**27.9 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	**1.31 JN**	**15.4 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	**1.6 JN**	**13.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	**13.2 J**	**19.1 J**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	**1.03 J**	**4.55 J**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	**1.58 J**	**8.04 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	**2.42 JN**	**10.8 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	**2.86 JN**	**9.66 JN**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	**2.4 JN**	**5.42 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	**1.24 JN**	**2.05 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	**8.27 J**	**33.5 J**	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	**15.3 J**	**40.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	**28.7 JN**	**54.2 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	**17.4 JN**	**23 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	**10.1 JN**	**12.6 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	**3.45 J**	**19.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	**3.21 JN**	**13.8 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	**4.94 JN**	**12.4 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	**4.05 JN**	**7.02 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	**61.9 J**	**79.3 J**	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	**0.41 J**	**8.13 J**	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	**2.54 J**	**92 J**	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	**8.45 J**	**77.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	**17.3 J**	**37 J**	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	**3.44 J**	**4.82 J**	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	**4.32 J**	**6.3 J**	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	**36 J**	**112 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	**15.9 JN**	**69 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	**10.6 JN**	**72 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	**5.8 JN**	**39.1 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	**3.53 JN**	**16.9 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	**5.06 JN**	**9.58 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	**3.69 JN**	**6 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	**2.64 JN**	**3.2 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	**0.913 JN**	**1.03 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	**12.4 J**	**19.3 J**	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	**15.6 J**	**65.1 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	**15.8 JN**	**52.3 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	**11.6 JN**	**29.4 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	**6.11 JN**	**10.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	**2.3 JN**	**3.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	**0.763 J**	**12.5 J**	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	**25.9 J**	**45.8 J**	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	0.027 U	**0.479 J**	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	**7.57 J**	**3.44 J**	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	**8.6 J**	**6.25 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	**1.51 J**	**24.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	**5.01 J**	**64 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	**1.68 J**	**0.607 J**	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	**5.5 J**	**14.9 J**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
m/p-Xylene	0.26	1.6	100	NA	**13.5 J**	**12.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	**5.73 J**	**5.64 J**	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	**2.3**	**18.2**	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	**3.34**	**27.5**	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	**1.49**	**35.4**	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	**2.58**	**30.4**	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	**2.04**	**46.9**	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.06 U	NA	NA	NA	0.03 U	NA	NA	0.03 U	NA	NA	NA
Aroclor 1248	NE	NE	NE	0.06 U	NA	NA	NA	0.03 U	NA	NA	0.03 U	NA	NA	NA
Aroclor 1254	NE	NE	NE	0.06 U	NA	NA	NA	**0.1 J**	NA	NA	**0.1**	NA	NA	NA
Aroclor 1260	NE	NE	NE	**0.07**	NA	NA	NA	**0.07**	NA	NA	**0.06 J**	NA	NA	NA
Aroclor 1268	NE	NE	NE	0.06 U	NA	NA	NA	0.03 U	NA	NA	0.03 U	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	**0.07**	NA	NA	NA	**0.17**	NA	NA	**0.16**	NA	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0016 U	NA	NA	NA	0.0016 U	NA	NA	0.0016 U	NA	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Chlordane (Technical)	NE	NE	NE	**0.0271 J**	NA	NA	NA	**0.0822**	NA	NA	**0.0516**	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	**0.0033**	NA	NA	NA	**0.0114**	NA	NA	**0.0056**	NA	NA	NA
gamma-Chlordane	NE	14*	NE	**0.0022 J**	NA	NA	NA	**0.0096**	NA	NA	**0.0052**	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	**0.0207 J**	NA	NA	NA	0.0026 U	NA	NA	**0.0134 J**	NA	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	**0.0029**	NA	NA	NA	**0.0027 J**	NA	NA	**0.0024 J**	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Dieldrin	0.005	0.1	0.2	**0.0057 J**	NA	NA	NA	**0.0076 JN**	NA	NA	**0.0076 J**	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	24	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
beta-Endosulfan (II)	2.4	102	24	0.0027 UJ	NA	NA	NA	**0.0033 JN**	NA	NA	**0.0037 JN**	NA	NA	NA
Endosulfan sulfate	2.4	1000	24	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Endrin	0.014	0.06	11	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	**0.007 J**	NA	NA	NA
Endrin aldehyde	NE	NE	NE	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Endrin ketone	NE	NE	NE	0.0027 UJ	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Heptachlor	0.042	0.38	2.1	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA

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Heptachlor epoxide	NE	0.02*	NE	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U	NA	NA	NA
Methoxychlor	NE	900*	NE	0.0027 U	NA	NA	NA	0.0026 U	NA	NA	**0.0105 J**	NA	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.208 U	NA	NA	NA	0.191 U	NA	NA	0.2 U	NA	NA	NA
Dicamba	NE	NE	NE	0.01 U	NA	NA	NA	0.01 U	NA	NA	0.01 U	NA	NA	NA
Dichloroprop	NE	NE	NE	0.208 U	NA	NA	NA	0.191 U	NA	NA	0.2 U	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	20.8 U	NA	NA	NA	**3.85 J**	NA	NA	20 U	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	**6.03 J**	NA	NA	NA	18.9 U	NA	NA	19.7 U	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.011 U	NA	NA	NA	0.01 U	NA	NA	0.01 U	NA	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.011 U	NA	NA	NA	0.01 U	NA	NA	0.01 U	NA	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**8100**	**5800 J**	**6890 J**	**7630 J**	**6460**	**5300**	**3800**	**5360**	**6630**	**14300**	**8830**
Antimony	NE	NE	NE	2.64 U	**0.69 J**	3.46 UJ	2.15 UJ	2.57 U	2.62 U	2.79 U	2.3 U	1.91 U	3.94 U	2.65 U
Arsenic	13	16	16	**17.5**	**15.7 J**	**87.2 J**	**2.47 J**	**10.2**	**9.54**	**8.66**	**13.3**	**7.41**	**13.2**	**0.97 J**
Barium	350	820	400	**117**	**61.2 J**	**43.2 J**	**42.5 J**	**93.5**	**110**	**27.8 J**	**64.4**	**107**	**99.4**	**50.7**
Beryllium	7.2	47	72	**0.56 J**	**1.21 J**	**0.78 J**	**0.84 J**	**0.37 J**	**0.37 J**	**0.33 J**	**0.31 J**	**0.41 J**	**0.91 J**	**0.63 J**
Cadmium	2.5	7.5	4.3	2.11 U	2.21 UJ	2.76 UJ	1.72 UJ	2.05 U	2.1 U	2.23 U	1.84 U	**0.6 J**	3.15 U	2.12 U
Calcium	NE	NE	NE	**20900**	**2130 J**	**2520 J**	**6250 J**	**18600**	**25600**	**1300**	**28300**	**20500**	**15400**	**16700**
Chromium	30	NE	180	**24**	**7.85 J**	**8.35 J**	**26.3 J**	**15**	**14.8**	**3.73 J**	**12.5**	**17**	**30.9**	**17.5**
Cobalt	NE	NE	NE	**6.53 J**	**9.24 J**	**7.22 J**	**13.6 J**	**6.12 J**	**7.8 J**	**1.95 J**	**3.86 J**	**4.93 J**	**7.67 J**	**6.74 J**
Copper	50	1720	270	**63.3**	**74 J**	**46 J**	**18.9 J**	**58.4**	**38.9**	**8.22 J**	**45.9**	**55.8**	**45.9**	**15.4 J**
Iron	NE	NE	NE	**17400**	**22100 J**	**17700 J**	**46400 J**	**15400**	**21200**	**7780**	**11600**	**16900**	**41100**	**15500**
Lead	63	450	400	**283**	**261 J**	**41.4 J**	**17.1 J**	**164**	**200**	**11.1 J**	**118**	**207**	**168**	**4.8 J**
Magnesium	NE	NE	NE	**4190 J**	**1130 J**	**1300 J**	**4110 J**	**4460**	**13600**	**678**	**5370**	**5340**	**6290**	**8520**
Manganese	1600	2000	2000	**256**	**121 J**	**154 J**	**519 J**	**214**	**188**	**40**	**143**	**236**	**351**	**386**
Mercury	0.18	0.73	0.81	**0.406**	**0.328 J**	**0.076 J**	**0.008 J**	**0.394**	**0.266**	**0.083**	**0.25**	**0.298**	**3.55**	0.026 U
Nickel	30	130	310	**19.1 J**	**18.9 J**	**21.8 J**	**17.8 J**	**15.3 J**	**18.7 J**	**11 J**	**11.2 J**	**15.3 J**	**23.7 J**	**15.9 J**
Potassium	NE	NE	NE	**1470 J**	**523 J**	**496 J**	**986 J**	**1370 J**	**1250 J**	**307 J**	**992 J**	**1240 J**	**2510 J**	**2110 J**
Selenium	3.9	4	180	2.64 UJ	**1.61 J**	3.46 UJ	2.15 UJ	2.57 U	2.62 U	2.79 U	2.3 U	1.91 U	3.94 U	2.65 U
Silver	2	8.3	180	2.11 U	2.21 U	2.76 U	1.72 U	2.05 U	2.1 U	2.23 U	1.84 U	1.53 U	3.15 U	2.12 U
Sodium	NE	NE	NE	2640 U	**465 J**	**1270 J**	**893 J**	**353 J**	**469 J**	**1060 J**	**304 J**	1910 U	**6080**	**1470 J**
Thallium	NE	NE	NE	2.64 U	2.77 UJ	3.46 UJ	2.15 UJ	2.57 U	2.62 U	2.79 U	2.3 U	1.91 U	3.94 U	2.65 U
Tin	NE	NE	NE	**12.3 J**	55.3 UJ	69.1 UJ	43 UJ	51.4 U	52.5 UJ	55.8 UJ	45.9 U	38.2 UJ	78.8 UJ	53 UJ
Vanadium	NE	NE	NE	**27.1**	**14.4 J**	**19.6 J**	**44.6 J**	**20.5**	**17.4**	**8.1 J**	**16.8**	**18.5**	**31.9**	**23.3**
Zinc	109	2480	10000	**301 J**	**172 J**	**41.2 J**	**45.7 J**	**279**	**167**	**9.92 J**	**200**	**261**	**193**	**39.6**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.224 U	0.256 U	0.318 U	0.244 U	0.216 U	0.217 U	0.234 U	0.221 U	0.242 U	0.364 U	0.236 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	**0.129**	**0.126**	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	**0.0698**	**0.0597 J**	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	**0.0531**	**0.0519 J**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	**0.0398**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	**0.0412**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	**0.0244 J**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	**0.0217 J**	**0.127**	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	**0.0184 J**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	**0.0207 J**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	**0.0309**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	**0.0584**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	**0.0877**	**0.0865**	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	**0.0204 J**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	**0.0278**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	**0.059**	**0.0458 J**	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	**0.146**	**0.147**	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	**0.0327**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	**0.0319**	**0.0493 J**	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	**0.0346**	**0.0472 J**	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	0.027 U	**0.151**	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	**0.221**	**0.163**	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	**0.078**	**0.0723 J**	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	**0.0566**	**0.0806 J**	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	**0.0778**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	**0.0388**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	**0.0389**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	**0.0317**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	**0.0272**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	**0.0844**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	**0.0341**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	**0.0579**	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	**0.171**	**0.0863**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	**0.0651**	**0.112**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	**0.0423**	**0.104**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	**0.169**	**0.245**	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	0.027 U	0.0816 U	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-224 (0.5-5) 8/4/2022	WW-SB-224 (5-10) 8/10/2022	WW-SB-224 (15-20) 8/10/2022	WW-SB-224 (35-40) 8/10/2022	WW-SB-225 (0-5) 7/22/2022	WW-SB-225 (5-10) 7/29/2022	WW-SB-225 (20-25) 7/29/2022	WW-SB-226 (0-5) 7/22/2022	WW-SB-226 (5-10) 7/29/2022	WW-SB-226 (20-25) 7/29/2022	WW-SB-226 (35-40) 7/29/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	**0.0207 J**	**0.138**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	**0.12**	**0.245**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	**0.106**	**0.0641 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	**0.0862**	**0.0587 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	**0.0575**	**0.0987**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	**0.0737**	**0.327**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	**0.0963**	**0.0914**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	**0.0553**	**0.0603 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	**0.0705**	**0.0708 J**	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	**222**	**1260**	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	**312**	**307**	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	**855**	**1600**	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	**1030**	**1930**	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	**842**	**3830**	**8120**	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	**3030**	**8030**	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	**5120**	**12500**	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-228 (0-5) 8/4/2022	WW-SB-228 (5-10) 8/12/2022	WW-SB-228 (15-20) 8/12/2022	WW-SB-228 (40-45) 8/12/2022	Duplicate of WW-SB-228 (40-45) 8/12/2022	WW-SB-229 (0-5) 7/22/2022	WW-SB-229 (5-10) 7/29/2022	WW-SB-229 (15-20) 8/12/2022	WW-SB-229 (40-45) 8/12/2022	WW-SB-230 (0-5) 7/22/2022	WW-SB-230 (5-8) 7/29/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0016 J**	**0.0034 J**	**1.53**	0.0021 U	0.002 U	0.0035 UJ	**0.0079**	**62**	0.0027 U	0.0036 UJ	**0.0055**
Toluene	0.7	0.7	100	0.0039 U	0.0025 U	**2.13**	0.0021 U	0.002 U	0.0035 UJ	**0.0049 J**	20.1 U	0.0027 U	0.0036 UJ	**0.0042 J**
Ethylbenzene	1	1	41	0.0039 U	0.0025 U	**0.622**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	**86.9**	0.0027 U	0.0036 UJ	**0.0011 J**
o-Xylene	0.26	1.6	100	0.0039 U	0.0025 U	**0.64**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	**29.8**	0.0027 U	0.0036 UJ	**0.0013 J**
m/p-Xylene	0.26	1.6	100	0.0079 U	0.0049 U	**1.27**	0.0042 U	0.004 U	0.0069 UJ	0.006 U	**73.2**	0.0054 U	0.0071 UJ	**0.0025 J**
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.0016**	**0.0034**	**6.192**	ND	ND	ND	**0.0128**	**251.9**	ND	ND	**0.0146**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.101 J**	0.0246 UJ	4.6 U	0.021 UJ	0.0199 UJ	**0.0811 J**	**0.0327 J**	503 U	0.0271 UJ	**0.0861 J**	0.0297 UJ
n-Butylbenzene	12	12	100	0.0039 U	0.0025 U	**0.673**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
sec-Butylbenzene	11	11	100	0.0039 U	0.0025 U	**1.63**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
tert-Butylbenzene	5.9	5.9	100	0.0039 U	0.0025 U	**0.338**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Carbon disulfide	NE	2.7*	NE	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Chlorobenzene	1.1	1.1	100	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	**0.0011 J**	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Cyclohexane	NE	NE	NE	0.0039 U	0.0025 U	**1.52**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	**24.5**	0.0027 U	0.0036 UJ	**0.0014 J**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0039 U	0.0025 U	**0.342**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0039 UJ	0.0025 U	1.1 UJ	0.0021 UJ	0.002 UJ	0.0035 UJ	0.003 UJ	121 UJ	0.0027 UJ	0.0036 UJ	0.003 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,1-Dichloroethane	0.27	0.27	26	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,1-Dichloroethene	0.33	0.33	100	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,2-Dichloropropane	NE	NE	NE	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Isopropylbenzene	NE	2.3*	NE	0.0039 U	0.0025 U	**0.978**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	**6.44 J**	0.0027 U	0.0036 UJ	0.003 U
Methyl acetate	NE	NE	NE	0.0039 U	0.0025 U	**2.44**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	201 U	0.0027 U	0.0036 UJ	0.003 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.007 J**	0.0246 U	4.6 U	0.021 U	0.0199 U	**0.0067 J**	0.0298 U	503 U	0.0271 U	**0.0069 J**	0.0297 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0395 U	0.0246 U	1.84 U	0.021 U	0.0199 U	0.0347 UJ	0.0298 U	201 U	0.0271 U	0.0357 UJ	0.0297 U
Methylcyclohexane	NE	NE	NE	0.0039 U	**0.0015 J**	**31.1**	0.0021 U	0.002 U	0.0035 UJ	**0.0031**	**39.8**	0.0027 U	0.0036 UJ	**0.0043**
Methylene chloride	0.05	0.05	100	0.0197 U	0.0123 U	0.919 U	0.0105 U	0.0099 U	0.0174 UJ	0.0149 U	101 U	0.0135 U	0.0179 UJ	0.0148 U
Naphthalene	12	12	100	0.0039 U	**0.0037 J**	**5.76**	**0.0007 J**	0.002 U	0.0035 UJ	**0.0031**	**1220**	0.0027 U	0.0036 UJ	**0.0104**
n-Propylbenzene	3.9	3.9	100	0.0039 U	0.0025 U	**1.26**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Styrene	NE	NE	NE	0.0039 U	0.0025 U	**0.0662 J**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Tetrahydrofuran	NE	NE	NE	0.0039 U	0.0025 U	NA	0.0021 U	0.002 U	0.0035 UJ	0.003 U	NA	0.0027 U	0.0036 UJ	0.003 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
1,1,2-Trichloroethane	NE	NE	NE	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U
Trichloroethene (TCE)	0.47	0.47	21	0.0039 U	0.0025 U	0.184 U	0.0021 U	0.002 U	0.0035 UJ	0.003 U	20.1 U	0.0027 U	0.0036 UJ	0.003 U

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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1,2,4-Trimethylbenzene	3.6	3.6	52	0.0039 U	0.0025 U	**1.21**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	**45.9**	0.0027 U	0.0036 UJ	**0.0019 J**
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0039 U	0.0025 U	**0.246**	0.0021 U	0.002 U	0.0035 UJ	0.003 U	**14.1 J**	0.0027 U	0.0036 UJ	0.003 U
Vinyl chloride	0.02	0.02	0.9	0.0079 U	0.0049 U	0.184 U	0.0042 U	0.004 U	0.0069 UJ	0.006 U	20.1 U	0.0054 U	0.0071 UJ	0.0059 U
Total VOCs	NE	NE	NE	**0.1096**	**0.0086**	**53.7552**	**0.0007**	ND	**0.0878**	**0.0528**	**1602.64**	ND	**0.093**	**0.0326**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.399**	**0.224 J**	**29.3**	**0.0233 J**	0.285 U	**0.225 J**	**0.412**	**42.9**	0.311 U	**0.203 J**	**0.803**
Acenaphthylene	100	107	100	**6.46**	**1.97**	**12.5**	**0.0553 J**	0.285 U	**2.03**	**1.29**	**27.7**	0.311 U	**1.66**	**2.89**
Anthracene	100	1000	100	**2.84**	**0.879**	**27.6**	**0.0713 J**	0.285 U	**0.902**	**0.926**	**164**	0.311 U	**0.857**	**1.8**
Benzo(a)anthracene	1	1	1	**11.5**	**4.28**	**27.7**	**0.0715 J**	0.285 U	**3.53**	**3.92**	**148**	0.311 U	**4.07**	**5.14**
Benzo(b)fluoranthene	1	1.7	1	**10**	**6.41**	**25.1**	**0.0543 J**	0.285 U	**4.11**	**4.22**	**152**	0.311 U	**4.25**	**4.98**
Benzo(k)fluoranthene	0.8	1.7	3.9	**7.99**	**2.08**	**8.47**	0.295 U	0.285 U	**3.02**	**4**	**55.5**	0.311 U	**3.74**	**4.13**
Benzo(g,h,i)perylene	100	1000	100	**9.8**	**4.38**	**16**	**0.0262 J**	0.285 U	**4.63**	**4.59**	**84.1**	0.311 U	**4.62**	**5.05**
Benzo(a)pyrene	1	22	1	**16.1**	**7.11**	**35.5**	**0.0614 J**	0.285 U	**5.94**	**6.84**	**180**	0.311 U	**6.8**	**7.95**
Chrysene	1	1	3.9	**11**	**4.14**	**27**	**0.0543 J**	0.285 U	**3.37**	**3.65**	**118**	0.311 U	**4.01**	**5.1**
Dibenz(a,h)anthracene	0.33	1000	0.33	**2.32**	**1.04**	**4.23**	0.295 U	0.285 U	**1.07**	**1.26**	**23.9**	0.311 U	**1.17**	**1.25**
Fluoranthene	100	1000	100	**14.1**	**4.5**	**41**	**0.147 J**	0.285 U	**3.41**	**4.11**	**294**	0.311 U	**4.34**	**6.02**
Fluorene	30	386	100	**0.315**	**0.304 J**	**12.6**	0.295 U	0.285 U	**0.172 J**	**0.354**	**157**	0.311 U	**0.19 J**	**0.7**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**10.8**	**4.8**	**18.7**	**0.03 J**	0.285 U	**5.34**	**5.28**	**108**	0.311 U	**5.1**	**5.47**
2-Methylnaphthalene	NE	36.4*	NE	**0.996**	**0.446**	**5.06**	0.295 U	0.285 U	**0.365**	**0.791**	**284**	**0.0481 J**	**0.323 J**	**1.11**
Naphthalene	12	12	100	**2.76**	**1.04**	**11.6**	0.295 U	0.285 U	**0.6**	**1.26**	**1160**	**0.226 J**	**0.76**	**3.44**
Phenanthrene	100	1000	100	**4.62**	**1.72**	**71.3**	**0.251 J**	0.285 U	**1.63**	**2.69**	**488**	**0.0311 J**	**1.94**	**4.76**
Pyrene	100	1000	100	**17.2**	**6.32**	**54.2**	**0.121 J**	0.285 U	**5.1**	**6.02**	**242**	0.311 U	**5.98**	**9.85**
Total PAHs	NE	NE	NE	**129.2**	**51.643**	**427.86**	**0.9666**	ND	**45.444**	**51.613**	**3729.1**	**0.3052**	**50.013**	**70.443**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-228 (0-5) 8/4/2022	WW-SB-228 (5-10) 8/12/2022	WW-SB-228 (15-20) 8/12/2022	WW-SB-228 (40-45) 8/12/2022	Duplicate of WW-SB-228 (40-45) 8/12/2022	WW-SB-229 (0-5) 7/22/2022	WW-SB-229 (5-10) 7/29/2022	WW-SB-229 (15-20) 8/12/2022	WW-SB-229 (40-45) 8/12/2022	WW-SB-230 (0-5) 7/22/2022	WW-SB-230 (5-8) 7/29/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	**0.109 J**	**0.104 J**	1.25 U	0.295 U	0.285 U	**0.0706 J**	**0.107 J**	2.84 U	0.311 U	**0.0687 J**	**0.11 J**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.146**	**0.082**	**1.32**	0.0295 U	0.0285 U	**0.0576**	**0.107**	**48.6**	0.0311 U	**0.0643**	**0.147**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.0753 J**	0.311 U	1.25 U	0.295 U	0.285 U	**0.246 J**	**0.0714 J**	2.84 U	0.311 U	**0.104 J**	**0.0942 J**
Butyl benzyl phthalate	NE	122*	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	**0.0884 J**	0.313 U	2.84 U	0.311 U	0.373 U	0.289 U
Caprolactam	NE	NE	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 U	0.313 U	2.84 U	0.311 U	0.373 U	**0.0764 J**
Carbazole	NE	NE	NE	**0.26 J**	**0.126 J**	**1.31**	0.295 U	0.285 U	**0.136 J**	**0.147 J**	**69.6**	0.311 U	**0.178 J**	**0.341**
2-Chloronaphthalene	NE	NE	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 U	0.313 U	2.84 U	0.311 U	0.373 U	0.289 U
Dibenzofuran	7	210, 6.2*	59	**0.314**	**0.119 J**	**4.29**	**0.0219 J**	0.285 U	**0.152 J**	**0.186 J**	**118**	0.311 U	**0.119 J**	**0.331**
Diethyl phthalate	NE	7.1*	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 U	0.313 U	2.84 U	0.311 U	0.373 U	0.289 U
2,4-Dimethylphenol	NE	NE	NE	**0.0605 J**	0.311 U	1.25 U	0.295 U	0.285 U	0.343 R	**0.0358 J**	**2.98**	0.311 U	0.373 R	**0.0574 J**
Di-n-butyl phthalate	NE	8.1*	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 U	0.313 U	2.84 U	0.311 U	0.373 U	0.289 U
2,6-Dinitrotoluene	NE	1*	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 U	0.313 U	2.84 U	0.311 U	0.373 U	0.289 U
Di-n-octyl phthalate	NE	120*	NE	0.542 U	0.622 U	2.5 U	0.591 U	0.57 U	0.685 U	0.626 U	5.67 U	0.622 U	0.746 U	**0.155 J**
2-Methylnaphthalene	NE	36.4*	NE	**0.996**	**0.446**	**5.06**	0.295 U	0.285 U	**0.365**	**0.791**	**284**	**0.0481 J**	**0.323 J**	**1.11**
2-Methylphenol (o-Cresol)	0.33	0.33	100	**0.0591 J**	**0.0293 J**	1.25 U	0.295 U	0.285 U	0.343 R	**0.0281 J**	**1.69 J**	0.311 U	0.373 R	**0.0482 J**
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	**0.154 J**	**0.0615 J**	1.25 U	0.295 U	0.285 U	0.343 R	**0.0614 J**	**1.83 J**	0.311 U	0.373 R	**0.0942 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.542 U	0.622 U	2.5 U	0.591 U	0.57 U	0.685 U	0.626 U	5.67 U	0.622 U	0.746 U	0.578 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 U	0.313 U	2.84 U	0.311 U	0.373 U	0.289 U
Phenol	0.33	0.33	100	0.271 U	0.311 U	1.25 U	0.295 U	0.285 U	0.343 R	0.313 U	**2.27 J**	0.311 U	0.373 R	**0.0782 J**
Total SVOCs	NE	NE	NE	**130.3779**	**52.1648**	**434.78**	**0.9885**	ND	**46.1946**	**52.3567**	**3974.07**	**0.3052**	**50.547**	**71.9756**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-228 (0-5) 8/4/2022	WW-SB-228 (5-10) 8/12/2022	WW-SB-228 (15-20) 8/12/2022	WW-SB-228 (40-45) 8/12/2022	Duplicate of WW-SB-228 (40-45) 8/12/2022	WW-SB-229 (0-5) 7/22/2022	WW-SB-229 (5-10) 7/29/2022	WW-SB-229 (15-20) 8/12/2022	WW-SB-229 (40-45) 8/12/2022	WW-SB-230 (0-5) 7/22/2022	WW-SB-230 (5-8) 7/29/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-228 (0-5) 8/4/2022	WW-SB-228 (5-10) 8/12/2022	WW-SB-228 (15-20) 8/12/2022	WW-SB-228 (40-45) 8/12/2022	Duplicate of WW-SB-228 (40-45) 8/12/2022	WW-SB-229 (0-5) 7/22/2022	WW-SB-229 (5-10) 7/29/2022	WW-SB-229 (15-20) 8/12/2022	WW-SB-229 (40-45) 8/12/2022	WW-SB-230 (0-5) 7/22/2022	WW-SB-230 (5-8) 7/29/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-228 (0-5) 8/4/2022	WW-SB-228 (5-10) 8/12/2022	WW-SB-228 (15-20) 8/12/2022	WW-SB-228 (40-45) 8/12/2022	Duplicate of WW-SB-228 (40-45) 8/12/2022	WW-SB-229 (0-5) 7/22/2022	WW-SB-229 (5-10) 7/29/2022	WW-SB-229 (15-20) 8/12/2022	WW-SB-229 (40-45) 8/12/2022	WW-SB-230 (0-5) 7/22/2022	WW-SB-230 (5-8) 7/29/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.05 U	NA	NA	NA	NA	0.03 U	NA	NA	NA	0.03 U	NA
Aroclor 1248	NE	NE	NE	0.05 U	NA	NA	NA	NA	0.03 U	NA	NA	NA	0.03 U	NA
Aroclor 1254	NE	NE	NE	0.05 U	NA	NA	NA	NA	0.03 U	NA	NA	NA	**0.2**	NA
Aroclor 1260	NE	NE	NE	**0.05 J**	NA	NA	NA	NA	**0.07**	NA	NA	NA	**0.2**	NA
Aroclor 1268	NE	NE	NE	0.05 U	NA	NA	NA	NA	0.03 U	NA	NA	NA	0.03 U	NA
Total PCB Aroclors	0.1	3.2	1	**0.05**	NA	NA	NA	NA	**0.07**	NA	NA	NA	**0.4**	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0016 U	NA	NA	NA	NA	0.0016 U	NA	NA	NA	0.0017 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Chlordane (Technical)	NE	NE	NE	**0.0314 J**	NA	NA	NA	NA	**0.055 J**	NA	NA	NA	**0.0344**	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	**0.0025 J**	NA	NA	NA	NA	**0.0044 J**	NA	NA	NA	**0.0054 J**	NA
gamma-Chlordane	NE	14*	NE	**0.0019 J**	NA	NA	NA	NA	**0.0057 J**	NA	NA	NA	**0.0039**	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	**0.0163 J**	NA	NA	NA	NA	0.0026 U	NA	NA	NA	**0.0057 JN**	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	**0.0018 J**	NA	NA	NA	NA	**0.0022 J**	NA	NA	NA	**0.0013 J**	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Dieldrin	0.005	0.1	0.2	**0.0056 J**	NA	NA	NA	NA	**0.0048 J**	NA	NA	NA	**0.0076 J**	NA
alpha-Endosulfan (I)	2.4	102	24	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
beta-Endosulfan (II)	2.4	102	24	0.0027 UJ	NA	NA	NA	NA	**0.0028 JN**	NA	NA	NA	0.0028 U	NA
Endosulfan sulfate	2.4	1000	24	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Endrin	0.014	0.06	11	**0.0051 J**	NA	NA	NA	NA	**0.0087 J**	NA	NA	NA	0.0028 U	NA
Endrin aldehyde	NE	NE	NE	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Endrin ketone	NE	NE	NE	0.0027 UJ	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Heptachlor	0.042	0.38	2.1	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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Heptachlor epoxide	NE	0.02*	NE	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Hexachlorobenzene	0.33	3.2	1.2	0.0027 U	NA	NA	NA	NA	0.0026 U	NA	NA	NA	0.0028 U	NA
Methoxychlor	NE	900*	NE	0.0027 U	NA	NA	NA	NA	**0.0075 J**	NA	NA	NA	0.0028 U	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.201 U	NA	NA	NA	NA	0.193 U	NA	NA	NA	0.207 U	NA
Dicamba	NE	NE	NE	0.01 U	NA	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA
Dichloroprop	NE	NE	NE	0.201 U	NA	NA	NA	NA	0.193 U	NA	NA	NA	0.207 U	NA
Mecoprop (MCPP)	NE	NE	NE	**4.34 J**	NA	NA	NA	NA	19.3 U	NA	NA	NA	20.7 U	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	19.9 U	NA	NA	NA	NA	19.1 U	NA	NA	NA	20.5 U	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.01 U	NA	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.01 U	NA	NA	NA	NA	**0.001 J**	NA	NA	NA	0.01 U	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**7000**	**7070 J**	**4850 J**	**5520 J**	**4490 J**	**6060**	**7610**	**4630 J**	**3680 J**	**5640**	**4210**
Antimony	NE	NE	NE	2.24 U	2.68 UJ	2.6 UJ	2.57 UJ	2.61 UJ	**8.73**	2.85 U	3.38 UJ	2.07 UJ	2.79 U	2.31 U
Arsenic	13	16	16	**20**	**25.1 J**	**93.6 J**	2.57 U	**0.79 J**	**14.7**	**15.8**	**69.1 J**	**0.87 J**	**7.34**	**6.67**
Barium	350	820	400	**97.4**	**109 J**	**23.1 J**	**39.6 J**	**28.4 J**	**81.6**	**123**	**20.2 J**	**21.6 J**	**72**	**63.5**
Beryllium	7.2	47	72	**0.4 J**	1.18 UJ	**0.22 J**	1.13 UJ	**0.24 J**	**0.31 J**	**0.48 J**	**0.28 J**	0.91 UJ	**0.3 J**	**0.34 J**
Cadmium	2.5	7.5	4.3	1.79 U	2.14 UJ	2.08 UJ	2.05 UJ	2.09 UJ	1.68 U	2.28 U	2.71 UJ	1.66 UJ	2.24 U	1.85 U
Calcium	NE	NE	NE	**21900**	**8830**	**15500**	**10400**	**9330**	**30000**	**14800**	**1300**	**3030**	**36400**	**12500**
Chromium	30	NE	180	**18.8**	**16.9 J**	**17.8 J**	**11.8 J**	**10.6 J**	**14.3**	**21.3**	**3.6 J**	**9.3 J**	**12.9**	**10.1**
Cobalt	NE	NE	NE	**6.18 J**	**4.86 J**	**3.34 J**	**4.65 J**	**4.87 J**	**4.19 J**	**5.46 J**	**11.3 J**	**4.47 J**	**3.52 J**	**2.87 J**
Copper	50	1720	270	**62.9**	**54.2 J**	**39.1 J**	**10.3 J**	**9.37 J**	**41.2**	**72.1**	**10.2 J**	**14.2 J**	**103**	**27.9**
Iron	NE	NE	NE	**15900**	**15300 J**	**22600 J**	**14700 J**	**15700 J**	**14400**	**18000**	**5290 J**	**17900 J**	**11000**	**9850**
Lead	63	450	400	**220**	**243**	**71.8**	**4.6 J**	**5.31 J**	**1030**	**224**	67.7 U	**4.82 J**	**94.6**	**99.6**
Magnesium	NE	NE	NE	**4710 J**	**4060 J**	**7030 J**	**6190 J**	**5090 J**	**6060**	**4980**	**513 J**	**2610 J**	**8760**	**2660**
Manganese	1600	2000	2000	**236**	**261 J**	**346 J**	**312 J**	**447 J**	**183 J**	**237**	**34.4 J**	**822 J**	**150 J**	**150**
Mercury	0.18	0.73	0.81	**2.33**	**0.525 J**	**0.809 J**	0.024 UJ	0.029 UJ	**0.251**	**0.372**	**0.079 J**	0.023 UJ	**0.301**	**0.303**
Nickel	30	130	310	**17.4 J**	**17.3 J**	**13.2 J**	**9.32 J**	**8.39 J**	**13.9 J**	**20.1 J**	**17.9 J**	**7.66 J**	**9.62 J**	**13.5 J**
Potassium	NE	NE	NE	**1640 J**	**1450 J**	**540 J**	**1440 J**	**1050 J**	**1110 J**	**1680 J**	**442 J**	**687 J**	**1140 J**	**856 J**
Selenium	3.9	4	180	2.24 UJ	2.68 UJ	2.6 UJ	2.57 UJ	2.61 UJ	2.09 U	2.85 U	**1.4 J**	2.07 UJ	2.79 U	2.31 U
Silver	2	8.3	180	1.79 U	2.14 UJ	2.08 UJ	2.05 UJ	2.09 UJ	1.68 U	2.28 U	2.71 UJ	1.66 UJ	2.24 U	1.85 U
Sodium	NE	NE	NE	2240 U	**641 J**	**2070 J**	**1080 J**	**986 J**	**494 J**	**660 J**	**1250 J**	**672 J**	2790 U	**405 J**
Thallium	NE	NE	NE	2.24 U	2.68 R	2.6 R	2.57 R	2.61 R	2.09 U	2.85 U	3.38 R	2.07 R	2.79 U	2.31 U
Tin	NE	NE	NE	**9.84 J**	53.6 UJ	52.1 UJ	51.4 UJ	52.2 UJ	41.9 U	57 UJ	67.7 UJ	41.4 UJ	55.9 U	46.2 UJ
Vanadium	NE	NE	NE	**23.8**	**24.6 J**	**11.7 J**	**19.3 J**	**19 J**	**18.3**	**26.3**	**9.13 J**	**17.5 J**	**16.6**	**13.2**
Zinc	109	2480	10000	**269 J**	**314 J**	**47.8 J**	**32.2 J**	**26.9 J**	**191**	**273**	**17.5 J**	**19.9 J**	**134**	**131**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.218 U	0.242 U	0.253 U	0.23 U	0.234 U	0.213 U	0.254 U	0.287 U	0.243 U	0.234 U	0.225 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	**997**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-230 (15-20) 8/11/2022	WW-SB-230 (34-35) 8/11/2022	WW-SB-231 (0-5) 7/21/2022	WW-SB-231 (20-25) 7/28/2022	WW-SB-232 (0-5) 7/20/2022	WW-SB-232 (5-10) 7/27/2022	WW-SB-232 (15-17) 7/27/2022	WW-SB-232 (70-72) 7/28/2022	Duplicate of WW-SB-232 (70-72) 7/28/2022	WW-SB-233 (0.5-5) 8/5/2022	Duplicate of WW-SB-233 (0.5-5) 8/5/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**74.4 J**	0.0018 U	0.0028 UJ	**1140**	**0.0031 J**	**0.0111**	**0.443**	0.0024 U	0.003 U	**0.0034 J**	**0.0025 J**
Toluene	0.7	0.7	100	155 U	0.0018 U	0.0028 UJ	**1720**	**0.0025 J**	**0.0022 J**	**0.332**	0.0024 U	0.003 U	**0.0021 J**	**0.0017 J**
Ethylbenzene	1	1	41	**846**	0.0018 U	0.0028 UJ	**1440**	0.0045 UJ	0.0034 U	**0.57**	0.0024 U	0.003 U	0.0036 U	0.0037 U
o-Xylene	0.26	1.6	100	**366**	0.0018 U	0.0028 UJ	**990**	0.0045 UJ	0.0034 U	**0.226**	0.0024 U	0.003 U	0.0036 U	0.0037 U
m/p-Xylene	0.26	1.6	100	**840**	0.0036 U	0.0057 UJ	**2220**	0.0091 UJ	0.0067 U	**0.589**	0.0048 U	0.006 U	0.0071 U	0.0075 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**2126.4**	ND	ND	**7510**	**0.0056**	**0.0133**	**2.16**	ND	ND	**0.0055**	**0.0042**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	3880 U	0.0181 UJ	**0.142 J**	896 U	**0.13 J**	0.0335 U	3.24 U	0.024 U	0.0302 UJ	**0.0798 J**	**0.0687 J**
n-Butylbenzene	12	12	100	**80.6 J**	0.0018 U	0.0028 UJ	**45.9**	0.0045 UJ	0.0034 U	**0.171**	0.0024 U	0.003 U	0.0036 U	0.0037 U
sec-Butylbenzene	11	11	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	**1.69**	0.0024 U	0.003 U	0.0036 U	0.0037 U
tert-Butylbenzene	5.9	5.9	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	**0.226**	0.0024 U	0.003 U	0.0036 U	0.0037 U
Carbon disulfide	NE	2.7*	NE	155 U	0.0018 U	**0.0123 J**	35.8 U	**0.0042 J**	0.0034 U	**0.0856 J**	0.0024 U	0.003 U	**0.0059**	**0.0067**
Chlorobenzene	1.1	1.1	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Chloroform (Trichloromethane)	0.37	0.37	49	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Cyclohexane	NE	NE	NE	**660**	0.0018 U	0.0028 UJ	**58**	0.0045 UJ	**0.0024 J**	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**71.3 J**	0.0018 U	0.0028 UJ	**20.1 J**	0.0045 UJ	0.0034 U	**0.07 J**	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	930 UJ	0.0018 UJ	0.0028 UJ	215 U	0.0045 UJ	0.0034 UJ	0.778 U	0.0024 U	0.003 UJ	0.0036 UJ	0.0037 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,1-Dichloroethane	0.27	0.27	26	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,1-Dichloroethene	0.33	0.33	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
cis-1,2-Dichloroethene	0.25	0.25	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
trans-1,2-Dichloroethene	0.19	0.19	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,2-Dichloropropane	NE	NE	NE	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Isopropylbenzene	NE	2.3*	NE	**146 J**	0.0018 U	0.0028 UJ	**52.3**	0.0045 UJ	0.0034 U	**1.15**	0.0024 U	0.003 U	0.0036 U	0.0037 U
Methyl acetate	NE	NE	NE	1550 U	0.0018 U	0.0028 UJ	358 U	0.0045 UJ	0.0034 U	1.3 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	3880 U	0.0181 U	0.0283 UJ	896 U	**0.0094 J**	0.0335 U	3.24 U	0.024 U	0.0302 U	0.0356 U	0.0374 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	1550 U	0.0181 U	0.0283 UJ	358 U	0.0453 UJ	0.0335 U	1.3 U	0.024 U	0.0302 U	0.0356 U	0.0374 U
Methylcyclohexane	NE	NE	NE	**1610**	0.0018 U	**0.0013 J**	**106**	0.0045 UJ	**0.0064**	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Methylene chloride	0.05	0.05	100	775 U	0.0091 U	0.0142 UJ	179 U	0.0226 UJ	0.0168 U	0.648 U	**0.0013 J**	0.0151 U	0.0178 U	0.0187 U
Naphthalene	12	12	100	**11500 J**	**0.0027**	**0.0015 J**	**24600**	**0.0061 J**	**0.0013 J**	**3.28**	0.0024 U	0.003 U	**0.0081**	**0.0081**
n-Propylbenzene	3.9	3.9	100	**133 J**	0.0018 U	0.0028 UJ	**76.7**	0.0045 UJ	0.0034 U	**0.752**	0.0024 U	0.003 U	0.0036 U	0.0037 U
Styrene	NE	NE	NE	155 U	0.0018 U	0.0028 UJ	**737**	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Tetrachloroethene (PCE)	1.3	1.3	19	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Tetrahydrofuran	NE	NE	NE	NA	0.0018 U	0.0028 UJ	NA	0.0045 UJ	0.0034 U	NA	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,2,3-Trichlorobenzene	NE	NE	NE	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,1,2-Trichloroethane	NE	NE	NE	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U
Trichloroethene (TCE)	0.47	0.47	21	155 U	0.0018 U	0.0028 UJ	35.8 U	0.0045 UJ	0.0034 U	0.13 U	0.0024 U	0.003 U	0.0036 U	0.0037 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-230 (15-20) 8/11/2022	WW-SB-230 (34-35) 8/11/2022	WW-SB-231 (0-5) 7/21/2022	WW-SB-231 (20-25) 7/28/2022	WW-SB-232 (0-5) 7/20/2022	WW-SB-232 (5-10) 7/27/2022	WW-SB-232 (15-17) 7/27/2022	WW-SB-232 (70-72) 7/28/2022	Duplicate of WW-SB-232 (70-72) 7/28/2022	WW-SB-233 (0.5-5) 8/5/2022	Duplicate of WW-SB-233 (0.5-5) 8/5/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**868**	0.0018 U	0.0028 UJ	**841**	0.0045 UJ	0.0034 U	**0.386**	0.0024 U	0.003 U	0.0036 U	0.0037 U
1,3,5-Trimethylbenzene	8.4	8.4	52	**270**	0.0018 U	0.0028 UJ	**292**	0.0045 UJ	0.0034 U	**0.07 J**	0.0024 U	0.003 U	0.0036 U	0.0037 U
Vinyl chloride	0.02	0.02	0.9	155 U	0.0036 U	0.0057 UJ	35.8 U	0.0091 UJ	0.0067 U	0.13 U	0.0048 U	0.006 U	0.0071 U	0.0075 U
Total VOCs	NE	NE	NE	**17465.3**	**0.0027**	**0.1571**	**34339**	**0.1553**	**0.0234**	**10.0406**	**0.0013**	ND	**0.0993**	**0.0877**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**424**	**0.0432 J**	**0.439**	**198**	**0.445**	**2.11**	**14**	**0.0271 J**	0.301 U	**0.86**	**0.835**
Acenaphthylene	100	107	100	**98**	**0.0177 J**	**3.05**	**1090**	**3.03**	**4.02**	**2.38**	**0.0871 J**	**0.0558 J**	**4.61**	**4.13**
Anthracene	100	1000	100	**489**	**0.0384 J**	**3.14**	**739**	**1.56**	**9.23**	**10.2**	0.294 U	0.301 U	**2.44**	**2.84**
Benzo(a)anthracene	1	1	1	**361**	**0.0357 J**	**6.9**	**564**	**4.61**	**54.4**	**17.7**	0.294 U	0.301 U	**6.92**	**7.34**
Benzo(b)fluoranthene	1	1.7	1	**291**	0.292 U	**6.66**	**225**	**4.94**	**62.7**	**22.5**	0.294 U	0.301 U	**7.98**	**7.41**
Benzo(k)fluoranthene	0.8	1.7	3.9	**87.9**	0.292 U	**5.32**	**235**	**3.76**	**57.3**	**20.8**	0.294 U	0.301 U	**5.95**	**6.19**
Benzo(g,h,i)perylene	100	1000	100	**143**	0.292 U	**4.79**	**159**	**4.93**	**58.6**	**21.5**	0.294 U	0.301 U	**8.13**	**7.86**
Benzo(a)pyrene	1	22	1	**389**	**0.0343 J**	**8.1**	**417**	**7.58**	**92.2**	**41.9**	0.294 U	0.301 U	**12.2**	**11.8**
Chrysene	1	1	3.9	**335**	**0.0268 J**	**6.53**	**467**	**4.43**	**50.8**	**16.6**	0.294 U	0.301 U	**6.35**	**6.59**
Dibenz(a,h)anthracene	0.33	1000	0.33	**39.7 J**	0.292 U	**1.28**	**47**	**0.981**	**19.3**	**6.99**	0.294 U	0.301 U	**1.55**	**1.69**
Fluoranthene	100	1000	100	**701**	**0.06 J**	**10.4**	**1030**	**4.7**	**54.6**	**17.1**	0.294 U	0.301 U	**6.94**	**7.41**
Fluorene	30	386	100	**427**	**0.0416 J**	**0.885**	**761**	**0.412**	**3.01**	**1.24**	**0.0249 J**	0.301 U	**0.678**	**0.729**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**182 J**	0.292 U	**5.54**	**194**	**5.75**	**70.4**	**27.9**	0.294 U	0.301 U	**9.42**	**9.15**
2-Methylnaphthalene	NE	36.4*	NE	**1220**	**0.12 J**	**0.476**	**2290 J**	**0.896**	**2.72**	**1.62**	**0.671**	**0.109 J**	**1**	**1.01**
Naphthalene	12	12	100	**2790**	**0.351**	**0.724**	**5910 J**	**1.64**	**4.61**	**5.4**	**2.95 J**	**0.464 J**	**1.85**	**1.8**
Phenanthrene	100	1000	100	**1490**	**0.132 J**	**8.37**	**2400**	**2.63**	**28.7**	**10.5**	**0.027 J**	**0.0183 J**	**4.63**	**5.15**
Pyrene	100	1000	100	**807**	**0.0702 J**	**11.1**	**1170**	**7.73**	**51.2**	**21.5**	0.294 U	0.301 U	**9.52**	**9.76**
Total PAHs	NE	NE	NE	**10274.6**	**0.9709**	**83.704**	**17896**	**60.024**	**625.9**	**259.83**	**3.7871**	**0.6471**	**91.028**	**91.694**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-230 (15-20) 8/11/2022	WW-SB-230 (34-35) 8/11/2022	WW-SB-231 (0-5) 7/21/2022	WW-SB-231 (20-25) 7/28/2022	WW-SB-232 (0-5) 7/20/2022	WW-SB-232 (5-10) 7/27/2022	WW-SB-232 (15-17) 7/27/2022	WW-SB-232 (70-72) 7/28/2022	Duplicate of WW-SB-232 (70-72) 7/28/2022	WW-SB-233 (0.5-5) 8/5/2022	Duplicate of WW-SB-233 (0.5-5) 8/5/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	2.98 U	0.292 U	**0.058 J**	1.25 U	**0.118 J**	**0.31 J**	0.624 U	0.294 U	0.301 U	**0.171 J**	**0.139 J**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**208**	**0.0199 J**	**0.114**	**289**	**0.143 J**	**0.485**	**0.452**	**0.0434**	0.0301 U	**0.202**	**0.207**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	2.98 U	0.292 U	**0.463**	1.25 U	**0.258 J**	0.589 U	0.624 U	0.294 U	0.301 U	**0.279 J**	**0.189 J**
Butyl benzyl phthalate	NE	122*	NE	2.98 U	0.292 U	0.176 U	1.25 U	0.357 U	0.589 U	0.624 U	0.294 U	0.301 U	0.279 U	0.279 U
Caprolactam	NE	NE	NE	2.98 U	0.292 U	**0.0397 J**	1.25 UJ	0.357 U	**0.362 J**	**5.63**	0.294 U	0.301 U	0.279 U	0.279 U
Carbazole	NE	NE	NE	**84.8**	0.292 U	**0.344**	**165**	**0.205 J**	**3.63**	**2**	0.294 U	0.301 U	**0.48**	**0.533**
2-Chloronaphthalene	NE	NE	NE	2.98 U	0.292 U	0.176 U	1.25 U	0.357 U	0.589 U	0.624 U	0.294 U	0.301 U	0.279 U	0.279 U
Dibenzofuran	7	210, 6.2*	59	**116**	0.292 U	**0.522**	**353**	**0.289 J**	**2**	**1.19**	0.294 U	0.301 U	**0.369**	**0.444**
Diethyl phthalate	NE	7.1*	NE	2.98 U	0.292 U	0.176 U	1.25 U	0.357 U	0.589 U	0.624 U	0.294 U	0.301 U	0.279 U	0.279 U
2,4-Dimethylphenol	NE	NE	NE	2.98 U	0.292 U	**0.0288 J**	**38.6 J**	0.357 R	**0.129 J**	0.624 U	0.294 U	0.301 U	0.279 UJ	0.279 UJ
Di-n-butyl phthalate	NE	8.1*	NE	2.98 U	0.292 U	0.176 U	1.25 U	0.357 U	0.589 U	0.624 U	0.294 U	0.301 U	0.279 U	0.279 U
2,6-Dinitrotoluene	NE	1*	NE	2.98 U	0.292 U	0.176 U	1.25 U	0.357 U	0.589 U	0.624 U	0.294 U	0.301 U	0.279 U	0.279 U
Di-n-octyl phthalate	NE	120*	NE	5.95 U	0.584 U	0.353 U	2.5 U	0.357 U	1.18 U	1.25 U	0.589 U	0.601 U	0.558 U	0.558 U
2-Methylnaphthalene	NE	36.4*	NE	**1220**	**0.12 J**	**0.476**	**2290 J**	**0.896**	**2.72**	**1.62**	**0.671**	**0.109 J**	**1**	**1.01**
2-Methylphenol (o-Cresol)	0.33	0.33	100	2.98 U	0.292 U	**0.0282 J**	**11.4**	0.357 R	**0.0956 J**	0.624 U	0.294 U	0.301 U	**0.0327 J**	**0.0345 J**
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	**2.39 J**	0.292 U	**0.0673 J**	**28.6**	0.715 R	**0.238 J**	0.624 U	0.294 U	0.301 U	**0.0811 J**	**0.0776 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	5.95 U	0.584 U	0.353 U	2.5 U	0.357 U	1.18 U	1.25 U	0.589 U	0.601 U	0.558 U	0.558 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	2.98 U	0.292 U	0.176 U	1.25 U	0.357 U	0.589 U	0.624 U	0.294 U	0.301 U	0.279 U	0.279 U
Phenol	0.33	0.33	100	2.98 U	0.292 U	0.176 R	**23.5**	0.357 R	**0.235 J**	0.624 U	0.294 U	0.301 U	0.279 UJ	0.279 UJ
Total SVOCs	NE	NE	NE	**10685.79**	**0.9908**	**85.369**	**18805.1**	**61.037**	**633.3846**	**269.102**	**3.8305**	**0.6471**	**92.6428**	**93.3181**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-230 (15-20) 8/11/2022	WW-SB-230 (34-35) 8/11/2022	WW-SB-231 (0-5) 7/21/2022	WW-SB-231 (20-25) 7/28/2022	WW-SB-232 (0-5) 7/20/2022	WW-SB-232 (5-10) 7/27/2022	WW-SB-232 (15-17) 7/27/2022	WW-SB-232 (70-72) 7/28/2022	Duplicate of WW-SB-232 (70-72) 7/28/2022	WW-SB-233 (0.5-5) 8/5/2022	Duplicate of WW-SB-233 (0.5-5) 8/5/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

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C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00099 J**	**0.00099 J**
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00021 J**	**0.00025 J**
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	0.03 U	NA	0.05 U	NA	NA	NA	NA	0.06 U	0.05 U
Aroclor 1248	NE	NE	NE	NA	NA	0.03 U	NA	0.05 U	NA	NA	NA	NA	0.06 U	0.05 U
Aroclor 1254	NE	NE	NE	NA	NA	0.03 U	NA	0.05 U	NA	NA	NA	NA	0.06 U	0.05 U
Aroclor 1260	NE	NE	NE	NA	NA	**0.04**	NA	**0.05 J**	NA	NA	NA	NA	**0.07**	**0.06**
Aroclor 1268	NE	NE	NE	NA	NA	0.03 U	NA	0.05 U	NA	NA	NA	NA	0.06 U	0.05 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	**0.04**	NA	**0.05**	NA	NA	NA	NA	**0.07**	**0.06**
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0016 U	NA	0.0016 U	NA	NA	NA	NA	0.0017 U	0.0017 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
Chlordane (Technical)	NE	NE	NE	NA	NA	**0.0516 J**	NA	**0.0428 JN**	NA	NA	NA	NA	**0.0871**	**0.118**
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	**0.0052**	NA	**0.0054**	NA	NA	NA	NA	**0.0079**	**0.0134 J**
gamma-Chlordane	NE	14*	NE	NA	NA	**0.0039**	NA	**0.0048**	NA	NA	NA	NA	**0.0057**	**0.012**
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	**0.0086 J**	NA	**0.0147**	NA	NA	NA	NA	**0.0135**	**0.0137**
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	**0.003 JN**	0.0029 U
Dieldrin	0.005	0.1	0.2	NA	NA	**0.0033 J**	NA	**0.003 JN**	NA	NA	NA	NA	**0.0033 J**	**0.0033 JN**
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	**0.003 J**	NA	**0.0033 JN**	NA	NA	NA	NA	**0.0031 J**	**0.0034 JN**
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
Endrin	0.014	0.06	11	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
Endrin aldehyde	NE	NE	NE	NA	NA	0.0026 U	NA	**0.0034 JN**	NA	NA	NA	NA	0.0028 U	0.0029 U
Endrin ketone	NE	NE	NE	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 UJ	0.0029 UJ
Heptachlor	0.042	0.38	2.1	NA	NA	0.0026 U	NA	**0.001 J**	NA	NA	NA	NA	0.0028 U	0.0029 U

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Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	0.0026 U	NA	0.0027 UJ	NA	NA	NA	NA	0.0028 U	0.0029 U
Methoxychlor	NE	900*	NE	NA	NA	0.0026 U	NA	0.0027 U	NA	NA	NA	NA	0.0028 U	0.0029 U
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.191 UJ	NA	0.192 U	NA	NA	NA	NA	0.207 U	0.198 U
Dicamba	NE	NE	NE	NA	NA	0.01 UJ	NA	0.01 U	NA	NA	NA	NA	0.01 U	0.01 U
Dichloroprop	NE	NE	NE	NA	NA	0.191 UJ	NA	0.192 U	NA	NA	NA	NA	0.207 U	0.198 U
Mecoprop (MCPP)	NE	NE	NE	NA	NA	19.1 UJ	NA	**2.99 J**	NA	NA	NA	NA	**15.1 J**	**10.5 J**
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	18.9 UJ	NA	19 U	NA	NA	NA	NA	20.5 U	19.5 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.01 UJ	NA	0.01 U	NA	NA	NA	NA	0.01 U	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	**0.002 J**	NA	0.01 U	NA	NA	NA	NA	**0.002 J**	**0.002 J**
Metals (mg/kg)														
Aluminum	NE	NE	NE	**6150 J**	**6010 J**	**6670**	**3300**	**5280**	**4950**	**8010**	**2960**	**5740**	**6260**	**6470**
Antimony	NE	NE	NE	3.54 UJ	1.85 UJ	2.54 U	2.99 U	2.45 UJ	2.94 U	2.14 U	2.73 U	2.48 U	2.46 U	2.55 U
Arsenic	13	16	16	**120 J**	**0.72 J**	**9**	**5.79**	**9.68 J**	**28.2**	**46.3**	2.73 U	**0.88 J**	**12.6**	**13.7**
Barium	350	820	400	**28.1 J**	**57.6 J**	**79.2**	**19.5 J**	**74.9**	**50.5**	**34.9**	**44.7**	**105**	**92.6**	**106**
Beryllium	7.2	47	72	1.56 UJ	**0.45 J**	**0.34 J**	**0.28 J**	**0.25 J**	**0.45 J**	**1.42**	**0.29 J**	**0.44 J**	**0.48 J**	**0.42 J**
Cadmium	2.5	7.5	4.3	2.83 UJ	1.48 UJ	2.03 U	2.39 U	1.96 U	2.36 U	1.71 U	2.18 U	1.98 U	1.97 U	2.04 U
Calcium	NE	NE	NE	**1560**	**6790**	**47700**	**1020**	**31200 J**	**11400 J**	**9680 J**	**6880**	**13600**	**31000**	**34400**
Chromium	30	NE	180	**19.3 J**	**16.7 J**	**14.9**	**3.1 J**	**17.3 J**	**11.5 J**	**14.6 J**	**5.31 J**	**10**	**76.4**	**17.1**
Cobalt	NE	NE	NE	**12.1 J**	**7.35 J**	**4.1 J**	**1.1 J**	**4.69 J**	**4.77 J**	**6.66 J**	**1.01 J**	**3.93 J**	**6.55 J**	**10.1 J**
Copper	50	1720	270	**168 J**	**16 J**	**31.5**	**5.71 J**	**55.1 J**	**30.3 J**	**27.6 J**	27.3 U	**9.51 J**	**53.4**	**82**
Iron	NE	NE	NE	**12400 J**	**32500 J**	**12000**	**8800**	**16100 J**	**27200 J**	**25200 J**	**4820**	**10100**	**17900**	**23900**
Lead	63	450	400	**208**	**9.78 J**	**93.6**	**5.89 J**	**137 J**	**91.8 J**	**89.5 J**	54.6 U	**4.72 J**	**169**	**156**
Magnesium	NE	NE	NE	**634 J**	**4340 J**	**7150**	**709**	**6390 J**	**4440 J**	**5340 J**	**3790**	**7500**	**8260 J**	**6480 J**
Manganese	1600	2000	2000	**40.7 J**	**757 J**	**160 J**	**44.9**	**183**	**203**	**253**	**156**	**283**	**228**	**332**
Mercury	0.18	0.73	0.81	**2.18 J**	0.035 UJ	**0.182**	**0.112**	**0.256**	**0.725**	**0.245**	0.035 U	0.034 U	**0.479**	**0.361**
Nickel	30	130	310	**30.6 J**	**11.2 J**	**11.2 J**	**10 J**	**19.4 J**	**9.47 J**	**12.5 J**	**5.34 J**	**11.7 J**	**85.5**	**18.5 J**
Potassium	NE	NE	NE	**531 J**	**1390 J**	**1450 J**	**354 J**	2450 UJ	**887 J**	**1210 J**	**894 J**	**1620 J**	**1370 J**	**1360 J**
Selenium	3.9	4	180	**1.59 J**	1.85 UJ	2.54 U	2.99 U	2.45 U	**2.64 J**	**2.9**	2.73 U	2.48 U	2.46 UJ	2.55 UJ
Silver	2	8.3	180	2.83 UJ	1.48 UJ	2.03 U	2.39 U	1.96 U	2.36 U	1.71 U	2.18 U	1.98 U	1.97 U	2.04 U
Sodium	NE	NE	NE	**475 J**	**607 J**	**760 J**	**1130 J**	2450 U	**642 J**	**1190 J**	**1210 J**	**2090 J**	**588 J**	**626 J**
Thallium	NE	NE	NE	3.54 R	1.85 R	2.54 U	2.99 U	2.45 U	2.94 U	2.14 U	2.73 U	2.48 U	2.46 U	2.55 U
Tin	NE	NE	NE	70.8 UJ	36.9 UJ	50.7 U	59.8 UJ	49.1 UJ	58.9 U	42.8 U	54.6 UJ	49.5 UJ	**44.6 J**	**14 J**
Vanadium	NE	NE	NE	**7.72 J**	**32.6 J**	**16.8**	**6.36 J**	**15.5**	**16.3**	**20.5**	**8.06 J**	**13.5**	**25.9**	**24.1**
Zinc	109	2480	10000	**314 J**	**41.7 J**	**128**	**9.21 J**	**182 J**	**71.5 J**	**43.9 J**	**13.9 J**	**27.9**	**222 J**	**215 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.297 U	0.221 U	0.213 U	0.252 U	0.208 U	0.244 U	0.247 U	0.237 U	0.242 U	0.222 U	0.221 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-230 (15-20) 8/11/2022	WW-SB-230 (34-35) 8/11/2022	WW-SB-231 (0-5) 7/21/2022	WW-SB-231 (20-25) 7/28/2022	WW-SB-232 (0-5) 7/20/2022	WW-SB-232 (5-10) 7/27/2022	WW-SB-232 (15-17) 7/27/2022	WW-SB-232 (70-72) 7/28/2022	Duplicate of WW-SB-232 (70-72) 7/28/2022	WW-SB-233 (0.5-5) 8/5/2022	Duplicate of WW-SB-233 (0.5-5) 8/5/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-230 (15-20) 8/11/2022	WW-SB-230 (34-35) 8/11/2022	WW-SB-231 (0-5) 7/21/2022	WW-SB-231 (20-25) 7/28/2022	WW-SB-232 (0-5) 7/20/2022	WW-SB-232 (5-10) 7/27/2022	WW-SB-232 (15-17) 7/27/2022	WW-SB-232 (70-72) 7/28/2022	Duplicate of WW-SB-232 (70-72) 7/28/2022	WW-SB-233 (0.5-5) 8/5/2022	Duplicate of WW-SB-233 (0.5-5) 8/5/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	**883**	**1040**
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-233 (5-10) 8/10/2022	WW-SB-233 (20-22) 8/10/2022	WW-SB-233 (35-40) 8/10/2022	WW-SB-234 (0-5) 7/20/2022	Duplicate of WW-SB-234 (0-5) 7/20/2022	WW-SB-234 (5-10) 7/26/2022	WW-SB-234 (20-25) 7/26/2022	WW-SB-234 (25-30) 7/26/2022	WW-SB-235 (0-5) 7/20/2022	WW-SB-235 (5-10) 7/26/2022	WW-SB-235 (70-75) 7/26/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0016 J**	**14.3 J**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	**0.0038**	**0.0008 J**	0.0032 U	0.002 U	0.0021 U
Toluene	0.7	0.7	100	**0.0019 J**	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Ethylbenzene	1	1	41	0.0032 U	**320**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
o-Xylene	0.26	1.6	100	0.0032 U	**87.3**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
m/p-Xylene	0.26	1.6	100	0.0064 U	**26.2 J**	0.0052 U	0.007 U	0.0049 UJ	0.0033 U	0.0039 U	0.0041 U	0.0065 U	0.004 U	0.0041 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.0035**	**447.8**	ND	ND	ND	ND	**0.0038**	**0.0008**	ND	ND	ND
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.0532 J**	596 U	0.026 UJ	**0.235 J**	**0.0309 J**	0.0167 U	0.0197 U	**0.0282 J**	**0.0175 J**	0.0198 U	0.0205 U
n-Butylbenzene	12	12	100	0.0032 U	**26.7**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
sec-Butylbenzene	11	11	100	**0.0026 J**	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
tert-Butylbenzene	5.9	5.9	100	**0.0017 J**	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Carbon disulfide	NE	2.7*	NE	**0.0019 J**	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Chlorobenzene	1.1	1.1	100	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Cyclohexane	NE	NE	NE	**0.011**	**26.7**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	**0.0007 J**	**0.0011 J**	0.0032 U	0.002 U	0.0021 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0032 U	**24.3**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0032 UJ	143 UJ	0.0026 UJ	0.0035 UJ	0.0025 UJ	0.0017 UJ	0.002 UJ	0.0021 U	0.0032 UJ	0.002 U	0.0021 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,1-Dichloroethane	0.27	0.27	26	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,1-Dichloroethene	0.33	0.33	100	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,2-Dichloropropane	NE	NE	NE	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Isopropylbenzene	NE	2.3*	NE	**0.0026 J**	**51**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	**0.0021 J**	0.0032 U	0.002 U	0.0021 U
Methyl acetate	NE	NE	NE	0.0032 U	238 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.0055 J**	596 U	0.026 U	0.0348 U	0.0247 UJ	0.0167 U	0.0197 U	**0.004 J**	0.0323 U	0.0198 U	0.0205 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0318 U	238 U	0.026 U	0.0348 U	0.0247 UJ	0.0167 U	0.0197 U	0.0207 U	0.0323 U	0.0198 U	0.0205 U
Methylcyclohexane	NE	NE	NE	**0.0564**	**37.2**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	**0.0006 J**	**0.0066**	0.0032 U	0.002 U	0.0021 U
Methylene chloride	0.05	0.05	100	0.0159 U	119 U	0.013 U	0.0174 U	0.0123 UJ	0.0084 U	0.0098 U	0.0104 U	0.0162 U	0.0099 U	0.0103 U
Naphthalene	12	12	100	**0.0061**	**4320**	**0.0016 J**	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	**0.0007 J**	0.0021 U
n-Propylbenzene	3.9	3.9	100	0.0032 U	**19.1 J**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	**0.0014 J**	0.0032 U	0.002 U	0.0021 U
Styrene	NE	NE	NE	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Tetrahydrofuran	NE	NE	NE	0.0032 U	NA	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,1,2-Trichloroethane	NE	NE	NE	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Trichloroethene (TCE)	0.47	0.47	21	0.0032 U	23.8 U	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-233 (5-10) 8/10/2022	WW-SB-233 (20-22) 8/10/2022	WW-SB-233 (35-40) 8/10/2022	WW-SB-234 (0-5) 7/20/2022	Duplicate of WW-SB-234 (0-5) 7/20/2022	WW-SB-234 (5-10) 7/26/2022	WW-SB-234 (20-25) 7/26/2022	WW-SB-234 (25-30) 7/26/2022	WW-SB-235 (0-5) 7/20/2022	WW-SB-235 (5-10) 7/26/2022	WW-SB-235 (70-75) 7/26/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0032 U	**220**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0032 U	**64.4**	0.0026 U	0.0035 U	0.0025 UJ	0.0017 U	0.002 U	0.0021 U	0.0032 U	0.002 U	0.0021 U
Vinyl chloride	0.02	0.02	0.9	0.0064 U	23.8 U	0.0052 U	0.007 U	0.0049 UJ	0.0033 U	0.0039 U	0.0041 U	0.0065 U	0.004 U	0.0041 U
Total VOCs	NE	NE	NE	**0.1445**	**5237.2**	**0.0016**	**0.235**	**0.0309**	ND	**0.0051**	**0.0442**	**0.0175**	**0.0007**	ND
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.668**	**984**	**0.0256 J**	0.37 U	0.364 U	0.287 U	**0.0291 J**	0.291 U	0.351 U	**0.0201 J**	0.3 U
Acenaphthylene	100	107	100	**1.45**	**76.1**	0.282 U	**0.157 J**	**0.112 J**	**0.0435 J**	0.385 U	0.291 U	**0.137 J**	**0.0597 J**	**0.0314 J**
Anthracene	100	1000	100	**1.33**	**482**	0.282 U	**0.401**	**0.0793 J**	0.287 U	0.385 U	0.291 U	**0.0832 J**	**0.0506 J**	0.3 U
Benzo(a)anthracene	1	1	1	**5.34**	**331**	0.282 U	**1.67**	**0.29 J**	**0.033 J**	**0.0661 J**	0.291 U	**0.292 J**	**0.136 J**	0.3 U
Benzo(b)fluoranthene	1	1.7	1	**6.85**	**143**	0.282 U	**1.37**	**0.334 J**	0.287 U	**0.0536 J**	0.291 U	**0.363**	**0.143 J**	0.3 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**2.52**	**47.8**	0.282 U	**1.23**	**0.323 J**	0.287 U	**0.0532 J**	0.291 U	**0.334 J**	**0.11 J**	0.3 U
Benzo(g,h,i)perylene	100	1000	100	**3.42**	**53.1**	0.282 U	**0.904**	**0.289 J**	0.287 U	**0.0434 J**	0.291 U	**0.365**	**0.123 J**	0.3 U
Benzo(a)pyrene	1	22	1	**6.7**	**258**	0.282 U	**1.73 J**	**0.472 J**	**0.0283 J**	**0.0837 J**	0.291 U	**0.537**	**0.177 J**	0.3 U
Chrysene	1	1	3.9	**5.02**	**289**	0.282 U	**1.55 J**	**0.304 J**	**0.0278 J**	**0.0559 J**	0.291 U	**0.274**	**0.131 J**	0.3 U
Dibenz(a,h)anthracene	0.33	1000	0.33	**1.04**	**18.8**	0.282 U	**0.273**	**0.0951 J**	0.287 U	0.385 U	0.291 U	**0.113 J**	**0.0341 J**	0.3 U
Fluoranthene	100	1000	100	**7.27**	**592**	0.282 U	**2.8 J**	**0.382 J**	**0.028 J**	**0.0459 J**	0.291 U	**0.3 J**	**0.161 J**	0.3 U
Fluorene	30	386	100	**0.793**	**522**	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**4.11**	**69.5 J**	0.282 UJ	**1.2**	**0.366**	0.287 U	**0.0565 J**	0.291 U	**0.493**	**0.137 J**	0.3 U
2-Methylnaphthalene	NE	36.4*	NE	**1.4**	**1270**	**0.036 J**	0.37 U	0.364 U	**0.0297 J**	0.385 U	0.291 U	**0.0768 J**	**0.0264 J**	0.3 U
Naphthalene	12	12	100	**3.36**	**3070**	**0.11 J**	0.37 U	0.364 U	**0.0699 J**	**0.106 J**	**0.029 J**	**0.164 J**	**0.0518 J**	0.3 U
Phenanthrene	100	1000	100	**2.45**	**1300**	**0.0232 J**	**1.03**	**0.197 J**	**0.0269 J**	**0.0572 J**	0.291 U	**0.149 J**	**0.121 J**	0.3 U
Pyrene	100	1000	100	**9.9**	**730**	0.282 U	**2.3 J**	**0.389 J**	**0.045 J**	**0.0484 J**	0.291 U	**0.31 J**	**0.162 J**	0.3 U
Total PAHs	NE	NE	NE	**63.621**	**10236.3**	**0.1948**	**16.615**	**3.6324**	**0.3321**	**0.699**	**0.029**	**3.991**	**1.6437**	**0.0314**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-233 (5-10) 8/10/2022	WW-SB-233 (20-22) 8/10/2022	WW-SB-233 (35-40) 8/10/2022	WW-SB-234 (0-5) 7/20/2022	Duplicate of WW-SB-234 (0-5) 7/20/2022	WW-SB-234 (5-10) 7/26/2022	WW-SB-234 (20-25) 7/26/2022	WW-SB-234 (25-30) 7/26/2022	WW-SB-235 (0-5) 7/20/2022	WW-SB-235 (5-10) 7/26/2022	WW-SB-235 (70-75) 7/26/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	**0.0894 J**	3.07 U	0.282 U	0.741 U	0.73 U	0.287 U	0.385 U	0.291 U	0.704 U	0.267 U	0.3 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.0311 U	**137**	0.0282 U	0.37 U	0.364 U	0.0287 U	0.0385 U	0.0291 U	0.351 U	0.0267 U	0.03 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Butyl benzyl phthalate	NE	122*	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Caprolactam	NE	NE	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Carbazole	NE	NE	NE	**0.262 J**	**32.2**	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	**0.0211 J**	0.3 U
2-Chloronaphthalene	NE	NE	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Dibenzofuran	7	210, 6.2*	59	**0.21 J**	**82.8**	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Diethyl phthalate	NE	7.1*	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
2,4-Dimethylphenol	NE	NE	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Di-n-butyl phthalate	NE	8.1*	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
2,6-Dinitrotoluene	NE	1*	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Di-n-octyl phthalate	NE	120*	NE	0.623 U	6.14 U	0.564 U	0.37 U	0.364 U	0.574 U	0.771 U	0.582 U	0.351 U	**0.0488 J**	0.6 U
2-Methylnaphthalene	NE	36.4*	NE	**1.4**	**1270**	**0.036 J**	0.37 U	0.364 U	**0.0297 J**	0.385 U	0.291 U	**0.0768 J**	**0.0264 J**	0.3 U
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.311 U	**0.975 J**	0.282 U	0.741 U	0.73 U	0.287 U	0.385 U	0.291 U	0.704 U	0.267 U	0.3 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.623 U	6.14 U	0.564 U	0.37 U	0.364 U	0.574 U	0.771 U	0.582 U	0.351 U	0.534 U	0.6 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Phenol	0.33	0.33	100	0.311 U	3.07 U	0.282 U	0.37 U	0.364 U	0.287 U	0.385 U	0.291 U	0.351 U	0.267 U	0.3 U
Total SVOCs	NE	NE	NE	**64.1824**	**10489.275**	**0.1948**	**16.615**	**3.6324**	**0.3321**	**0.699**	**0.029**	**3.991**	**1.7136**	**0.0314**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-233 (5-10) 8/10/2022	WW-SB-233 (20-22) 8/10/2022	WW-SB-233 (35-40) 8/10/2022	WW-SB-234 (0-5) 7/20/2022	Duplicate of WW-SB-234 (0-5) 7/20/2022	WW-SB-234 (5-10) 7/26/2022	WW-SB-234 (20-25) 7/26/2022	WW-SB-234 (25-30) 7/26/2022	WW-SB-235 (0-5) 7/20/2022	WW-SB-235 (5-10) 7/26/2022	WW-SB-235 (70-75) 7/26/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-233 (5-10) 8/10/2022	WW-SB-233 (20-22) 8/10/2022	WW-SB-233 (35-40) 8/10/2022	WW-SB-234 (0-5) 7/20/2022	Duplicate of WW-SB-234 (0-5) 7/20/2022	WW-SB-234 (5-10) 7/26/2022	WW-SB-234 (20-25) 7/26/2022	WW-SB-234 (25-30) 7/26/2022	WW-SB-235 (0-5) 7/20/2022	WW-SB-235 (5-10) 7/26/2022	WW-SB-235 (70-75) 7/26/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	0.05 U	0.05 U	NA	NA	NA	0.05 U	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	ND	ND	NA	NA	NA	ND	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.0016 U	0.0016 U	NA	NA	NA	0.0015 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	**0.0153 J**	**0.015 J**	NA	NA	NA	0.0305 U	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	**0.0023 J**	**0.002 J**	NA	NA	NA	**0.0012 J**	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	**0.0017 J**	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	**0.0048**	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	**0.0113 J**	**0.008 J**	NA	NA	NA	**0.0078 J**	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Endrin	0.014	0.06	11	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
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Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	0.0027 UJ	0.0026 UJ	NA	NA	NA	0.0025 U	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	0.0027 U	0.0026 U	NA	NA	NA	0.0025 U	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.187 U	0.187 U	NA	NA	NA	0.188 U	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	0.009 U	0.009 U	NA	NA	NA	0.009 U	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	0.187 U	0.187 U	NA	NA	NA	0.188 U	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	18.7 U	18.7 U	NA	NA	NA	18.8 U	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	18.5 U	18.5 U	NA	NA	NA	18.6 U	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.009 U	0.009 U	NA	NA	NA	0.009 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.009 U	0.009 U	NA	NA	NA	0.009 U	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**7530 J**	**7090 J**	**3720 J**	**5380**	**4480**	**5980**	**22400**	**4640**	**2510**	**4900**	**4340**
Antimony	NE	NE	NE	2.55 UJ	3.6 UJ	2.76 UJ	2.25 UJ	2.24 UJ	2.8 U	3.48 U	2.82 U	2.4 U	2.56 U	2.7 U
Arsenic	13	16	16	**65.5 J**	**17 J**	**4.21 J**	**1.76 J**	**1.63 J**	**0.9 J**	**3.86**	2.82 U	**1.66 J**	**2.21 J**	**0.89 J**
Barium	350	820	400	**119 J**	**305 J**	**14.1 J**	**52**	**41.2**	**43.4**	**167**	**44.5**	**19.7 J**	**29.2**	**38.9**
Beryllium	7.2	47	72	**0.71 J**	**0.84 J**	**0.39 J**	**0.26 J**	**0.23 J**	**0.34 J**	**0.93 J**	**0.81 J**	**0.22 J**	**0.22 J**	**0.4 J**
Cadmium	2.5	7.5	4.3	2.04 UJ	2.88 UJ	2.21 UJ	1.8 U	1.79 U	2.24 U	2.79 U	2.26 U	1.92 U	2.04 U	2.16 U
Calcium	NE	NE	NE	**4820 J**	**7490 J**	**3650 J**	**9870 J**	**15300 J**	**1870 J**	**2050 J**	**5340 J**	**11600 J**	**5690 J**	**10700 J**
Chromium	30	NE	180	**22 J**	**9.67 J**	**9.44 J**	**13.4 J**	**10.5 J**	**10.2 J**	**45.5 J**	**8.04 J**	**6.15 J**	**7.99 J**	**6.35 J**
Cobalt	NE	NE	NE	**27.4 J**	**8.17 J**	**4.8 J**	**3.54 J**	**2.84 J**	**2.39 J**	**16**	**8.75 J**	**1.56 J**	**3.03 J**	**3.29 J**
Copper	50	1720	270	**249 J**	**51.3 J**	27.6 UJ	**16.5 J**	**10.3 J**	28 UJ	**24.5 J**	28.2 UJ	**6.13 J**	**10.2 J**	**5.56 J**
Iron	NE	NE	NE	**23200 J**	**19100 J**	**28900 J**	**9540 J**	**8040 J**	**9540 J**	**39100 J**	**61500 J**	**5000 J**	**10200 J**	**9600 J**
Lead	63	450	400	**878 J**	**428 J**	55.3 UJ	**40.3 J**	**27.8 J**	**3.07 J**	**63.6 J**	**8.89 J**	**20.6 J**	**33.7 J**	54.1 UJ
Magnesium	NE	NE	NE	**2110 J**	**1250 J**	**2080 J**	**4160 J**	**6780 J**	**3330 J**	**9280 J**	**4880 J**	**6650 J**	**3000 J**	**5420 J**
Manganese	1600	2000	2000	**189 J**	**189 J**	**364 J**	**169**	**136**	**140**	**283**	**4330**	**87.5**	**169**	**212**
Mercury	0.18	0.73	0.81	**0.317 J**	**0.453 J**	0.025 UJ	**0.071**	**0.075**	0.033 U	**0.023 J**	0.035 U	**0.049**	**0.031 J**	0.038 U
Nickel	30	130	310	**35 J**	**14.7 J**	**4.64 J**	**14.3 J**	**11.5 J**	**4.73 J**	**25.5 J**	**9.42 J**	**13.7 J**	**6.8 J**	**7.63 J**
Potassium	NE	NE	NE	**985 J**	**723 J**	**365 J**	2250 UJ	2240 UJ	**2250 J**	**7260 J**	**1450 J**	**701 J**	**1320 J**	**1200 J**
Selenium	3.9	4	180	**3.49 J**	**1.64 J**	2.76 UJ	2.25 U	2.24 U	**1.01 J**	**1.25 J**	**0.98 J**	**0.66 J**	**0.96 J**	**1.01 J**
Silver	2	8.3	180	2.04 U	2.88 U	2.21 U	1.8 U	1.79 U	2.24 U	2.79 U	2.26 U	1.92 U	2.04 U	2.16 U
Sodium	NE	NE	NE	**553 J**	**1580 J**	**266 J**	2250 U	2240 U	**241 J**	**1110 J**	**831 J**	**144 J**	**167 J**	**1410 J**
Thallium	NE	NE	NE	2.55 UJ	3.6 UJ	2.76 UJ	**0.45 J**	2.24 U	2.8 U	3.48 U	2.82 U	2.4 U	2.56 U	2.7 U
Tin	NE	NE	NE	**35.6 J**	**26.4 J**	55.3 UJ	45 UJ	44.9 UJ	56 U	69.7 U	56.5 U	48.1 U	51.1 U	54.1 U
Vanadium	NE	NE	NE	**17.2 J**	**22.7 J**	**19.5 J**	**14**	**11.6**	**15.3**	**67.8**	**20.8**	**5.96 J**	**10.8**	**10.2 J**
Zinc	109	2480	10000	**60.4 J**	**301 J**	**15.9 J**	**67.6 J**	**45.3 J**	**22.8 J**	**81.3 J**	**51.8 J**	**35.5 J**	**44.6 J**	**24 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.239 U	0.311 U	0.236 U	0.209 U	0.205 U	0.231 U	0.31 U	0.24 U	0.212 U	0.216 U	0.242 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-233 (5-10) 8/10/2022	WW-SB-233 (20-22) 8/10/2022	WW-SB-233 (35-40) 8/10/2022	WW-SB-234 (0-5) 7/20/2022	Duplicate of WW-SB-234 (0-5) 7/20/2022	WW-SB-234 (5-10) 7/26/2022	WW-SB-234 (20-25) 7/26/2022	WW-SB-234 (25-30) 7/26/2022	WW-SB-235 (0-5) 7/20/2022	WW-SB-235 (5-10) 7/26/2022	WW-SB-235 (70-75) 7/26/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	**94.7 J**	**282 J**	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0018 J**	**0.0148**	0.0032 U	0.003 U	**0.267**	**0.013**	**0.0016 J**	**0.022**	0.0029 U	**0.203**	0.0029 U
Toluene	0.7	0.7	100	**0.0012 J**	**0.0035**	0.0032 U	0.003 U	**0.061 J**	0.0026 U	0.0039 U	**0.0076**	0.0029 U	0.0029 U	0.0029 U
Ethylbenzene	1	1	41	0.0035 U	**4.44**	0.0032 U	0.003 U	**31.4**	**0.031**	0.0039 U	**0.0012 J**	0.0029 U	**0.0014 J**	0.0029 U
o-Xylene	0.26	1.6	100	0.0035 U	**1.34**	0.0032 U	0.003 U	**14.7**	**0.0172**	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
m/p-Xylene	0.26	1.6	100	0.007 U	**0.0853**	0.0064 U	0.0061 U	**12**	**0.004 J**	0.0077 U	0.0063 U	0.0058 U	0.0058 U	0.0058 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.003**	**5.8836**	ND	ND	**58.428**	**0.0652**	**0.0016**	**0.0308**	ND	**0.2044**	ND
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.228 J**	**0.0264**	**0.008 J**	0.0305 U	4.76 U	**0.0052 J**	0.0385 U	**0.115**	**0.0144 J**	0.0291 U	**0.0072 J**
n-Butylbenzene	12	12	100	0.0035 UJ	**0.825**	0.0032 U	0.003 U	**11**	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
sec-Butylbenzene	11	11	100	0.0035 UJ	**0.0167**	0.0032 U	0.003 U	**0.533**	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
tert-Butylbenzene	5.9	5.9	100	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Carbon disulfide	NE	2.7*	NE	0.0035 UJ	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Chlorobenzene	1.1	1.1	100	0.0035 UJ	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Cyclohexane	NE	NE	NE	0.0035 U	**0.0202**	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0035 UJ	**0.925**	0.0032 U	0.003 U	**7.71**	0.0026 U	0.0039 U	**0.0761**	**0.0019 J**	0.0029 U	0.0029 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0035 UJ	0.0025 U	0.0032 UJ	0.003 U	1.14 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0035 UJ	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0035 UJ	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,1-Dichloroethane	0.27	0.27	26	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,1-Dichloroethene	0.33	0.33	100	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0035 U	0.0025 U	**0.0038**	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	**0.0014 J**	0.0029 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,2-Dichloropropane	NE	NE	NE	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Isopropylbenzene	NE	2.3*	NE	0.0035 U	**1.03**	0.0032 U	0.003 U	**7.98**	**0.0022 J**	0.0039 U	0.0031 U	0.0029 U	**0.0046**	0.0029 U
Methyl acetate	NE	NE	NE	0.0035 U	0.0025 U	0.0032 U	0.003 U	1.9 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0352 U	0.025 U	0.032 U	0.0305 U	4.76 U	0.0262 U	0.0385 U	**0.0096 J**	0.0292 U	0.0291 U	0.0288 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0352 U	0.025 U	0.032 U	0.0305 U	1.9 U	0.0262 U	0.0385 U	0.0313 U	0.0292 U	0.0291 U	0.0288 U
Methylcyclohexane	NE	NE	NE	0.0035 UJ	**0.0568**	0.0032 U	0.003 U	**0.16 J**	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Methylene chloride	0.05	0.05	100	0.0176 U	**0.002 J**	0.016 U	0.0152 U	**0.145 J**	0.0131 U	0.0193 U	0.0156 U	0.0146 U	0.0145 U	0.0144 U
Naphthalene	12	12	100	**0.0068 J**	**96.4**	0.0032 U	0.003 U	**891**	**0.642**	0.0039 U	**0.0012 J**	0.0029 U	**0.0069**	0.0029 U
n-Propylbenzene	3.9	3.9	100	0.0035 U	**0.593**	0.0032 U	0.003 U	**4.19**	**0.0007 J**	0.0039 U	0.0031 U	0.0029 U	**0.0011 J**	0.0029 U
Styrene	NE	NE	NE	0.0035 UJ	**0.0015 J**	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0035 UJ	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 UJ	0.0039 U	0.0031 UJ	0.0029 UJ	0.0029 UJ	0.0029 U
Tetrahydrofuran	NE	NE	NE	0.0035 U	0.0025 U	0.0032 U	0.003 U	NA	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0035 UJ	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
1,1,2-Trichloroethane	NE	NE	NE	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Trichloroethene (TCE)	0.47	0.47	21	0.0035 U	0.0025 U	0.0032 U	0.003 U	0.19 U	0.0026 U	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	0.0035 U	**4.96**	0.0032 U	0.003 U	**56**	**0.0161**	0.0039 U	0.0031 U	0.0029 U	**0.0018 J**	0.0029 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0035 U	**1.03**	0.0032 U	0.003 U	**19.1**	**0.0036**	0.0039 U	0.0031 U	0.0029 U	0.0029 U	0.0029 U
Vinyl chloride	0.02	0.02	0.9	0.007 UJ	0.005 U	0.0064 U	0.0061 U	0.19 U	0.0052 U	0.0077 U	0.0063 U	0.0058 U	0.0058 U	0.0058 U
Total VOCs	NE	NE	NE	**0.2378**	**111.7702**	**0.0118**	ND	**1056.246**	**0.735**	**0.0016**	**0.2327**	**0.0163**	**0.2202**	**0.0072**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**0.518 J**	**7.74**	0.42 U	0.73 U	**88.3**	0.392 U	**0.57 J**	0.817 U	0.417 U	0.382 U	0.714 U
Acenaphthylene	100	107	100	**1.91**	**2.34**	0.42 U	**1.2**	**9.12**	0.392 U	**2.07**	**0.33 J**	0.417 U	0.382 U	0.714 U
Anthracene	100	1000	100	**2.68 J**	**5.24**	0.42 U	**0.536 J**	**48.9**	0.392 U	**2.38**	**0.325 J**	0.417 U	0.382 U	**0.141 J**
Benzo(a)anthracene	1	1	1	**4.35 J**	**4.03**	0.42 U	**2.28**	**32.1**	0.392 U	**5.47**	**1.03**	0.417 U	0.382 U	**0.482 J**
Benzo(b)fluoranthene	1	1.7	1	**3.9**	**1.29**	0.42 U	**2.59**	**8.66**	0.392 U	**4.68**	**0.95**	0.417 U	0.382 U	**0.43 J**
Benzo(k)fluoranthene	0.8	1.7	3.9	**2.8**	**1.32**	0.42 U	**2.04**	**7.9**	0.392 U	**3.8**	**0.868**	0.417 U	0.382 U	**0.481 J**
Benzo(g,h,i)perylene	100	1000	100	**2.8**	**0.887**	0.42 U	**2.91**	**4.76**	0.392 U	**3.57**	**0.747 J**	0.417 U	0.382 U	**0.387 J**
Benzo(a)pyrene	1	22	1	**4.55**	**2.97**	0.211 U	**3.66**	**22.1**	0.196 U	**5.6**	**1.27**	**0.0694 J**	0.192 U	**0.548**
Chrysene	1	1	3.9	**4.07 J**	**3.71**	0.211 U	**2.32**	**30.4**	0.196 U	**5.16**	**1.01**	0.209 U	0.192 U	**0.502**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.669**	**0.29**	0.211 U	**0.643**	**1.66**	0.196 U	**0.955**	**0.202 J**	0.209 U	0.192 U	**0.114 J**
Fluoranthene	100	1000	100	**8.6 J**	**6.82**	0.42 U	**2.45**	**54.2**	0.392 U	**9.29**	**1.4**	0.417 U	0.382 U	**0.86**
Fluorene	30	386	100	**0.594 J**	**5.63**	0.42 U	0.73 U	**55.7**	0.392 U	**0.591 J**	0.817 U	0.417 U	0.382 U	0.714 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**3.32**	**0.989**	0.42 U	**3.09**	**5.24**	0.392 U	**4.47**	**0.845**	0.417 U	0.382 U	**0.458 J**
2-Methylnaphthalene	NE	36.4*	NE	**0.416 J**	**11.5**	0.42 U	**0.323 J**	**321**	0.392 U	**0.797**	**0.193 J**	0.417 U	0.382 U	0.714 U
Naphthalene	12	12	100	**0.612 J**	**18**	0.42 U	**0.631 J**	**418**	**0.225 J**	**1.4**	**0.452 J**	0.417 U	0.382 U	0.714 U
Phenanthrene	100	1000	100	**4.81 J**	**23.2**	0.42 U	**1.43**	**209**	0.392 U	**7.06**	**0.962**	0.417 U	0.382 U	**0.374 J**
Pyrene	100	1000	100	**8.9 J**	**10.4**	0.42 U	**4.28**	**82.2**	0.392 U	**9.86**	**1.9**	0.417 U	0.382 U	**0.832**
Total PAHs	NE	NE	NE	**55.499**	**106.356**	ND	**30.383**	**1399.24**	**0.225**	**67.723**	**12.484**	**0.0694**	ND	**5.609**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	1.38 U	0.796 U	0.842 U	1.46 U	0.825 U	0.784 U	1.46 U	1.64 U	0.835 U	0.766 U	1.43 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.691 U	**1.4**	0.42 U	0.73 U	**21**	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.24 J**	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Butyl benzyl phthalate	NE	122*	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Caprolactam	NE	NE	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Carbazole	NE	NE	NE	**0.452 J**	0.398 U	0.42 U	0.73 U	**1.31**	0.392 U	**0.7 J**	0.817 U	0.417 U	0.382 U	0.714 U
2-Chloronaphthalene	NE	NE	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Dibenzofuran	7	210, 6.2*	59	**0.247 J**	**0.874**	0.42 U	0.73 U	**4.27**	0.392 U	**0.465 J**	0.817 U	0.417 U	0.382 U	0.714 U
Diethyl phthalate	NE	7.1*	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
2,4-Dimethylphenol	NE	NE	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Di-n-butyl phthalate	NE	8.1*	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
2,6-Dinitrotoluene	NE	1*	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Di-n-octyl phthalate	NE	120*	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
2-Methylnaphthalene	NE	36.4*	NE	**0.416 J**	**11.5**	0.42 U	**0.323 J**	**321**	0.392 U	**0.797**	**0.193 J**	0.417 U	0.382 U	0.714 U
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	1.38 U	0.796 U	0.842 U	1.46 U	0.825 U	0.784 U	1.46 U	1.64 U	0.835 U	0.766 U	1.43 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Phenol	0.33	0.33	100	0.691 U	0.398 U	0.42 U	0.73 U	0.412 U	0.392 U	0.73 U	0.817 U	0.417 U	0.382 U	0.714 U
Total SVOCs	NE	NE	NE	**56.438**	**108.63**	ND	**30.383**	**1425.82**	**0.225**	**68.888**	**12.484**	**0.0694**	ND	**5.609**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.001 U
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	**0.00032 J**	NA	NA	NA	NA	NA	NA	0.001 U
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	**0.0014**	NA	NA	NA	NA	NA	NA	**0.0016**
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.001 U
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	**0.6**	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	NA	0.05 U
Aroclor 1248	NE	NE	NE	0.05 U	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	NA	0.05 U
Aroclor 1254	NE	NE	NE	**1.2 J**	NA	NA	**1.3 J**	NA	NA	**0.9**	NA	NA	NA	0.05 U
Aroclor 1260	NE	NE	NE	**0.5**	NA	NA	**0.3 J**	NA	NA	**0.6 J**	NA	NA	NA	**0.2 J**
Aroclor 1268	NE	NE	NE	0.05 U	NA	NA	0.06 U	NA	NA	0.06 U	NA	NA	NA	0.05 U
Total PCB Aroclors	0.1	3.2	1	**2.3**	NA	NA	**1.6**	NA	NA	**1.5**	NA	NA	NA	**0.2**
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0016 U	NA	NA	0.0018 U	NA	NA	0.0017 U	NA	NA	NA	0.0016 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Chlordane (Technical)	NE	NE	NE	**0.702 JN**	NA	NA	**0.102 J**	NA	NA	**0.094 J**	NA	NA	NA	**0.393 J**
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	**0.134**	NA	NA	**0.012**	NA	NA	**0.0132**	NA	NA	NA	**0.0664 J**
gamma-Chlordane	NE	14*	NE	**0.135 J**	NA	NA	**0.0107 J**	NA	NA	**0.0079 J**	NA	NA	NA	**0.0471**
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	**0.0135 JN**
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0027 U	NA	NA	**0.0048 JN**	NA	NA	**0.0084 JN**	NA	NA	NA	**0.0045 J**
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0027 R	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Dieldrin	0.005	0.1	0.2	**0.0227 JN**	NA	NA	**0.0222**	NA	NA	**0.0233 JN**	NA	NA	NA	**0.0256 J**
alpha-Endosulfan (I)	2.4	102	24	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
beta-Endosulfan (II)	2.4	102	24	0.0027 UJ	NA	NA	0.003 UJ	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Endosulfan sulfate	2.4	1000	24	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Endrin	0.014	0.06	11	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Endrin aldehyde	NE	NE	NE	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Endrin ketone	NE	NE	NE	0.0027 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Heptachlor	0.042	0.38	2.1	**0.008 J**	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	**0.0071**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
Heptachlor epoxide	NE	0.02*	NE	0.0027 R	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	**0.003 JN**
Hexachlorobenzene	0.33	3.2	1.2	0.0027 UJ	NA	NA	0.003 U	NA	NA	**0.0011 J**	NA	NA	NA	0.0026 U
Methoxychlor	NE	900*	NE	0.0136 U	NA	NA	0.003 U	NA	NA	0.0029 U	NA	NA	NA	0.0026 U
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.192 U	NA	NA	0.207 U	NA	NA	0.201 U	NA	NA	NA	0.194 U
Dicamba	NE	NE	NE	0.01 U	NA	NA	0.01 U	NA	NA	0.01 U	NA	NA	NA	0.01 U
Dichloroprop	NE	NE	NE	0.192 U	NA	NA	0.207 U	NA	NA	0.201 U	NA	NA	NA	0.194 U
Mecoprop (MCPP)	NE	NE	NE	19.2 U	NA	NA	20.7 U	NA	NA	20.1 U	NA	NA	NA	19.4 U
Methylchlorophenoxyacetic acid	NE	NE	NE	19 U	NA	NA	20.5 U	NA	NA	19.9 U	NA	NA	NA	19.1 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.01 U	NA	NA	0.01 U	NA	NA	0.01 U	NA	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	0.01 U	NA	NA	**0.001 J**	NA	NA	**0.002 J**	NA	NA	NA	0.01 U
Metals (mg/kg)														
Aluminum	NE	NE	NE	**5530 J**	**6160**	**3250**	**6920**	**5360**	**4990**	**6690**	**2790**	**6580**	**3000**	**5550**
Antimony	NE	NE	NE	**2.48 J**	2.47 UJ	2.16 UJ	**5.45**	1.95 U	2.53 U	**4.13**	**0.58 J**	2.1 U	2.28 U	2.33 U
Arsenic	13	16	16	**10.6 J**	**1.38 J**	2.16 UJ	**33.4**	**1.46 J**	**1.01 J**	**14**	**45.8**	**1.69 J**	2.28 U	**3.41**
Barium	350	820	400	**234 J**	**33.6**	**22.8**	**351**	**21.3**	**39.5**	**369**	**52.4**	**34**	**23.4**	**58.9**
Beryllium	7.2	47	72	**0.32 J**	**0.41 J**	**0.19 J**	**0.3 J**	**0.33 J**	**0.41 J**	**0.58 J**	0.84 U	**0.41 J**	**0.29 J**	**0.26 J**
Cadmium	2.5	7.5	4.3	**3.43 J**	1.98 U	1.72 U	**5.78 J**	1.56 U	2.02 U	**5.68**	**0.82 J**	1.68 U	1.83 U	**0.66 J**
Calcium	NE	NE	NE	**13200 J**	**1110 J**	**756 J**	**16700 J**	**665**	**748**	**27200 J**	**15500**	**1350**	**665**	**45100 J**
Chromium	30	NE	180	**48.7 J**	**19.4 J**	**6.11 J**	**46.2**	**10.7**	**11.7**	**42.9**	**18.5**	**11.6**	**6.26 J**	**18.2**
Cobalt	NE	NE	NE	**5.35 J**	**6 J**	**2.73 J**	**10.9 J**	**3.84 J**	**3.26 J**	**7.32 J**	**12.2**	**5.94 J**	**2.15 J**	**3.85 J**
Copper	50	1720	270	**198 J**	**9.78 J**	**4.54 J**	**851**	**8.32 J**	**9.76 J**	**346**	**75.9**	**10.2 J**	**5.46 J**	**40.3**
Iron	NE	NE	NE	**19000 J**	**22000 J**	**8250 J**	**37400 J**	**12600**	**15000**	**29300**	**76900**	**13900**	**9420**	**11000**
Lead	63	450	400	**519 J**	**6.22 J**	43.1 UJ	**972**	**6.16 J**	**4.46 J**	**935**	**281**	**14 J**	45.6 U	**119**
Magnesium	NE	NE	NE	**3040 J**	**1870 J**	**1670 J**	**3740 J**	**1800**	**1960**	**4040**	**6410**	**2380**	**1240**	**17700**
Manganese	1600	2000	2000	**263 J**	**475**	**53.3**	**404**	**194**	**92.2**	**298**	**515**	**308**	**43.2**	**193**
Mercury	0.18	0.73	0.81	**2.35**	0.028 U	0.032 U	**1.68**	**0.068**	**0.012 J**	**2.07**	**0.586**	**0.013 J**	0.031 U	**0.378**
Nickel	30	130	310	**27.2 J**	**11 J**	**6.27 J**	**63.1**	**9.53 J**	**7.29 J**	**52.8**	**19.3**	**11.1 J**	**4.8 J**	**40**
Potassium	NE	NE	NE	**593 J**	2470 UJ	2160 UJ	**744 J**	**726 J**	**1730 J**	**850 J**	**371 J**	**851 J**	**640 J**	**772 J**
Selenium	3.9	4	180	**0.69 J**	2.47 U	2.16 U	**1.22 J**	1.95 U	2.53 U	**1.89 J**	**0.92 J**	2.1 U	2.28 U	2.33 U
Silver	2	8.3	180	1.82 U	1.98 U	1.72 U	**1.48 J**	1.56 U	2.02 U	**2.06**	1.53 U	1.68 U	1.83 U	1.87 U
Sodium	NE	NE	NE	2280 UJ	2470 U	2160 U	**249 J**	1950 U	**121 J**	**362 J**	**139 J**	**159 J**	**161 J**	**315 J**
Thallium	NE	NE	NE	2.28 UJ	2.47 U	2.16 U	**0.87 J**	1.95 U	2.53 U	2.55 U	1.91 U	2.1 U	2.28 U	2.33 U
Tin	NE	NE	NE	45.6 UJ	49.5 UJ	43.1 UJ	57 U	39 UJ	50.6 UJ	**107**	38.2 UJ	42 UJ	45.6 UJ	46.7 U
Vanadium	NE	NE	NE	**20 J**	**25.2**	**7.39 J**	**50.5**	**17.3**	**21.3**	**26.2**	**35.6**	**19.2**	**9.09 J**	**20.9**
Zinc	109	2480	10000	**974 J**	**39 J**	**25.6 J**	**2320**	**20.8**	**26**	**2100 J**	**277**	**29.1**	**13 J**	**110 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.212 U	0.235 U	0.243 U	0.227 U	0.239 U	0.233 U	0.225 U	0.253 U	0.252 U	0.235 U	0.208 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-236 (0-5) 7/19/2022	WW-SB-236 (15-16) 7/20/2022	WW-SB-236 (39-40) 7/20/2022	SB-237 (0.5-5) 7/12/2022	WW-SB-237 (17-19) 7/14/2022	WW-SB-237 (23-25) 7/14/2022	SB-238 (0.4-5) 7/12/2022	WW-SB-238 (6-9) 7/14/2022	WW-SB-238 (11-13) 7/14/2022	WW-SB-238 (28-30) 7/14/2022	SB-239 (0.5-2) 7/11/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1350**	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0017 J**	0.0087 U	0.0035 U	**0.484**	0.003 U	0.0043 U	**5.67**	0.0033 U	**1.58**	**0.54**	**4.23**
Toluene	0.7	0.7	100	0.0033 U	0.0087 U	0.0035 U	**9.42**	0.003 U	0.0043 U	**42.8**	0.0033 U	0.0136 U	0.337 U	0.503 U
Ethylbenzene	1	1	41	**0.0064**	0.0087 U	0.0035 U	**62.1**	0.003 U	0.0043 U	**54.5**	0.0033 U	**1.77**	**0.524**	**11.1**
o-Xylene	0.26	1.6	100	**0.0019 J**	0.0087 U	0.0035 U	**27.2**	0.003 U	0.0043 U	**32.3**	0.0033 U	**0.0304 J**	**0.297 J**	**1.66**
m/p-Xylene	0.26	1.6	100	0.0066 U	0.0175 U	0.007 U	**53.7**	0.006 U	0.0087 U	**69.5**	0.0065 U	**0.117 J**	**0.772 J**	**3.18**
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.01**	ND	ND	**152.904**	ND	ND	**204.77**	ND	**3.4974**	**2.133**	**20.17**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	**0.0277 J**	**0.0291 J**	0.0348 U	4.2 U	**0.008 J**	**0.003 J**	6.92 U	0.0326 U	0.0355 U	5.08 U	5.52 U
n-Butylbenzene	12	12	100	**0.0782**	0.0087 U	0.0035 U	**1.61**	0.003 U	0.0043 U	**2.4**	0.0033 U	**7.06**	**8.83**	0.221 U
sec-Butylbenzene	11	11	100	**0.0056**	0.0087 U	0.0035 U	**0.248**	0.003 U	0.0043 U	**0.183 J**	0.0033 U	**2.54**	**3.36**	**2.59**
tert-Butylbenzene	5.9	5.9	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	**0.333**	**0.386**	0.221 U
Carbon disulfide	NE	2.7*	NE	**0.002 J**	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	**0.004 J**	0.203 U	0.221 U
Chlorobenzene	1.1	1.1	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
Cyclohexane	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	0.168 U	**0.0027 J**	0.0043 U	0.277 U	0.0033 U	0.0036 U	**0.869**	**7.79**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**0.0632**	0.0087 U	0.0035 U	**4.24**	0.003 U	0.0043 U	**1.56**	0.0033 U	**0.779**	**0.175 J**	**3.73**
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	1.01 U	0.003 U	0.0043 U	1.66 UJ	0.0033 UJ	0.0036 UJ	1.22 U	1.32 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 UJ	0.203 U	0.221 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 UJ	0.203 U	0.221 U
1,1-Dichloroethane	0.27	0.27	26	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
1,1-Dichloroethene	0.33	0.33	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
1,2-Dichloropropane	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
Isopropylbenzene	NE	2.3*	NE	**0.0302**	0.0087 U	0.0035 U	**7.91**	0.003 U	0.0043 U	**2.94**	0.0033 U	**6.99**	**4.93**	**12.4**
Methyl acetate	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	1.68 U	0.003 U	0.0043 U	2.77 U	0.0033 U	0.0036 U	**0.8 J**	2.21 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0332 U	0.0874 U	0.0348 U	4.2 U	0.03 U	0.0433 U	6.92 U	0.0326 U	0.0355 U	5.08 U	5.52 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0332 U	0.0874 U	0.0348 U	1.68 U	0.03 U	0.0433 U	2.77 U	0.0326 U	0.0355 U	2.03 U	2.21 U
Methylcyclohexane	NE	NE	NE	**0.0027 J**	0.0087 U	0.0035 U	**0.158 J**	0.003 U	0.0043 U	0.277 U	0.0033 U	**18.1**	**3.66**	**40**
Methylene chloride	0.05	0.05	100	0.0166 U	0.0437 U	0.0174 U	**0.165 J**	0.015 U	0.0217 U	1.38 U	**0.0013 J**	0.0178 U	1.02 U	1.1 U
Naphthalene	12	12	100	**15.6**	0.0087 U	0.0035 U	**906**	0.003 U	0.0043 U	**942**	0.0033 U	**13.2**	**4.32**	**142**
n-Propylbenzene	3.9	3.9	100	**0.0306**	0.0087 U	0.0035 U	**3.13**	0.003 U	0.0043 U	**2.12**	0.0033 U	**6.11**	**5.11**	**9.79**
Styrene	NE	NE	NE	**0.0024 J**	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	**0.681**	0.0033 U	0.0036 U	0.203 U	0.221 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0033 UJ	0.0087 UJ	0.0035 U	0.168 U	0.003 UJ	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
Tetrahydrofuran	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	NA	0.003 U	0.0043 U	NA	0.0033 U	0.0036 U	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 UJ	0.203 U	0.221 U
1,1,2-Trichloroethane	NE	NE	NE	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U
Trichloroethene (TCE)	0.47	0.47	21	0.0033 U	0.0087 U	0.0035 U	0.168 U	0.003 U	0.0043 U	0.277 U	0.0033 U	0.0036 U	0.203 U	0.221 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.632**	0.0087 U	0.0035 U	**45**	0.003 U	0.0043 U	**39.3**	0.0033 U	**1.88**	**0.366**	**14.6**
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.296**	0.0087 U	0.0035 U	**17.5**	0.003 U	0.0043 U	**12.1**	0.0033 U	**2.31**	**0.158 J**	**13.9**
Vinyl chloride	0.02	0.02	0.9	0.0066 U	0.0175 U	0.007 U	0.168 U	0.006 U	0.0087 U	0.277 U	0.0065 U	0.0071 U	0.203 U	0.221 U
Total VOCs	NE	NE	NE	**16.7806**	**0.0291**	ND	**1138.865**	**0.0107**	**0.003**	**1208.054**	**0.0013**	**62.8034**	**35.097**	**266.97**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**10.3**	1.07 U	**8.61**	**85.3**	0.427 U	**0.314 J**	**9.55**	0.439 U	**39.1**	**33.1**	**293**
Acenaphthylene	100	107	100	**21.7**	1.07 U	**9.17**	**12.8**	0.427 U	**1.8**	**40.7**	0.439 U	**4.19**	**6.69**	**31.7**
Anthracene	100	1000	100	**26.3**	1.07 U	**7.72**	**32.3**	0.427 U	**1.49**	**18.4**	0.439 U	**17.8**	**24.7**	**117**
Benzo(a)anthracene	1	1	1	**27.9**	1.07 U	**10.9**	**28.6**	0.427 U	**3.39**	**14**	0.439 U	**13.4**	**31.9**	**94.1**
Benzo(b)fluoranthene	1	1.7	1	**10.5**	1.07 U	**6.61**	**14.6**	0.427 U	**3.09**	**4.27**	0.439 U	**7.47**	**27**	**59.5**
Benzo(k)fluoranthene	0.8	1.7	3.9	**13.6**	1.07 U	**5.99**	**13.4**	0.427 U	**2.52**	**4.8**	0.439 U	**8.97**	**23.9**	**61**
Benzo(g,h,i)perylene	100	1000	100	**6.02**	1.07 U	**5.46**	**7.63**	0.427 U	**2.6**	**2.77**	0.439 U	**6.12**	**24.3**	**44.4**
Benzo(a)pyrene	1	22	1	**22.5**	0.537 U	**11.3**	**24.4**	0.214 U	**3.89**	**9.85**	0.22 U	**14.4**	**42.8**	**105**
Chrysene	1	1	3.9	**28.1**	0.537 U	**10.1**	**25.5**	0.214 U	**3.21**	**12.6**	0.22 U	**11.8**	**28.4**	**84.1**
Dibenz(a,h)anthracene	0.33	1000	0.33	**2.36**	0.537 U	**2.42**	**2.43**	0.214 U	**0.667**	**1.01**	0.22 U	**2.29**	**7.81**	**15.6**
Fluoranthene	100	1000	100	**37.9**	1.07 U	**12.2**	**48.9**	0.427 U	**5.48**	**20**	0.439 U	**17.1**	**32.6**	**150**
Fluorene	30	386	100	**38.1**	1.07 U	**6.59**	**46.9**	0.427 U	**0.244 J**	**23.6**	0.439 U	**22.6**	**25.2**	**116**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**7.21**	1.07 U	**6.56**	**9.51**	0.427 U	**3.12**	**3.25**	0.439 U	**7.82**	**29.8 J**	**54.7**
2-Methylnaphthalene	NE	36.4*	NE	**30.7**	1.07 U	**1.95**	**288**	0.427 U	**0.356 J**	**231**	0.439 U	**63.3**	**13.9**	**573**
Naphthalene	12	12	100	**17.3**	1.07 U	**6.67**	**649**	**0.198 J**	**0.626 J**	**632**	0.439 U	**14.9**	**20.8**	**184**
Phenanthrene	100	1000	100	**118**	1.07 U	**23.8**	**129**	0.427 U	**3.51**	**79.2**	0.439 U	**53.1**	**74.8**	**427**
Pyrene	100	1000	100	**66.8**	1.07 U	**19.8**	**68.8**	0.427 U	**5.73**	**35.2**	0.439 U	**24.3**	**41.8**	**204**
Total PAHs	NE	NE	NE	**485.29**	ND	**155.85**	**1487.07**	**0.198**	**42.037**	**1142.2**	ND	**328.66**	**489.5**	**2614.1**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**9.66**	**12.3**	**28.7**
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.28 U	0.781 U	2.6 U
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.46**	**4.56**	**13.8**
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**4.09**	**2.52**	**4.64**
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	2.35 U	2.15 U	1.52 U	2.4 U	0.856 U	1.46 U	2.42 U	0.879 U	1.34 U	1.31 U	2.55 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**10.3**	1.07 U	**1.71**	**19.7**	0.427 U	0.727 U	**11.5**	0.439 U	0.134 U	0.131 U	**4.09**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
Butyl benzyl phthalate	NE	122*	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	**1.46**	0.439 U	1.34 U	1.31 U	2.55 U
Caprolactam	NE	NE	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
Carbazole	NE	NE	NE	1.17 U	1.07 U	**0.503 J**	**5.33**	0.427 U	**0.375 J**	**0.49 J**	0.439 U	**0.787 J**	**4.4**	**6.06**
2-Chloronaphthalene	NE	NE	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
Dibenzofuran	7	210, 6.2*	59	**3.85**	1.07 U	**1.29**	**12.9**	0.427 U	**0.213 J**	**3.99**	0.439 U	**2.09**	**10.3**	**25**
Diethyl phthalate	NE	7.1*	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
2,4-Dimethylphenol	NE	NE	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
Di-n-butyl phthalate	NE	8.1*	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
2,6-Dinitrotoluene	NE	1*	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	**0.647 J**	1.31 U	2.55 U
Di-n-octyl phthalate	NE	120*	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	2.68 U	2.62 UJ	5.1 U
2-Methylnaphthalene	NE	36.4*	NE	**30.7**	1.07 U	**1.95**	**288**	0.427 U	**0.356 J**	**231**	0.439 U	**63.3**	**13.9**	**573**
2-Methylphenol (o-Cresol)	0.33	0.33	100	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	**0.841 J**
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	2.35 U	2.15 U	1.52 U	2.4 U	0.856 U	1.46 U	2.42 U	0.879 U	1.34 U	**0.787 J**	**1.73 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	2.68 U	2.62 U	5.1 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	1.31 U	2.55 U
Phenol	0.33	0.33	100	1.17 U	1.07 U	0.759 U	1.2 U	0.427 U	0.727 U	1.21 U	0.439 U	1.34 U	**0.578 J**	2.55 U
Total SVOCs	NE	NE	NE	**499.44**	ND	**159.353**	**1525**	**0.198**	**42.625**	**1159.64**	ND	**332.184**	**505.565**	**2651.821**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	**69.9 J**	**50.5 J**	**261 J**
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	**8.79 J**	**8.76 J**	**38 J**
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	**34.4 J**	**32.4 J**	**137 J**
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	**6.68 J**	**2.84 J**	**21.1 J**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**2.22 JN**	**2 JN**	**9.47 JN**
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.89 JN**	**6.15 JN**	**26.9 JN**
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**15.2 JN**	**9.96 JN**	**75.4 JN**
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**61.6 JN**	**97.1 JN**	**178 JN**
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**61.9 JN**	**155 JN**	**116 JN**
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	**31 J**	**29.7 J**	**93.7 J**
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	**23.9 J**	**25.2 J**	**92.7 J**
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**27.3 J**	**25 J**	**79.7 J**
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**5.4 J**	**5.21 J**	**20.2 J**
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**2.62 J**	**2.4 J**	**8.25 J**
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**5.38 J**	**5.92 J**	**16.7 J**
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	**20.5 J**	**22.4 J**	**62.3 J**
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	**41.4 J**	**39.3 J**	**144 J**
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**20.9 J**	**21.5 J**	**73.1 J**
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**2.11 J**	**3.62 J**	**5.98 J**
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**17.9 JN**	**22.6 JN**	**42 JN**
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**24.5 JN**	**32.8 JN**	**50.3 JN**
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**18.5 JN**	**28.1 JN**	**27.3 JN**
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**8.89 JN**	**16.1 JN**	**12.7 JN**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**1.13 J**	**0.918 J**	**4.92 J**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	**3.93 J**	**7 J**	**7.01 J**
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	**1.97 J**	**2.81 J**	**3.09 J**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	**0.279 J**	**0.253 J**	0.0651 U
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**27.9 JN**	**26.9 JN**	**84.6 JN**
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**16.9 JN**	**15.6 JN**	**50 JN**
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**8.75 JN**	**8.62 JN**	**27.6 JN**
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**4.43 JN**	**4.15 JN**	**14.3 JN**
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**26.3 J**	**26.9 J**	**86.1 J**
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**5.67 J**	**6.55 J**	**19.2 J**
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.987 J**	**0.416 J**	**6.08 J**
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**4.34 J**	**11.8 J**	**4.9 J**
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**12.9 J**	**31.2 J**	**16.4 J**
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**57.2 JN**	**157 JN**	**66.6 JN**
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**70.8 JN**	**189 JN**	**84.5 JN**
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**51.3 JN**	**109 JN**	**58 JN**
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**47.6 JN**	**91.2 JN**	**61.5 JN**
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	**10.5 J**	**7.72 J**	**34.3 J**
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	**5.94 J**	**8.23 J**	**16.5 J**
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**14.9 J**	**17.2 J**	**42.6 J**
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**23 JN**	**30.6 JN**	**55.8 JN**
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**21 JN**	**32 JN**	**45.1 JN**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	11.6 JN	19.4 JN	23.7 JN
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	5.34 JN	8.37 JN	8.73 JN
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	7.41 J	3.31 J	24.7 J
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	31.8 J	31.2 J	122 J
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	47.1 JN	48.7 JN	178 JN
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	22.2 JN	25.3 JN	72.6 JN
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	12.2 JN	13.9 JN	35 JN
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	34 J	30.7 J	107 J
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	20.3 JN	31.8 JN	72.1 JN
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	25.6 JN	38.4 JN	60.1 JN
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	14.3 JN	25.4 JN	29.1 JN
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	28.9 J	31.1 J	90.3 J
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	5.71 J	4.55 J	15.8 J
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	7.37 J	4.77 J	32.2 J
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	166 J	195 J	404 J
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	128 J	11.9 J	475 J
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	5.7 J	5.77 J	22 J
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	6.92 J	7.88 J	23.6 J
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	32.8 J	17.6 J	168 J
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	179 JN	124 JN	538 JN
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	197 JN	272 JN	444 JN
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	116 JN	207 JN	212 JN
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	54.4 JN	108 JN	88.9 JN
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	9.94 JN	10.5 JN	28.4 JN
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	7.07 JN	7.76 JN	19.4 JN
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	3.63 JN	4.05 JN	9.46 JN
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.21 JN	1.42 JN	2.93 JN
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	8.58 J	9.58 J	26.5 J
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	93.5 J	94.5 J	364 J
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	78.1 JN	97.5 JN	258 JN
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	40.8 JN	61.6 JN	120 JN
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	17.7 JN	28.1 JN	45.1 JN
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	6.67 JN	10.5 JN	17.1 JN
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	5.22 J	4.83 J	11.8 J
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	46.1 J	45.4 J	182 J
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.1 J	1.26 J	14.2 J
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	1.96 J	1.84 J	6.73 J
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	2.57 J	2.3 J	10.6 J
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	4.01 J	1.53 J	21 J
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	3.22 J	2.09 J	19.3 J
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	1.82 J	0.615 J	19.8 J
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	0.949 J	1.23 J	3.42 J

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	**4.93 J**	**5.33 J**	**13.4 J**
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**6.07 J**	**6.77 J**	**22.5 J**
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**77.7**	**192**	**79.8**
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**84.2**	**264**	**104**
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**93.6**	**266**	**109**
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**91.9**	**253**	**95.1**
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**87**	**256**	**97.3**
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA	NA	NA	NA
Aroclor 1248	NE	NE	NE	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA	NA	NA	NA
Aroclor 1254	NE	NE	NE	0.06 U	0.2 U	**0.4**	0.06 U	0.06 U	**1.7**	NA	NA	NA	NA	NA
Aroclor 1260	NE	NE	NE	0.06 U	0.2 U	**0.1 J**	0.06 U	0.06 U	**0.7**	NA	NA	NA	NA	NA
Aroclor 1268	NE	NE	NE	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	ND	ND	**0.5**	ND	ND	**2.4**	NA	NA	NA	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0036 U	0.0049 U	0.0017 U	0.0036 U	0.0019 U	0.0016 U	NA	NA	NA	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Chlordane (Technical)	NE	NE	NE	**0.0372 J**	0.0977 U	**0.0529 J**	0.0712 U	0.0377 U	**0.122 J**	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.006 U	0.0081 U	**0.0041**	0.0059 U	0.0031 U	**0.0167**	NA	NA	NA	NA	NA
gamma-Chlordane	NE	14*	NE	**0.0068**	0.0081 U	**0.0051 J**	**0.0052 J**	0.0031 U	**0.0149**	NA	NA	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.006 U	0.0081 U	**0.0683 J**	**0.0179 JN**	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	**0.0055 J**	0.0081 U	0.0028 U	0.0059 U	0.0031 U	**0.0033 JN**	NA	NA	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Dieldrin	0.005	0.1	0.2	0.006 U	0.0081 U	**0.0035 JN**	0.0059 U	0.0031 U	**0.0154 JN**	NA	NA	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	24	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
beta-Endosulfan (II)	2.4	102	24	0.006 UJ	0.0081 UJ	**0.0071 JN**	0.0059 UJ	0.0031 UJ	0.0027 U	NA	NA	NA	NA	NA
Endosulfan sulfate	2.4	1000	24	**0.0062 JN**	0.0081 U	**0.0063 JN**	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Endrin	0.014	0.06	11	**0.018**	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Endrin aldehyde	NE	NE	NE	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Endrin ketone	NE	NE	NE	0.006 U	0.0081 U	0.0028 U	**0.0087 JN**	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Heptachlor	0.042	0.38	2.1	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	**0.0024 J**	NA	NA	NA	NA	NA

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Heptachlor epoxide	NE	0.02*	NE	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	0.006 U	0.0081 U	0.0028 U	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.006 U	0.0081 U	**0.0137 JN**	0.0059 U	0.0031 U	0.0027 U	NA	NA	NA	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.219 U	0.557 U	**0.028 J**	0.228 U	0.219 U	0.195 U	NA	NA	NA	NA	NA
Dicamba	NE	NE	NE	0.011 U	0.028 U	0.01 U	0.011 U	0.011 U	0.01 U	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	0.219 U	0.557 U	0.198 U	0.228 U	0.219 U	0.195 U	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	21.9 U	**38.4 J**	19.8 U	22.8 U	**3.85 J**	19.5 U	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	21.6 U	55.1 U	19.6 U	22.5 U	21.7 U	19.3 U	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.011 U	0.028 U	0.01 U	0.012 U	0.011 U	0.01 U	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	**0.001 J**	0.028 U	**0.006 J**	**0.002 J**	0.011 U	0.01 U	NA	NA	NA	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**4630**	**3870**	**7520**	**7580**	**5110**	**4450**	**7860 J**	**2520 J**	**48300**	**3480**	**7230**
Antimony	NE	NE	NE	2.16 U	6.94 U	**0.63 J**	2.94 U	2.22 U	**2.1 J**	2.08 UJ	2.79 UJ	2.87 U	3.13 U	3.22 U
Arsenic	13	16	16	**1.28 J**	**2.18 J**	**12.6**	**1.44 J**	**0.68 J**	**4.31**	**1.44 J**	**1.28 J**	**19**	**8.34**	**6.95**
Barium	350	820	400	**25.6**	**23.6 J**	**106**	**26 J**	**32.4**	**175**	**38.9 J**	**11.4 J**	**597**	**53.4**	**50.8**
Beryllium	7.2	47	72	**0.35 J**	3.06 U	**0.38 J**	**0.43 J**	**0.42 J**	**0.29 J**	**0.6 J**	**0.43 J**	**5.66**	**0.31 J**	**0.6 J**
Cadmium	2.5	7.5	4.3	1.73 U	5.56 U	1.93 U	2.35 U	1.78 U	**1.57 J**	1.66 UJ	2.23 UJ	2.3 U	2.5 U	2.58 U
Calcium	NE	NE	NE	**5410**	**1240**	**8470 J**	**926**	**1060**	**7630 J**	**1090 J**	**516 J**	**13000 J**	**4050**	**18200**
Chromium	30	NE	180	**10.4**	**11.4 J**	**15.5**	**13.2**	**12.2**	**24.8**	**17.7 J**	**7.55 J**	**114 J**	**5.67 J**	**12.3 J**
Cobalt	NE	NE	NE	**3.74 J**	**5.11 J**	**6.29 J**	**4.73 J**	**7 J**	**2.99 J**	**7.73 J**	**4.4 J**	**42.8**	**3.27 J**	**8.87 J**
Copper	50	1720	270	**8.13 J**	69.4 U	**67.5**	**10.1 J**	**8.17 J**	**126**	**19.5 J**	**7.3 J**	**318 J**	**23.5 J**	**35.8**
Iron	NE	NE	NE	**12400**	**36700**	**26300**	**14500**	**21900**	**12700**	**22500 J**	**22700 J**	**258000 J**	**13500**	**15600**
Lead	63	450	400	**12.4 J**	139 U	**435**	**4.58 J**	**6.12 J**	**344**	**14.8 J**	**6.56 J**	**726 J**	**116**	**89.2**
Magnesium	NE	NE	NE	**1820**	**1120**	**3610**	**2210**	**1560**	**2070**	**2360 J**	**655 J**	**10200 J**	**1340**	**1680**
Manganese	1600	2000	2000	**144**	**578**	**358**	**336**	**336**	**202**	**294 J**	**551 J**	**1840**	**135**	**230**
Mercury	0.18	0.73	0.81	**0.034**	**0.031 J**	**1.91**	0.038 U	**0.01 J**	**1.17**	**0.026 J**	0.039 U	**0.092**	**0.157**	0.034 U
Nickel	30	130	310	**7 J**	69.4 U	**16.6 J**	**8.96 J**	**8.98 J**	**20.8 J**	**12.1 J**	**3.17 J**	**98.3**	**8.96 J**	**15.7 J**
Potassium	NE	NE	NE	**778 J**	**852 J**	**925 J**	**1090 J**	**753 J**	**559 J**	**1090 J**	**444 J**	**5450 J**	**524 J**	**817 J**
Selenium	3.9	4	180	2.16 U	6.94 U	2.42 U	2.94 U	2.22 U	2.7 U	2.08 UJ	2.79 UJ	**2.23 J**	**1.32 J**	3.22 U
Silver	2	8.3	180	1.73 U	5.56 U	1.93 U	2.35 U	1.78 U	2.16 U	1.66 U	2.23 U	2.3 U	2.5 U	2.58 U
Sodium	NE	NE	NE	**102 J**	**392 J**	2420 U	**251 J**	**178 J**	2700 U	2080 UJ	2790 UJ	**1290 J**	**204 J**	**1150 J**
Thallium	NE	NE	NE	2.16 U	6.94 U	2.42 U	2.94 U	2.22 U	2.7 U	2.08 UJ	2.79 UJ	**0.88 J**	3.13 U	3.22 U
Tin	NE	NE	NE	43.1 UJ	139 UJ	48.3 U	58.8 UJ	44.5 UJ	54.1 U	41.6 UJ	55.7 UJ	**71.1**	62.6 U	64.4 U
Vanadium	NE	NE	NE	**15.9**	**29.2**	**25.7**	**21.9**	**21.2**	**16.9**	**37 J**	**20.5 J**	**193**	**10.8 J**	**16.6**
Zinc	109	2480	10000	**24.9**	**38.1 J**	**216 J**	**26.4 J**	**25.2**	**530 J**	**38.5 J**	**22.4 J**	**355 J**	**63.9**	**81.1**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.242 U	0.622 U	0.215 U	0.247 U	0.247 U	0.218 U	0.244 U	0.25 U	0.265 U	0.264 U	0.262 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.337**	**0.805**	**0.491**
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.234**	**0.555**	**0.34**
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.14**	**0.267**	**0.208**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0625**	**0.168**	**0.0598 J**
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0747**	**0.134**	**0.0715**
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0892**	**0.207**	**0.13**
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0596**	**0.14**	**0.0727**
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0672**	**0.153**	**0.0931**
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0673**	**0.157**	**0.102**
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.077**	**0.14**	**0.11**
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0619**	**0.132**	**0.106**
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.114**	**0.226**	**0.106**
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.158**	**0.283**	**0.178**
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0678**	**0.144**	**0.0733**
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0682**	**0.126**	**0.0536 J**
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0634**	**0.144**	**0.103**
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0297**	**0.0621**	**0.0554 J**
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.385**	**0.604**	**0.331**
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0768**	**0.16**	**0.0565 J**
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0238**	**0.0658**	**0.0419 J**
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0619**	**0.117**	**0.0777**
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0388**	**0.0907**	0.0651 U
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.562**	**0.981**	**0.489**
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0433**	**0.069**	0.0651 U
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.179**	**0.254**	**0.164**
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.15**	**0.196**	**0.164**
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0192**	0.0391 U	0.0651 U
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.115**	**0.193**	**0.0996**
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0911**	**0.142**	**0.101**
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0715**	**0.104**	**0.0721**
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0632**	**0.0751**	**0.0976**
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0483**	**0.071**	0.0651 U
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.051**	**0.0678 J**	0.0651 U
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0493**	**0.0693**	0.0651 U
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.043**	**0.0315 J**	0.0651 U
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.272**	**0.608**	**0.473**
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.127**	**0.326**	**0.171**
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.139**	**0.308**	**0.153**
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.471**	**0.845**	**0.49**
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.307**	**0.57**	**0.317**
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.271**	**0.49**	**0.261**
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.593**	**1.15**	**0.532**
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.0925**	**0.0865 J**	0.0651 U

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-239 (5-7) 7/15/2022	WW-SB-239 (54-55) 7/15/2022	SB-240 (0.5-4.5) 7/11/2022	WW-SB-240 (15-16) 7/15/2022	WW-SB-240 (49-50) 7/15/2022	SB-241 (0.5-3.5) 7/11/2022	WW-SB-241 (13-15) 7/18/2022	WW-SB-241 (39-40) 7/18/2022	WW-TP-200C (10) 8/23/2022	WW-TP-201B (10.5) 8/26/2022	WW-TP-202A (10) 8/25/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.063**	**0.102**	0.0651 U
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.322**	**0.59**	**0.348**
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.258**	**0.481**	**0.206**
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.29**	**0.512**	**0.209**
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.302**	**0.628**	**0.201**
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.253**	**0.504**	**0.241**
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.288**	**0.63**	**0.326**
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.253**	**0.323 J**	**0.23**
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.263**	**0.478**	**0.219**
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**3180**	**10200**	**4180**
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**999 J**	**3070 J**	**1420 J**
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**2360**	**6680**	**5410**
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**2570**	**7100**	**6560**
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**10000 J**	**18300 J**	**27000 J**
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**19400**	**29400**	**24500**
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	**22000**	**31500**	**28900**

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name				**WW-TP-202B**	**WW-TP-202C**	**WW-TP-203B**	**WW-MW-10**	**WW-MW-10**	**WW-MW-11**	**WW-MW-11**	**WW-MW-11**	**WW-MW-13**	**WW-MW-13**	**Duplicate of WW-MW-13**
Sample Depth (feet bgs)	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**(12)**	**(10)**	**(14)**	**(4-5)**	**(10-11.5)**	**(3-5)**	**(11-14)**	**(39-40)**	**(2-5)**	**(5-10)**	**(5-10)**
Sample Date				**8/24/2022**	**8/25/2022**	**8/30/2022**	**9/8/2009**	**9/8/2009**	**8/21/2009**	**8/25/2009**	**8/25/2009**	**9/15/2009**	**9/15/2009**	**9/15/2009**
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0264 J**	**0.442**	**1.6**	0.029 UJ	2.4 U	0.0059 U	**0.34 J**	0.0056 U	**0.0016 J**	**1.1 J**	**2.8 J**
Toluene	0.7	0.7	100	0.0162 U	0.442 U	**2.51**	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Ethylbenzene	1	1	41	**0.538 J**	**0.463**	**1.89**	**0.32 J**	2.4 U	0.0059 U	**25**	0.0056 U	0.0062 U	**70 J**	**120 J**
o-Xylene	0.26	1.6	100	**0.1 J**	0.263 U	**1.69**	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	**0.28 J**	0.526 U	**3.94**	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	NA	NA	NA	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 UJ	**72 J**
Total BTEX	NE	NE	NE	**0.9444**	**0.905**	**11.63**	**0.32**	ND	ND	**25.34**	ND	**0.0016**	**71.1**	**194.8**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.0521 U	6.57 U	4.96 U	0.12 UJ	6 U	0.024 UJ	5.7 R	0.022 U	0.025 U	18 U	20 U
n-Butylbenzene	12	12	100	**0.183 J**	0.263 U	**0.528**	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	**0.157 J**	**1.92**	**2.33**	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	**0.0117 J**	**0.925**	**0.401**	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	**0.0131 J**	0.263 U	0.199 U	0.029 UJ	2.4 U	0.0059 UJ	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Chlorobenzene	1.1	1.1	100	0.0052 UJ	0.263 U	0.199 U	0.029 UJ	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Cyclohexane	NE	NE	NE	**3.13**	**0.478**	**1.18**	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**0.0079 J**	0.263 U	**0.191 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0052 U	1.58 U	1.19 UJ	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0052 U	0.263 U	0.199 U	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0052 U	0.263 U	0.199 U	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
1,1-Dichloroethene	0.33	0.33	100	0.0052 U	0.263 U	0.199 U	0.029 UJ	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
1,2-Dichloropropane	NE	NE	NE	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Isopropylbenzene	NE	2.3*	NE	**5.31**	**0.594**	**1.41**	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	0.0052 U	**1.45 J**	**0.75 J**	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0521 U	6.57 U	4.96 U	0.058 UJ	2.4 U	0.012 U	2.3 U	0.011 U	0.012 U	7.1 UJ	**230 J**
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0052 U	0.263 U	0.199 U	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0521 U	2.63 U	1.99 U	0.029 UJ	2.4 UJ	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Methylcyclohexane	NE	NE	NE	**28.4**	**1.91**	**10.8**	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.026 UJ	1.31 U	0.993 U	0.12 U	2.4 U	0.024 U	2.3 U	0.022 U	0.025 U	7.1 U	8.1 U
Naphthalene	12	12	100	**0.116 J**	**2.88**	**8.6**	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	**6.13**	**0.289**	**1.26**	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	**0.0103 J**	0.263 U	0.199 U	0.029 U	2.4 U	**0.001 J**	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0052 U	0.263 U	0.199 U	0.029 UJ	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0052 UJ	0.263 U	0.199 U	0.029 UJ	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Tetrahydrofuran	NE	NE	NE	0.0052 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	0.0052 U	0.263 U	0.199 U	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Trichloroethene (TCE)	0.47	0.47	21	0.0052 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-TP-202B (12) 8/24/2022	WW-TP-202C (10) 8/25/2022	WW-TP-203B (14) 8/30/2022	WW-MW-10 (4-5) 9/8/2009	WW-MW-10 (10-11.5) 9/8/2009	WW-MW-11 (3-5) 8/21/2009	WW-MW-11 (11-14) 8/25/2009	WW-MW-11 (39-40) 8/25/2009	WW-MW-13 (2-5) 9/15/2009	WW-MW-13 (5-10) 9/15/2009	Duplicate of WW-MW-13 (5-10) 9/15/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.0359 J**	**0.578**	**2.03**	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.0263 J**	**0.163 J**	**0.341**	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0104 U	0.263 U	0.199 U	0.029 U	2.4 U	0.0059 U	2.3 U	0.0056 U	0.0062 U	7.1 U	8.1 U
Total VOCs	NE	NE	NE	**44.4756**	**12.092**	**41.451**	**0.32**	ND	**0.001**	**25.34**	ND	**0.0016**	**71.1**	**424.8**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**22.2**	**71.1**	**29.2**	**21**	**56 J**	**1.4 J**	**110**	**0.35**	**19**	**510**	**520**
Acenaphthylene	100	107	100	**6.08**	**10**	**26.5**	**2.5 J**	**9.9 J**	**0.87 J**	**12 J**	**0.042 J**	**7.4**	**29 J**	**38 J**
Anthracene	100	1000	100	**40**	**25.5**	**53.2**	**8.6**	**16 J**	**2.6 J**	**47 J**	**0.2 J**	**12**	**160**	**190**
Benzo(a)anthracene	1	1	1	**38.2**	**40.2**	**66.9**	**5.9**	**15 J**	**19**	**35 J**	**0.14 J**	**24**	**83**	**110**
Benzo(b)fluoranthene	1	1.7	1	**21.5**	**29.5**	**63.8**	**3.3**	**9.5 J**	**47 J**	**30 J**	**0.13 J**	**23**	**76**	**74**
Benzo(k)fluoranthene	0.8	1.7	3.9	**20.8**	**24.7**	**35.4**	**1.6 J**	**3.4 J**	**20 J**	**12 J**	**0.043 J**	**9.9**	**25 J**	**34 J**
Benzo(g,h,i)perylene	100	1000	100	**9.24**	**25.2**	**59.4**	**1 J**	**3 J**	**28 J**	**15 J**	**0.13 J**	**29**	38 U	**29 J**
Benzo(a)pyrene	1	22	1	**28.7**	**55.2**	**111**	**4.4**	**13 J**	**41 J**	**36 J**	**0.12 J**	**30**	**70**	**99**
Chrysene	1	1	3.9	**31.6**	**35.3**	**62.2**	**5.9**	**15 J**	**20**	**36 J**	**0.13 J**	**24**	**82**	**100**
Dibenz(a,h)anthracene	0.33	1000	0.33	**4.1**	**18.2**	**33.7**	3.1 U	16 UJ	**8.2 J**	60 U	0.29 U	**6.9**	**3.7 J**	44 U
Fluoranthene	100	1000	100	**76.7**	**48.6**	**97.5**	**9.5**	**27 J**	**17**	**71**	**0.23 J**	**26**	**150**	**180**
Fluorene	30	386	100	**45.8**	**4.07**	**9.59**	**13**	**39 J**	**1.2 J**	**59 J**	**0.2 J**	**9.7**	**210**	**230**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**12.5**	**30.8 J**	**62.9**	**1.2 J**	**3.4 J**	**33 J**	**14 J**	**0.11 J**	**31**	38 U	**29 J**
2-Methylnaphthalene	NE	36.4*	NE	**9.37**	**3.56**	**19.8**	**11**	**29 J**	6.2 U	**340**	**0.7**	**5.4**	**210**	**210**
Naphthalene	12	12	100	**17.3**	**11.1**	**32.8**	**29 J**	**56 J**	6.2 U	**740**	0.29 U	**10**	**610**	**550**
Phenanthrene	100	1000	100	**145**	**19.5**	**85.9**	**32**	**90 J**	**10**	**160**	**0.67**	**25**	**520**	**540**
Pyrene	100	1000	100	**56.8**	**63.6**	**141**	**14**	**40 J**	**22**	**80**	**0.47**	**57**	**220**	**290**
Total PAHs	NE	NE	NE	**585.89**	**516.13**	**990.79**	**163.9**	**425.2**	**271.27**	**1797**	**3.665**	**349.3**	**2958.7**	**3223**
MAEPH (mg/kg)														
C-10	NE	NE	NE	**8.31**	**59.1**	**13.9**	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	1.55 U	5 U	**11.7**	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	1.55 U	5 U	**37.7 J**	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-TP-202B (12) 8/24/2022**	**WW-TP-202C (10) 8/25/2022**	**WW-TP-203B (14) 8/30/2022**	**WW-MW-10 (4-5) 9/8/2009**	**WW-MW-10 (10-11.5) 9/8/2009**	**WW-MW-11 (3-5) 8/21/2009**	**WW-MW-11 (11-14) 8/25/2009**	**WW-MW-11 (39-40) 8/25/2009**	**WW-MW-13 (2-5) 9/15/2009**	**WW-MW-13 (5-10) 9/15/2009**	**Duplicate of WW-MW-13 (5-10) 9/15/2009**
C-28	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	1.55 U	5 U	3.19 U	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	**9.41**	**15**	**41.6**	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	**2.07**	**15.2**	**14.3**	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	**1.14 J**	0.727 U	1.39 U	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.16 U	0.0727 U	**2.61**	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	**0.84 J**	38 U	44 U
Butyl benzyl phthalate	NE	122*	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
Caprolactam	NE	NE	NE	1.6 U	0.727 U	1.39 U	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	1.6 U	**1.06**	**2.51**	**0.26 J**	16 UJ	**1.1 J**	**5.2 J**	0.29 U	**0.48 J**	**2.2 J**	44 U
2-Chloronaphthalene	NE	NE	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
Dibenzofuran	7	210, 6.2*	59	**27.2**	**1.87**	**9.6**	**1.8 J**	**4.5 J**	**1 J**	**11 J**	**0.032 J**	**1.1 J**	**27 J**	**34 J**
Diethyl phthalate	NE	7.1*	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
2,4-Dimethylphenol	NE	NE	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 UJ	44 UJ
Di-n-butyl phthalate	NE	8.1*	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
2,6-Dinitrotoluene	NE	1*	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
Di-n-octyl phthalate	NE	120*	NE	3.2 U	1.45 UJ	2.78 U	3.1 U	16 UJ	6.2 UJ	60 U	0.29 U	3.3 U	38 U	44 U
2-Methylnaphthalene	NE	36.4*	NE	**9.37**	**3.56**	**19.8**	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	1.6 U	0.727 U	**0.706 J**	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
4-Nitroaniline	NE	NE	NE	3.2 U	1.45 U	2.78 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
Phenol	0.33	0.33	100	1.6 U	0.727 U	1.39 U	3.1 U	16 UJ	6.2 U	60 U	0.29 U	3.3 U	38 U	44 U
Total SVOCs	NE	NE	NE	**614.23**	**519.06**	**1006.216**	**165.96**	**429.7**	**273.37**	**1813.2**	**3.697**	**351.72**	**2987.9**	**3257**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	**26.1 J**	**120 J**	**50 J**	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	**16.5 J**	**23 J**	**37.2 J**	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	**103 J**	**55.4 J**	**72.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	**1.05 J**	**8.64 J**	**8.2 J**	NA	NA	NA	NA	NA	NA	NA	NA

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C1-Benzene	NE	NE	NE	**0.42 JN**	**9.41 JN**	**14.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	**1.22 JN**	**29.1 JN**	**20.2 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	**9.68 JN**	**41.2 JN**	**14.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	**73.7 JN**	**49 JN**	**15.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	0.31 U	**42.7 JN**	**19.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	**92.2 J**	**145 J**	**119 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	**65.7 J**	**227 J**	**150 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	**60.6 J**	**194 J**	**162 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	**16.2 J**	**15 J**	**12.8 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	**3.61 J**	**6.55 J**	**6.64 J**	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	**23.6 J**	**14.3 J**	**10.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	**31.6 J**	**204 J**	**198 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	**76.7 J**	**349 J**	**276 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	**42.8 J**	**178 J**	**127 J**	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	**1.27 J**	**3.08 J**	**1.42 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	**9.63 JN**	**7.09 JN**	**3.66 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	**14.9 JN**	**10.3 JN**	**7.04 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	**14.5 JN**	**11.9 JN**	**7.58 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	**7.61 JN**	**7.21 JN**	**3.43 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.608 J**	**5.72 J**	**2.13 J**	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	**5.35 J**	**1.51 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	**2.68 J**	**2.75 J**	**2.21 J**	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	**0.162 J**	**0.798 J**	**0.482 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	**36.3 JN**	**88.4 JN**	**94 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	**19.4 JN**	**44.1 JN**	**56 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	**10.5 JN**	**20.3 JN**	**31.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	**5.33 JN**	**9.13 JN**	**15.2 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	**73 J**	**126 J**	**104 J**	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	**6.76 J**	**44.4 J**	**58.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	**0.31 J**	**2.23 J**	**0.581 J**	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	**6.45 J**	**6.45 J**	**2.17 J**	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	**21.3 J**	**8.19 J**	**14.3 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	**85.7 JN**	**112 JN**	**34.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	**88.6 JN**	**91.9 JN**	**31.6 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	**61.7 JN**	**44.5 JN**	**18.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	**55.2 JN**	**36.1 JN**	**18 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	**16.4 J**	**85 J**	**75.5 J**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	**37.6 J**	**6.23 J**	**10.1 J**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	**23.2 J**	**10.8 J**	**16.5 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	**22.2 JN**	**29.1 JN**	**21.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	**23.1 JN**	**26.2 JN**	**18.1 JN**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-TP-202B (12) 8/24/2022	WW-TP-202C (10) 8/25/2022	WW-TP-203B (14) 8/30/2022	WW-MW-10 (4-5) 9/8/2009	WW-MW-10 (10-11.5) 9/8/2009	WW-MW-11 (3-5) 8/21/2009	WW-MW-11 (11-14) 8/25/2009	WW-MW-11 (39-40) 8/25/2009	WW-MW-13 (2-5) 9/15/2009	WW-MW-13 (5-10) 9/15/2009	Duplicate of WW-MW-13 (5-10) 9/15/2009
C3-Dibenzothiophenes	NE	NE	NE	**15.2 JN**	**13.7 JN**	**9.87 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	**7.64 JN**	**5.17 JN**	**3.95 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	**0.696 J**	**8.68 J**	**7.22 J**	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	**163 J**	**98.1 J**	**106 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	**76.3 JN**	**115 JN**	**118 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	**35.1 JN**	**45.5 JN**	**53 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	**15.9 JN**	**26.6 JN**	**30.8 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	**69.5 J**	**19.2 J**	**9.52 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	**22.9 JN**	**30.4 JN**	**31.2 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	**28.5 JN**	**41 JN**	**29.3 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	**21.8 JN**	**18.3 JN**	**17.4 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**51.1 J**	**312 J**	**278 J**	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	**6.02 J**	**2.06 J**	**1.73 J**	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	**23.9 J**	**16.3 J**	**9.04 J**	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	**17 J**	**69.6 J**	**34.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	**3.43 J**	**47.7 J**	**13.2 J**	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	**4.98 J**	**12.5 J**	**12.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	**9.49 J**	**15.3 J**	**17.3 J**	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	**7.02 J**	**92.1 J**	**30.8 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	**12.3 JN**	**71 JN**	**28.8 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	**169 JN**	**71.7 JN**	**46.8 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	**125 JN**	**92.6 JN**	**64.5 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	**64.7 JN**	**46.7 JN**	**33.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	**17.7 JN**	**22.6 JN**	**20.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	**10.6 JN**	**13.7 JN**	**12.6 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	**5.16 JN**	**6.16 JN**	**6.65 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	**1.76 JN**	**1.89 JN**	**2.52 JN**	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	**14.9 J**	**78.5 J**	**54.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	**281 J**	**80 J**	**118 J**	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	**102 JN**	**108 JN**	**129 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	**61.4 JN**	**67.2 JN**	**72.7 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	**31.9 JN**	**24.4 JN**	**27.2 JN**	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	**17.1 JN**	**7.64 JN**	**8.97 JN**	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	**5.93 J**	**2.59 J**	**1.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	**121 J**	**152 J**	**149 J**	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	**20.8 J**	0.05 U	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	**5.02 J**	**13 J**	**18.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	**0.48 J**	**10.6 J**	**16.7 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	**1.28 J**	**10 J**	**2.05 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.617 J**	**17.9 J**	**6.9 J**	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.297 J**	**8 J**	**1.56 J**	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	**0.215 J**	**13.4 J**	**5.68 J**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-TP-202B (12) 8/24/2022	WW-TP-202C (10) 8/25/2022	WW-TP-203B (14) 8/30/2022	WW-MW-10 (4-5) 9/8/2009	WW-MW-10 (10-11.5) 9/8/2009	WW-MW-11 (3-5) 8/21/2009	WW-MW-11 (11-14) 8/25/2009	WW-MW-11 (39-40) 8/25/2009	WW-MW-13 (2-5) 9/15/2009	WW-MW-13 (5-10) 9/15/2009	Duplicate of WW-MW-13 (5-10) 9/15/2009
m/p-Xylene	0.26	1.6	100	**0.879 J**	**20.1 J**	**16.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	**6.26 J**	**13.6 J**	**16.6 J**	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	**139**	5 U	**28.8**	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	**150**	5 U	**40.2**	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	**157**	5 U	**39.1**	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	**193**	5 U	**37**	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	**165**	5 U	**34.5**	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.39 U	NA	0.02 U	NA	NA	2 U	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.39 U	NA	0.02 U	NA	NA	2 U	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	0.39 U	NA	0.02 U	NA	NA	2 U	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	0.39 U	NA	0.02 U	NA	NA	2 U	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.04 U	NA	0.002 UJ	NA	NA	0.11 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	0.04 U	NA	0.002 UJ	NA	NA	0.11 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.04 U	NA	**0.00077 J**	NA	NA	0.11 UJ	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.04 U	NA	**0.00089 J**	NA	NA	0.11 UJ	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	0.04 U	NA	0.002 U	NA	NA	0.11 U	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	0.04 U	NA	**0.0058**	NA	NA	0.11 U	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	0.04 U	NA	0.0039 U	NA	NA	0.11 U	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	0.04 U	NA	0.0039 U	NA	NA	0.11 U	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	0.04 U	NA	0.0039 UJ	NA	NA	**0.081 J**	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	0.04 U	NA	**0.004 J**	NA	NA	0.11 U	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.04 U	NA	0.002 UJ	NA	NA	0.11 UJ	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	0.04 U	NA	**0.0089 J**	NA	NA	0.11 U	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	0.04 U	NA	0.0039 U	NA	NA	0.11 U	NA	NA
Endrin	0.014	0.06	11	NA	NA	NA	0.04 U	NA	0.0039 U	NA	NA	0.11 U	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	0.04 U	NA	**0.023 J**	NA	NA	0.11 U	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	0.04 U	NA	**0.0041 J**	NA	NA	**0.099 J**	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	0.04 U	NA	0.002 UJ	NA	NA	0.11 U	NA	NA

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Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name				**WW-TP-202B**	**WW-TP-202C**	**WW-TP-203B**	**WW-MW-10**	**WW-MW-10**	**WW-MW-11**	**WW-MW-11**	**WW-MW-11**	**WW-MW-13**	**WW-MW-13**	**Duplicate of WW-MW-13**
Sample Depth (feet bgs)	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**(12)**	**(10)**	**(14)**	**(4-5)**	**(10-11.5)**	**(3-5)**	**(11-14)**	**(39-40)**	**(2-5)**	**(5-10)**	**(5-10)**
Sample Date				**8/24/2022**	**8/25/2022**	**8/30/2022**	**9/8/2009**	**9/8/2009**	**8/21/2009**	**8/25/2009**	**8/25/2009**	**9/15/2009**	**9/15/2009**	**9/15/2009**
Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.04 U	NA	0.002 UJ	NA	NA	0.11 UJ	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	0.077 U	NA	0.02 UJ	NA	NA	0.2 U	NA	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.093 U	NA	0.098 UJ	NA	NA	0.099 UJ	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.023 U	NA	0.025 UJ	NA	NA	0.025 UJ	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.023 U	NA	0.025 UJ	NA	NA	0.025 UJ	NA	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**3570**	**6110**	**4330**	**7690**	**4450**	**2170**	**1760**	**4450**	**1250**	**1670 J**	**3400 J**
Antimony	NE	NE	NE	1.64 U	3.26 U	1.34 UJ	4.7 UJ	4.7 UJ	4.7 UJ	4.6 UJ	4.6 UJ	5 UJ	5.6 UJ	6.5 UJ
Arsenic	13	16	16	**2.35**	**14**	**115**	6 U	6 U	**2.7 J**	**3.8**	5.9 U	**4.3**	**88.2 J**	**207 J**
Barium	350	820	400	**61.8**	**16.9 J**	**10.6 J**	**33.6**	**19.3**	**30.4**	**12.8 J**	**28.5 J**	**51 J**	**13.4 J**	**32 J**
Beryllium	7.2	47	72	**0.27 J**	**0.49 J**	**0.38 J**	1.4 U	1.4 U	1.4 U	**0.15 J**	**0.46 J**	1.5 U	1.7 U	2 UJ
Cadmium	2.5	7.5	4.3	1.31 U	2.61 U	**0.42 J**	**0.57 J**	**0.33 J**	1.4 UJ	1.4 UJ	1.4 U	**0.41 J**	**0.63 J**	**1.9 J**
Calcium	NE	NE	NE	**158000**	**1730**	**368 J**	71.5 UJ	**874 J**	71.2 UJ	**113000 J**	**1490 J**	**4660**	**686 J**	**2260 J**
Chromium	30	NE	180	**5.04 J**	**8.11 J**	**7.82 J**	**12.8 J**	**9.2 J**	**13.3 J**	**3 J**	**13.2 J**	**5.4**	**11.3 J**	**30.2 J**
Cobalt	NE	NE	NE	**2.36 J**	**5.88 J**	**5.89 J**	**5.1**	**5.5**	**1.6**	**2.2 J**	**6.4 J**	1.5 U	**6.4 J**	**15.2 J**
Copper	50	1720	270	**17.9**	**16.5 J**	**54.4 J**	**11.7**	**7.5**	**10.2**	**12 J**	**16.4 J**	**29.6**	**86.9 J**	**233 J**
Iron	NE	NE	NE	**7970**	**13700**	**11100 J**	**14500**	**9600**	**5570 J**	**6210 J**	**13600 J**	**19100 J**	**11700 J**	**36300 J**
Lead	63	450	400	**55.5**	**47.6 J**	**71.6 J**	**11.1 J**	**5.8 J**	**36.9 J**	**11.8 J**	**4.5 J**	**108**	**233 J**	**576 J**
Magnesium	NE	NE	NE	**8670**	**1220**	**994 J**	**2020**	**1720**	**493 J**	**67000 J**	**2490 J**	**1450**	**197 J**	**894 J**
Manganese	1600	2000	2000	**306**	**119**	**30.4**	**131**	**112**	**50.9 J**	**132 J**	**382 J**	**19.6**	**150 J**	**453 J**
Mercury	0.18	0.73	0.81	0.015 U	**0.184**	**0.306**	**0.015 J**	0.059 U	**0.069**	**0.041 J**	0.054 UJ	**0.22 J**	**0.42 J**	**0.86 J**
Nickel	30	130	310	**4.08 J**	**14 J**	**14.1 J**	**11.8**	**11.4**	**5.2**	**5.4**	**10.8**	**4.1 J**	**23.2 J**	**40.9 J**
Potassium	NE	NE	NE	**311 J**	**560 J**	3360 UJ	**699 J**	**540 J**	71.2 UJ	**496 J**	**1250 J**	**128 J**	**81.7 J**	**219 J**
Selenium	3.9	4	180	1.64 U	3.26 U	**2.52 J**	10.7 R	10.7 R	10.7 UJ	10.4 U	10.4 U	11.4 UJ	12.7 UJ	14.9 UJ
Silver	2	8.3	180	1.31 U	2.61 U	0.54 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.7 U	2 UJ
Sodium	NE	NE	NE	**1260 J**	**998 J**	3360 U	**249**	**139**	71.2 U	**187 J**	**229 J**	76.1 UJ	**419 J**	**698**
Thallium	NE	NE	NE	1.64 U	3.26 U	0.67 U	4.3 UJ	4.3 UJ	4.3 UJ	4.2 U	4.2 U	4.6 U	5.1 U	6 UJ
Tin	NE	NE	NE	**32.6 J**	65.2 U	**3.9 J**	3.6 U	3.6 U	3.6 U	3.5 U	3.5 U	**9.5**	**10.8**	**27.5**
Vanadium	NE	NE	NE	**4.62 J**	**10.4 J**	**10.4 J**	**18.3**	**12.9**	**6.5 J**	**9.6 J**	**17.7 J**	**5**	**5.9 J**	**15.9 J**
Zinc	109	2480	10000	**22.9**	**44.6**	33.6 UJ	**32.1**	**21.2**	**178**	**23.3**	**31.4**	**15.9**	**311 J**	**539 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.33 U	0.289 U	0.278 U	0.229 UJ	0.234 UJ	0.231 U	0.228 UJ	0.218 UJ	0.241 UJ	0.283 UJ	0.321 UJ
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	**0.864**	**0.296 J**	**0.166 J**	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	**0.637**	**0.145 J**	**0.0715 J**	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	**0.259**	**0.174 J**	**0.16 J**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-TP-202B (12) 8/24/2022**	**WW-TP-202C (10) 8/25/2022**	**WW-TP-203B (14) 8/30/2022**	**WW-MW-10 (4-5) 9/8/2009**	**WW-MW-10 (10-11.5) 9/8/2009**	**WW-MW-11 (3-5) 8/21/2009**	**WW-MW-11 (11-14) 8/25/2009**	**WW-MW-11 (39-40) 8/25/2009**	**WW-MW-13 (2-5) 9/15/2009**	**WW-MW-13 (5-10) 9/15/2009**	**Duplicate of WW-MW-13 (5-10) 9/15/2009**
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	**0.169**	**0.0451 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	**0.104**	**0.0571 J**	**0.0642 J**	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	**0.176**	**0.0716 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	**0.16**	**0.0531 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	**0.139**	**0.0944 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	**0.144**	**0.0884 J**	**0.0789 J**	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	**0.114**	**0.0619 J**	**0.0776 J**	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	**0.102**	**0.0511 J**	**0.0645 J**	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	**0.143**	**0.105 J**	**0.0592 J**	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	**0.225**	**0.131 J**	**0.13 J**	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	**0.102**	**0.0668 J**	**0.0495 J**	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	**0.0523**	**0.0452 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	**0.122**	**0.0575 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	**0.0506**	**0.0349 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	**0.362**	**0.24 J**	**0.24 J**	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	**0.0782**	**0.0414 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	**0.0538**	0.05 U	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	**0.0496**	**0.06 J**	**0.0521 J**	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	**0.0373**	**0.0324 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	**0.512**	**0.371 J**	**0.306 J**	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	**0.099**	**0.0678 J**	**0.0695 J**	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	**0.187**	**0.124 J**	**0.184 J**	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	**0.147**	**0.113 J**	**0.0994 J**	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	0.0155 U	0.05 U	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	**0.102**	**0.127 J**	**0.149 J**	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	**0.0779**	**0.0601 J**	**0.0584 J**	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	**0.0628**	**0.0745 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	**0.0483**	**0.0573 J**	**0.0761 J**	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	**0.0385**	**0.0584 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	**0.0509**	0.05 U	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	**0.0279**	0.05 U	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	**0.0326**	0.05 U	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	**0.58**	**0.329 J**	**0.125 J**	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	**0.265**	**0.0919 J**	**0.0434 J**	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	**0.177**	**0.201 J**	**0.234 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	**0.682**	**0.252 J**	**0.0989 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	**0.422**	**0.165 J**	**0.294 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	**0.399**	**0.243 J**	**0.097 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	**0.661**	**0.436 J**	**0.318 J**	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	**0.12**	**0.209 J**	**0.351 J**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcels 3 and 4 [Block 2287 Lots 16 and 30]			Adjacent to Parcels 3 and 4 N. 12th St		Adjacent to Parcels 3 and 4 N. 11th St			Adjacent to Parcels 3 and 4 N. 12th St		
Sample Name		**Protection of**	**Restricted-**	**WW-TP-202B**	**WW-TP-202C**	**WW-TP-203B**	**WW-MW-10**	**WW-MW-10**	**WW-MW-11**	**WW-MW-11**	**WW-MW-11**	**WW-MW-13**	**WW-MW-13**	**Duplicate of WW-MW-13**
Sample Depth (feet bgs)	**Unrestricted**	**Groundwater**	**Residential**	**(12)**	**(10)**	**(14)**	**(4-5)**	**(10-11.5)**	**(3-5)**	**(11-14)**	**(39-40)**	**(2-5)**	**(5-10)**	**(5-10)**
Sample Date	**SCO**	**SCO**	**SCO**	**8/24/2022**	**8/25/2022**	**8/30/2022**	**9/8/2009**	**9/8/2009**	**8/21/2009**	**8/25/2009**	**8/25/2009**	**9/15/2009**	**9/15/2009**	**9/15/2009**
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	**0.0507**	**0.0625 J**	0.0797 U	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	**0.344**	**0.435 J**	**0.553 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	**0.215**	**0.154 J**	**0.127 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	**0.377**	**0.181 J**	**0.0809 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	**0.166**	**0.188 J**	**0.144 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	**0.405**	**0.163 J**	**0.0844 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	**0.579**	**0.174 J**	**0.0587 J**	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	**0.333**	**0.15 J**	**0.0553 J**	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	**0.253**	**0.16 J**	**0.0926 J**	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	**6550**	**1850**	**2320**	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	**3560 J**	**487 J**	**839 J**	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	**5570**	**2410**	**4210**	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	**6450**	**2690**	**4940**	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	**24300 J**	**8350 J**	**17200 J**	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	**23700**	**16300**	**13300**	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	**26500**	**25600**	**24900**	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 11th St				Adjacent to Parcels 3 and 4 N. 12th St			Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
BTEX (mg/kg)													
Benzene	0.06	0.06	4.8	**0.00074 J**	0.006 U	**0.87 J**	0.0059 U	0.0059 U	0.006 U	**0.014 J**	0.006 U	**54**	**0.00086 J**
Toluene	0.7	0.7	100	0.0057 U	**0.0018 J**	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Ethylbenzene	1	1	41	0.0057 U	0.006 U	**34**	0.0059 U	0.0059 U	0.006 U	**0.0087 J**	0.006 U	**430**	0.006 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	**0.0085 J**	0.006 U	12 U	0.006 U
Total BTEX	NE	NE	NE	**0.00074**	**0.0018**	**34.87**	ND	ND	ND	**0.0312**	ND	**484**	**0.00086**
Other VOCs (mg/kg)													
Acetone	0.05	0.05	100	0.023 UJ	0.024 UJ	14 U	0.024 UJ	0.024 UJ	0.024 UJ	0.12 U	0.024 UJ	30 U	0.024 UJ
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 UJ	12 U	0.006 UJ
Chlorobenzene	1.1	1.1	100	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
1,1-Dichloroethene	0.33	0.33	100	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
1,2-Dichloropropane	NE	NE	NE	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.011 U	0.012 U	5.7 U	0.012 U	0.012 U	0.012 U	0.061 U	0.012 U	12 U	0.012 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0057 U	0.006 U	**7 J**	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.023 U	0.024 U	5.7 U	0.024 U	0.024 U	0.024 U	0.12 U	0.024 U	12 U	0.024 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	**0.00051 J**	12 U	0.006 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0057 U	0.006 U	**0.95 J**	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Trichloroethene (TCE)	0.47	0.47	21	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U

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Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 11th St				Adjacent to Parcels 3 and 4 N. 12th St			Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0057 U	0.006 U	5.7 U	0.0059 U	0.0059 U	0.006 U	0.031 U	0.006 U	12 U	0.006 U
Total VOCs	NE	NE	NE	**0.00074**	**0.0018**	**42.82**	ND	ND	ND	**0.0312**	**0.00051**	**484**	**0.00086**
PAHs (mg/kg)													
Acenaphthene	20	98	100	**0.3 J**	**0.45 J**	**180**	**1.6 J**	6.1 U	6.4 U	**3**	**5.6 J**	**350**	**0.12 J**
Acenaphthylene	100	107	100	**1.5 J**	**1.3 J**	**36**	**0.23 J**	**1.6 J**	**1.6 J**	**1 J**	**4.4 J**	150 U	0.32 U
Anthracene	100	1000	100	**0.97 J**	**1.4 J**	**110**	**0.97 J**	**1.6 J**	**1.1 J**	**2.9**	**14 J**	**120 J**	**0.06 J**
Benzo(a)anthracene	1	1	1	**4.3**	**4.5**	**76**	**0.61**	**6.1**	**3.9 J**	**4.6**	**76**	**57 J**	**0.05 J**
Benzo(b)fluoranthene	1	1.7	1	**6.8**	**5.8**	**43**	**0.4**	**8.4**	**6.4**	**5.8**	**150 J**	**34 J**	0.32 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**3 J**	**2.3**	**18 J**	**0.19 J**	**3.3 J**	**2.3 J**	**2.2**	**57 J**	**15 J**	0.32 U
Benzo(g,h,i)perylene	100	1000	100	**2.5 J**	**6.3 J**	**16 J**	**0.098 J**	**9.3**	**8.2**	**7**	**78 J**	150 U	0.32 U
Benzo(a)pyrene	1	22	1	**5**	**5.9**	**59**	**0.42**	**8.3**	**6.6**	**6**	**130 J**	**43 J**	**0.038 J**
Chrysene	1	1	3.9	**4.8**	**4.7**	**70**	**0.65 J**	**6.5**	**4 J**	**4.4**	**73**	**55 J**	**0.049 J**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.48 J**	**1.2 J**	**2.5 J**	0.32 U	6.1 U	6.4 U	**1.3 J**	**22 J**	150 U	0.32 U
Fluoranthene	100	1000	100	**6.6**	**7.1**	**140**	**1.1 J**	**8.7**	**4.3 J**	**8.8**	**60**	**130 J**	**0.088 J**
Fluorene	30	386	100	**0.38 J**	**0.55 J**	**130**	**1.1 J**	**0.46 J**	**0.39 J**	**1.7**	**8.6 J**	**160**	**0.064 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**2.8 J**	**6.3 J**	**17 J**	**0.1 J**	**7.8**	**6.3 J**	**6.9**	**90 J**	150 U	0.32 U
2-Methylnaphthalene	NE	36.4*	NE	3.1 U	1.6 U	**360**	**1.9 J**	6.1 U	6.4 U	**0.49 J**	16 U	**930**	0.32 U
Naphthalene	12	12	100	3.1 U	1.6 U	**490**	**1.6 J**	6.1 U	6.4 U	**1.8**	16 U	**2300**	0.32 U
Phenanthrene	100	1000	100	**3.5**	**4.7**	**380**	**2.7 J**	**3.2 J**	**1.9 J**	**7.7**	**46**	**390**	**0.23 J**
Pyrene	100	1000	100	**7.8**	**8.7**	**180**	**1.5 J**	**11**	**6.3 J**	**11**	**90**	**140 J**	**0.17 J**
Total PAHs	NE	NE	NE	**50.73**	**61.2**	**2307.5**	**15.168**	**76.26**	**53.29**	**76.59**	**904.6**	**4724**	**0.869**
MAEPH (mg/kg)													
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 11th St				Adjacent to Parcels 3 and 4 N. 12th St			Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)													
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
Butyl benzyl phthalate	NE	122*	NE	**0.25 J**	**0.23 J**	30 U	0.32 U	**1 J**	6.4 U	1.3 U	16 U	150 U	0.32 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	**0.28 J**	**0.51 J**	**6.2 J**	**0.052 J**	6.1 U	6.4 U	**0.85 J**	**2.3 J**	**13 J**	0.32 U
2-Chloronaphthalene	NE	NE	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
Dibenzofuran	7	210, 6.2*	59	3.1 U	**0.26 J**	**34**	**0.18 J**	6.1 U	6.4 U	**1.3 J**	**2.2 J**	**43 J**	0.32 U
Diethyl phthalate	NE	7.1*	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
2,4-Dimethylphenol	NE	NE	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
Di-n-butyl phthalate	NE	8.1*	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
2,6-Dinitrotoluene	NE	1*	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
Di-n-octyl phthalate	NE	120*	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 UJ	150 U	0.32 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
4-Nitroaniline	NE	NE	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
Phenol	0.33	0.33	100	3.1 U	1.6 U	30 U	0.32 U	6.1 U	6.4 U	1.3 U	16 U	150 U	0.32 U
Total SVOCs	NE	NE	NE	**51.26**	**62.2**	**2347.7**	**15.4**	**77.26**	**53.29**	**78.74**	**909.1**	**4780**	**0.869**
Alkylated PAHs (mg/kg)													
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 11th St				Adjacent to Parcels 3 and 4 N. 12th St			Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 11th St				Adjacent to Parcels 3 and 4 N. 12th St			Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)													
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)													
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)													
Aroclor 1242	NE	NE	NE	0.019 UJ	0.02 U	NA	NA	0.041 U	NA	NA	0.02 U	NA	NA
Aroclor 1248	NE	NE	NE	0.019 UJ	0.02 U	NA	NA	0.041 U	NA	NA	0.02 U	NA	NA
Aroclor 1254	NE	NE	NE	**0.21 J**	**0.094 J**	NA	NA	0.041 U	NA	NA	0.02 U	NA	NA
Aroclor 1260	NE	NE	NE	**0.081 J**	**0.039 J**	NA	NA	0.041 U	NA	NA	0.02 U	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	**0.291**	**0.133**	NA	NA	ND	NA	NA	ND	NA	NA
Pesticides (mg/kg)													
Aldrin	0.005	0.19	0.097	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.002 UJ	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.002 UJ	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	**0.0021 J**	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	**0.00089 J**	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	**0.0025**	NA	NA
gamma-Chlordane	NE	14*	NE	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.002 U	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.0039 U	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.041 UJ	**0.017 J**	NA	NA	0.021 U	NA	NA	0.0039 U	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.0039 UJ	NA	NA
Dieldrin	0.005	0.1	0.2	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.0039 UJ	NA	NA
alpha-Endosulfan (I)	2.4	102	24	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.002 UJ	NA	NA
beta-Endosulfan (II)	2.4	102	24	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	**0.014 J**	NA	NA
Endosulfan sulfate	2.4	1000	24	0.041 U	0.13 U	NA	NA	0.021 U	NA	NA	0.0039 U	NA	NA
Endrin	0.014	0.06	11	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.0039 UJ	NA	NA
Endrin aldehyde	NE	NE	NE	0.041 U	0.13 U	NA	NA	0.021 U	NA	NA	**0.03 J**	NA	NA
Endrin ketone	NE	NE	NE	**0.026 J**	0.13 UJ	NA	NA	**0.011 J**	NA	NA	**0.0016 J**	NA	NA
Heptachlor	0.042	0.38	2.1	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.002 UJ	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 11th St				Adjacent to Parcels 3 and 4 N. 12th St			Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-14 (3-5) 9/1/2009	Duplicate of WW-MW-14 (3-5) 9/1/2009	WW-MW-14 (36-37) 9/2/2009	WW-MW-14 (55-57) 9/2/2009	WW-MW-15 (1-4) 9/24/2009	Duplicate of WW-MW-15 (1-4) 9/24/2009	WW-MW-15 (12-13) 9/28/2009	WW-SB-13 (4-5) 8/21/2009	WW-SB-13 (12-15) 8/24/2009	WW-SB-13 (37-38) 8/24/2009
Heptachlor epoxide	NE	0.02*	NE	0.041 UJ	0.13 UJ	NA	NA	0.021 U	NA	NA	0.002 UJ	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.079 UJ	0.26 UJ	NA	NA	0.041 U	NA	NA	0.02 UJ	NA	NA
Herbicides (mg/kg)													
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.096 UJ	0.11 UJ	NA	NA	0.099 U	NA	NA	0.1 UJ	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.024 U	0.026 U	NA	NA	0.025 U	NA	NA	0.026 UJ	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.024 U	0.026 U	NA	NA	0.025 U	NA	NA	0.026 UJ	NA	NA
Metals (mg/kg)													
Aluminum	NE	NE	NE	**7000**	**7190**	**3210**	**5340**	**4950**	**4710**	**3510**	**2790**	**4000**	**2700**
Antimony	NE	NE	NE	4.6 UJ	4.8 UJ	4.7 UJ	4.8 UJ	4.6 U	4.9 U	5 UJ	4.7 UJ	4.9 UJ	4.7 UJ
Arsenic	13	16	16	**19.7 J**	**17.2**	**7 J**	**2.8 J**	**39.2**	**45.1**	**65.9**	**3.9 J**	**31.9**	6 U
Barium	350	820	400	**171 J**	**170 J**	**36.8 J**	**43.7 J**	**54**	**56.1**	**38 J**	**21.4**	**56.5 J**	**15.1 J**
Beryllium	7.2	47	72	**0.2 J**	**0.26 J**	**0.49 J**	**0.28 J**	**0.31**	**0.27**	1.5 U	1.4 U	**0.36 J**	**0.64 J**
Cadmium	2.5	7.5	4.3	**1.2 J**	**1.1 J**	**0.31 J**	1.4 U	1.4 U	1.5 U	1.5 U	1.4 UJ	1.5 U	1.4 UJ
Calcium	NE	NE	NE	**33100 J**	**31100 J**	**5040 J**	**10800 J**	**2260**	**5380**	**1960**	71.3 UJ	**12100 J**	**384 J**
Chromium	30	NE	180	**22.3 J**	**24.1 J**	**10.6 J**	**13 J**	**15.7**	**21.6**	**43.7 J**	**4.2 J**	**12.9 J**	**17.9 J**
Cobalt	NE	NE	NE	**5.8**	**5.2**	**5.9**	**6.2**	**6.9**	**4.8**	**12.2**	**1.3 J**	**3.8 J**	**5.2 J**
Copper	50	1720	270	**93.9**	**136**	**11.3**	**13.7**	**104**	**142**	**202**	**7.9**	**64.2 J**	**17.1 J**
Iron	NE	NE	NE	**28100 J**	**20400 J**	**24400 J**	**17700 J**	**17900**	**12700**	**14800**	**5830 J**	**14500 J**	**44200 J**
Lead	63	450	400	**331 J**	**316 J**	**5.7 J**	4.3 U	**345**	**502**	**450 J**	**25.3 J**	**99 J**	**6 J**
Magnesium	NE	NE	NE	**7530**	**6570**	**3730**	**5720**	**2740**	**2880**	**2550**	**517 J**	**1700 J**	**535 J**
Manganese	1600	2000	2000	**294**	**353**	**875**	**421**	**132**	**90**	**196**	**24.8 J**	**178 J**	**348 J**
Mercury	0.18	0.73	0.81	**0.85**	**0.83**	**0.0075 J**	**0.017 J**	**0.34**	**1.6**	**0.11**	**0.12**	**0.81 J**	**0.0065 J**
Nickel	30	130	310	**20.6**	**20.6**	**10.3**	**10.1**	**19.8**	**14.6**	**17.1 J**	**4.1**	**9.9**	**6.7**
Potassium	NE	NE	NE	**1240 J**	**1130 J**	**774 J**	**1170 J**	**903**	**1000**	**652 J**	71.3 UJ	**655 J**	**255 J**
Selenium	3.9	4	180	10.5 R	10.8 R	10.7 R	10.9 R	10.5 U	11.2 U	**6 J**	10.7 U	11.1 U	10.7 U
Silver	2	8.3	180	**0.18 J**	**0.17 J**	1.4 UJ	1.4 U	**0.083**	**0.21**	**0.27 J**	1.4 U	**0.11 J**	1.4 U
Sodium	NE	NE	NE	**1640**	**2000**	**800**	**1480**	**1850**	**1590**	**1560**	71.3 U	**510 J**	**67.8 J**
Thallium	NE	NE	NE	4.2 UJ	4.3 UJ	4.3 UJ	4.3 UJ	**2.2**	**1.6**	**1.1 J**	4.3 UJ	4.5 U	4.3 U
Tin	NE	NE	NE	**19.9**	**11.9**	3.6 U	3.6 U	**66.1**	**22.4**	**6.5**	3.6 U	**8.3**	3.6 U
Vanadium	NE	NE	NE	**24.5 J**	**24.3 J**	**19.6 J**	**22.2 J**	**19.8**	**19.7**	**13.9 J**	**7.9 J**	**15.7 J**	**28.9 J**
Zinc	109	2480	10000	**471 J**	**479 J**	**32 J**	**32.6 J**	**248**	**177**	**94.2 J**	**26.9**	**89.8**	**35.5**
Cyanides (mg/kg)													
Free Cyanide	NE	NE	NE	0.227 U	0.237 U	0.228 U	0.234 U	0.233 U	0.238 U	0.242 UJ	0.237 U	0.234 UJ	0.238 U
Biomarkers (mg/kg)													
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)													
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	0.03 U	0.03 U	12 U	**0.017 J**	**0.061 J**	**0.046 J**	**0.22 J**	**0.0058**	0.0017 U	0.0023 U	**0.706**
Toluene	0.7	0.7	100	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 UJ	0.031 U	0.0038 U	0.0017 U	0.0023 U	**0.179 J**
Ethylbenzene	1	1	41	**0.1 J**	**0.3 J**	**270**	0.0061 U	0.037 U	**0.018 J**	**0.11 J**	0.0038 U	0.0017 U	0.0023 U	**3.11**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**0.337**
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	0.0075 U	0.0035 U	0.0047 U	**0.505 J**
Total Xylene	0.26	1.6	100	0.03 U	0.03 U	12 U	0.0061 UJ	0.037 UJ	0.0055 UJ	0.031 UJ	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.1**	**0.3**	**270**	**0.017**	**0.061**	**0.064**	**0.33**	**0.0058**	ND	ND	**4.837**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.12 U	0.12 U	31 U	0.024 U	0.15 U	**0.065 J**	0.13 UJ	0.0377 UJ	0.0175 UJ	0.0234 UJ	6.79 U
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**0.804**
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**0.223 J**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	0.271 U
Carbon disulfide	NE	2.7*	NE	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	**0.012 J**	**0.025 J**	0.0038 U	**0.001 J**	**0.0021 J**	**0.0706 J**
Chlorobenzene	1.1	1.1	100	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0022 J**	0.0017 U	0.0023 U	**0.939**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**0.76**
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.0038 UJ	0.0017 UJ	0.0023 UJ	1.63 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	0.271 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	0.271 U
1,1-Dichloroethane	0.27	0.27	26	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
1,1-Dichloroethene	0.33	0.33	100	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
1,2-Dichloropropane	NE	NE	NE	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**0.641**
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**1 J**
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.061 U	0.061 U	12 U	0.012 U	0.074 U	**0.011 J**	0.063 U	0.0377 U	0.0175 U	0.0234 U	6.79 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	0.271 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 U	0.031 U	0.0377 U	0.0175 U	0.0234 U	2.71 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0043**	0.0017 U	0.0023 U	**1.93**
Methylene chloride	0.05	0.05	100	0.12 U	0.12 U	12 U	0.024 U	0.15 U	0.022 UJ	0.13 U	0.0189 U	0.0087 U	0.0117 U	1.36 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	**0.0019**	**0.0056**	**211**
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	**0.478**
Styrene	NE	NE	NE	0.03 U	**0.003 J**	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.0038 U	0.0017 U	0.0023 U	0.271 U
1,1,2-Trichloroethane	NE	NE	NE	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	**0.074 J**	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U
Trichloroethene (TCE)	0.47	0.47	21	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0038 U	0.0017 U	0.0023 U	0.271 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	**0.0065**	**0.0009 J**	0.0023 U	**2.9**
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	**0.0032 J**	0.0017 U	0.0023 U	**1.2**
Vinyl chloride	0.02	0.02	0.9	0.03 U	0.03 U	12 U	0.0061 U	0.037 U	0.0055 R	0.031 U	0.0075 U	0.0035 U	0.0047 U	0.271 U
Total VOCs	NE	NE	NE	**0.1**	**0.303**	**270**	**0.017**	**0.061**	**0.226**	**0.355**	**0.022**	**0.0038**	**0.0077**	**226.7826**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**89**	**92**	**200**	**16**	**120**	**6.9**	**23**	**0.37**	**0.185 J**	**0.122 J**	**2.58**
Acenaphthylene	100	107	100	**15 J**	**23**	**19 J**	**2.4 J**	**7 J**	**1.2 J**	**3.2 J**	**1.94**	**0.148 J**	**0.0987 J**	**2.63**
Anthracene	100	1000	100	**55**	**83**	**54 J**	**11**	**57**	**5.5 J**	**24**	**0.976**	**0.428 J**	**0.26 J**	**9.38**
Benzo(a)anthracene	1	1	1	**37**	**68**	**32 J**	**26**	**52**	**5.1 J**	**19**	**4.62**	**1.19**	**0.605**	**8**
Benzo(b)fluoranthene	1	1.7	1	**27**	**50**	**21 J**	**34**	**60 J**	**5.6**	**16**	**4.65**	**1.47**	**0.686**	**7.43**
Benzo(k)fluoranthene	0.8	1.7	3.9	**10 J**	**21**	**9.5 J**	**15**	**30 J**	**2.3 J**	**5.6 J**	**3.91**	**0.517 J**	**0.277 J**	**2.87**
Benzo(g,h,i)perylene	100	1000	100	**8 J**	**14 J**	66 U	**47**	**47 J**	**4.5 J**	**11**	**4.76**	**0.663**	**0.32 J**	**3.28**
Benzo(a)pyrene	1	22	1	**32**	**60**	**28 J**	**39**	**72 J**	**6.3**	**17**	**6.81**	**1.33**	**0.649**	**7.82**
Chrysene	1	1	3.9	**37**	**67**	**31 J**	**25**	**47**	**5.1 J**	**16**	**4.16**	**1.21**	**0.595**	**6.96**
Dibenz(a,h)anthracene	0.33	1000	0.33	**2.5 J**	**4.3 J**	66 U	**7.9**	**9.1 J**	5.6 U	**2.1 J**	**0.908**	**0.17 J**	**0.0909 J**	**0.881**
Fluoranthene	100	1000	100	**55**	**89**	**61 J**	**32**	**62**	**9.3**	**51**	**6.32**	**2.32**	**1.27**	**20.5**
Fluorene	30	386	100	**67**	**100**	**96**	**8.8**	**56**	**4.3 J**	**7.4**	**0.298**	**0.249 J**	**0.156 J**	**6.67**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**9.4 J**	**17**	**6.5 J**	**47**	**49 J**	**3.8 J**	**11**	**5.53**	**0.787**	**0.359 J**	**4.17**
2-Methylnaphthalene	NE	36.4*	NE	16 U	16 U	**410**	**22**	**31**	5.6 U	6.7 U	**0.43**	**0.118 J**	**0.165 J**	**18.1**
Naphthalene	12	12	100	16 U	16 U	**930**	**39**	**72**	5.6 U	**22**	**2.46**	**0.191 J**	**0.142 J**	**101**
Phenanthrene	100	1000	100	**190**	**280**	**200**	**32**	**150**	**15**	**33**	**1.15**	**1.32**	**0.856**	**32.2**
Pyrene	100	1000	100	**87**	**140**	**87**	**52**	**130**	**12**	**61**	**6.1**	**2.07**	**1.13**	**15.6**
Total PAHs	NE	NE	NE	**720.9**	**1108.3**	**2185**	**456.1**	**1051.1**	**86.9**	**322.3**	**55.392**	**14.366**	**7.7816**	**250.071**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**3.46**	**0.212 J**	**0.294 J**	**2.29**
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.87**	**0.272 J**	**0.419 J**	**5.73**
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.922**	**0.71**	**0.995**	**13.1**
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.301 J**	**0.503**	**0.882**	**13.6**
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.428 J**	**0.81**	**1.33**	**23.7**
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.229 J**	**0.918**	**1.44**	**21.7**
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.992**	**1.46**	**24.8**
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.306 J**	**0.999**	**1.52**	**23.2**
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.262 J**	**0.826**	**1.27**	**19.4**
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.33 J**	**0.893**	**1.36**	**18.8**
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.238 J**	**0.91**	**1.21**	**17.2**
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.33 J**	**0.801**	**0.911**	**12.7**
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.515**	**0.708**	**7.86**
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.534**	**0.892**	**0.852**	**10**
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.807**	**1.23**	**6.17**
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**1.54**	**2.09**	**5.26**
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.907**	**1.59**	**1.75 J**
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**1.6**	**1.98**	**2.39**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.992**	**1.5**	**1.53 J**
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.811**	**1.35**	**0.981 J**
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.955**	**1.37**	**0.971 J**
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**1.07**	**1.54**	**1.04 J**
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.902**	**1.44**	1.76 U
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.944**	**1.31**	1.76 U
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**1.05**	**1.38**	1.76 U
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.992**	**1.38**	1.76 U
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.643**	**1.12**	1.76 U
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.844**	**1.13**	1.76 U
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.476**	**0.685**	1.76 U
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	**0.265 J**	**0.412 J**	1.76 U
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.452 U	0.411 U	**0.549**	1.76 U
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.243 J**	0.411 U	0.451 U	1.76 U
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.27**	0.411 U	0.451 U	**1.22 J**
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.276 U	0.521 U	0.548 U	**0.262 J**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.102**	0.0521 U	0.0548 U	**2.36**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	16 U	16 U	66 U	**0.75 J**	20 U	5.6 U	6.7 U	0.276 U	**0.728 J**	0.548 U	0.457 U
Butyl benzyl phthalate	NE	122*	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 U	0.548 U	0.457 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.276 U	0.521 U	0.548 U	0.457 U
Carbazole	NE	NE	NE	**1.5 J**	**2.5 J**	66 U	**1.8 J**	**3.1 J**	**0.4 J**	**1.9 J**	**0.111 J**	**0.123 J**	**0.0778 J**	**2.51**
2-Chloronaphthalene	NE	NE	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 U	0.548 U	0.457 U
Dibenzofuran	7	210, 6.2*	59	**7.4 J**	**9.6 J**	**9.9 J**	**2.8 J**	**7.9 J**	**1.4 J**	**6.9**	**0.596**	**0.108 J**	**0.0765 J**	**6.97**
Diethyl phthalate	NE	7.1*	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 U	0.548 U	0.457 U
2,4-Dimethylphenol	NE	NE	NE	16 U	16 U	66 UJ	3.3 UJ	20 UJ	5.6 U	6.7 U	0.276 U	0.521 R	0.548 R	0.457 U
Di-n-butyl phthalate	NE	8.1*	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 U	0.548 U	0.457 U
2,6-Dinitrotoluene	NE	1*	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 U	0.548 U	0.457 U
Di-n-octyl phthalate	NE	120*	NE	16 U	16 U	66 U	3.3 U	20 UJ	5.6 U	6.7 U	0.551 U	1.04 U	1.1 U	0.914 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	**0.43**	**0.118 J**	**0.165 J**	**18.1**
2-Methylphenol (o-Cresol)	0.33	0.33	100	16 U	16 U	66 U	3.3 U	20 U	5.6 U	**0.42 J**	**0.0383 J**	0.521 R	0.548 R	**0.0683 J**
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.102 J**	0.521 R	0.548 R	**0.17 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	16 U	16 U	66 U	3.3 U	20 U	5.6 U	**1.2 J**	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.551 U	1.04 U	1.1 U	0.914 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 U	0.548 U	0.457 U
Phenol	0.33	0.33	100	16 U	16 U	66 U	3.3 U	20 U	5.6 U	6.7 U	0.276 U	0.521 R	0.548 R	0.457 U
Total SVOCs	NE	NE	NE	**729.8**	**1120.4**	**2194.9**	**461.45**	**1062.1**	**88.7**	**332.72**	**56.3413**	**15.325**	**7.9359**	**262.4113**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	**0.28**	**0.208 J**	**0.123 J**	**4.33**
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	**1.2**	**0.348 J**	**0.117 J**	**7.21**
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	**0.652**	**0.577 J**	**0.277 J**	**23.1**
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	**1.12**	**0.0619 J**	**0.0417 J**	**0.787 J**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.238 JN**	0.0757 U	0.0726 U	0.352 U
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.382 JN**	**0.0642 JN**	**0.0595 JN**	**1.03 JN**
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.02 JN**	**0.102 JN**	**0.177 JN**	**2.87 JN**
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.806 JN**	**0.145 JN**	**0.254 JN**	**3.79 JN**
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.324 JN**	**0.133 JN**	**0.238 JN**	**1.8 JN**
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	**1.77**	**1.58 J**	**0.623 J**	**27.9**
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	**2.32 J**	**1.52 J**	**0.567 J**	**20.3**
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.86**	**1.31 J**	**0.481 J**	**16.3**
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.2**	**0.131 J**	**0.0631 J**	**3.46**
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0627**	**0.0561 J**	**0.0245 J**	**1.13**
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.192**	**0.261 J**	**0.138 J**	**2.41**
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	**2.49**	**1.01 J**	**0.411 J**	**12.6**
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	**2.84**	**1.62 J**	**0.634 J**	**24.9**
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.86**	**1.08 J**	**0.443 J**	**13.6**
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0537**	**0.0102**	**0.00958**	**1.24**
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0379 JN**	**0.0204 JN**	**0.0274 JN**	**1.52 JN**
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0277 JN**	**0.0341 JN**	**0.0513 JN**	**0.775 JN**
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0233 JN**	**0.0322 JN**	**0.0542 JN**	**0.28 JN**
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0209 JN**	**0.0332 JN**	**0.0443 JN**	**0.0847 JN**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0451**	**0.0342**	**0.039**	**4.54**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	**0.131**	**0.0117**	**0.0138**	**0.0881**
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	**0.0476**	**0.00664**	**0.0109**	**0.0289**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	**0.00901**	0.00411 U	0.00451 U	0.0176 U
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.952 JN**	**0.717 JN**	**0.411 JN**	**8.06 JN**
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.624 JN**	**0.461 JN**	**0.44 JN**	**3.42 JN**
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.387 JN**	**0.368 JN**	**0.412 JN**	**1.93 JN**
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.22 JN**	**0.224 JN**	**0.273 JN**	**0.92 JN**
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.69**	**1.61 J**	**0.623 J**	**22.4**
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.809**	**0.287 J**	**0.118 J**	**3.36**
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0828**	**0.0171**	**0.0215**	**0.406**
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0242**	**0.00434**	**0.00753**	**0.0702**
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.154**	**0.0208**	**0.0259**	**0.26**
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.463 JN**	**0.0722 JN**	**0.104 JN**	**0.73 JN**
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.523 JN**	**0.096 JN**	**0.143 JN**	**1.27 JN**
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.398 JN**	**0.0772 JN**	**0.122 JN**	**1.21 JN**
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.374 JN**	**0.148 JN**	**0.211 JN**	**1.83 JN**
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	**0.562**	**0.307 J**	**0.161 J**	**3.96**
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	**0.298**	**0.151 J**	**0.0762 J**	**13.1**
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0913**	**0.148 J**	**0.0792 J**	**4.36**
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.114 JN**	**0.186 JN**	**0.201 JN**	**1.7 JN**
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.154 JN**	**0.307 JN**	**0.431 JN**	**1.08 JN**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.121 JN**	**0.312 JN**	**0.524 JN**	**0.5 JN**
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0844 JN**	**0.265 JN**	**0.47 JN**	**0.25 JN**
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	**0.16**	**0.0237**	**0.0181**	**1.22**
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	**2.72**	**3.27 J**	**1.09 J**	**60**
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**1.61 JN**	**1.17 JN**	**0.584 JN**	**18.6 JN**
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.856 JN**	**0.9 JN**	**0.46 JN**	**6.18 JN**
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.511 JN**	**0.439 JN**	**0.38 JN**	**2.57 JN**
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	**0.115**	**0.278 J**	**0.15 J**	**12.8**
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.143 JN**	**0.154 JN**	**0.131 JN**	**3.23 JN**
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.192 JN**	**0.241 JN**	**0.251 JN**	**2.07 JN**
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.214 JN**	**0.344 JN**	**0.252 JN**	**1.84 JN**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	**2.96**	**1.38 J**	**0.531 J**	**18.3**
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0466**	**0.00723**	**0.00717**	**0.242**
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.462 J**	**0.0151**	**0.012**	**0.346**
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.111**	**0.133**	**0.163**	**16.2**
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	**0.194**	**0.177**	**0.236**	**30.3**
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.153**	**0.101**	**0.0625**	**1.32**
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.215**	**0.176 J**	**0.085 J**	**2.37**
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	**1.03**	**0.213**	**0.171**	**112**
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.191 JN**	**0.193 JN**	**0.247 JN**	**28.7 JN**
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.174 JN**	**0.437 JN**	**0.551 JN**	**11.7 JN**
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.223 JN**	**0.467 JN**	**0.579 JN**	**5.74 JN**
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.204 JN**	**0.315 JN**	**0.391 JN**	**2.84 JN**
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.261 JN**	**0.369 JN**	**0.443 JN**	**1.73 JN**
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.254 JN**	**0.515 JN**	**0.803 JN**	**0.733 JN**
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.234 JN**	**0.512 JN**	**0.884 JN**	**0.469 JN**
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.109 JN**	**0.346 JN**	**0.529 JN**	**0.119 JN**
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.794**	**0.387 J**	**0.164 J**	**6.7**
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	**0.471**	**2.16 J**	**0.75 J**	**78.4**
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.533 JN**	**1.01 JN**	**0.615 JN**	**19.8 JN**
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.596 JN**	0.00411 UJ	**0.611 JN**	**8.13 JN**
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.354 JN**	**0.363 JN**	**0.42 JN**	**3.04 JN**
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.152 JN**	**0.157 JN**	**0.229 JN**	**1.18 JN**
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	**0.167**	**0.0192**	**0.0172**	**0.0953**
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	**2.61**	**2.74 J**	**1.05 J**	**49.8**
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0758**	**0.055**	**0.0676**	**0.66**
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.115**	**0.0415**	**0.0336 J**	**4.26**
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	**0.273 J**	0.0848 U	0.0835 U	0.403 U
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.207**	**0.021 J**	**0.0389 J**	**0.679**
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	**0.624**	**0.0467 J**	**0.0916 J**	**1.23**
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	**0.154**	**0.0138**	**0.0252**	**0.488**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	**0.0873**	**0.0137**	**0.0181**	**0.139**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	**0.362**	**0.0601**	**0.0504**	**0.403**
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.218**	**0.134**	**0.082**	**1.56**
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.629**	**0.804**	**0.832**	**9.05**
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.796**	**0.828**	**0.979**	**12.5**
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.612**	**0.303 J**	**0.48**	**5.01**
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.694**	**0.599**	**0.806**	**11.3**
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.687**	**0.556**	**0.78**	**12**
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.04 U	0.04 U	NA	0.44 U	NA	0.037 U	NA	0.06 U	0.05 U	0.05 U	NA
Aroclor 1248	NE	NE	NE	0.04 U	0.04 U	NA	0.44 U	NA	0.037 U	NA	0.06 U	**0.09**	**0.07**	NA
Aroclor 1254	NE	NE	NE	0.04 U	0.04 U	NA	0.44 U	NA	0.037 U	NA	0.06 U	0.05 U	0.05 U	NA
Aroclor 1260	NE	NE	NE	0.04 U	0.04 U	NA	0.44 U	NA	0.037 U	NA	0.06 U	**0.02 J**	0.05 U	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.06 U	0.05 U	0.05 U	NA
Total PCB Aroclors	0.1	3.2	1	ND	ND	NA	ND	NA	ND	NA	ND	**0.11**	**0.07**	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.21 UJ	0.42 U	NA	0.045 UJ	NA	0.038 UJ	NA	0.0017 U	0.0017 U	0.0017 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.21 UJ	0.42 U	NA	0.045 UJ	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.0337 U	**0.039 J**	0.0344 U	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	**0.0067**	**0.0034**	NA
gamma-Chlordane	NE	14*	NE	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	**0.0049 J**	**0.0032 J**	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.21 U	0.42 UJ	NA	0.045 UJ	NA	0.038 U	NA	0.0028 U	0.0028 U	0.0029 U	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.21 U	0.42 U	NA	0.045 U	NA	0.038 U	NA	0.0028 U	**0.0151**	**0.0083**	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.21 U	0.42 UJ	NA	0.045 UJ	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
Dieldrin	0.005	0.1	0.2	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	**0.0022 J**	0.0029 U	NA
alpha-Endosulfan (I)	2.4	102	24	0.21 U	0.42 U	NA	0.045 UJ	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
beta-Endosulfan (II)	2.4	102	24	0.21 U	0.42 U	NA	0.045 U	NA	0.038 U	NA	0.0028 U	0.0028 UJ	0.0029 UJ	NA
Endosulfan sulfate	2.4	1000	24	0.21 U	0.42 U	NA	0.045 U	NA	0.038 U	NA	0.0028 U	0.0028 U	0.0029 U	NA
Endrin	0.014	0.06	11	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
Endrin aldehyde	NE	NE	NE	0.21 U	0.42 U	NA	0.045 U	NA	0.038 U	NA	0.0028 U	0.0028 U	0.0029 U	NA
Endrin ketone	NE	NE	NE	0.21 U	0.42 U	NA	**0.043 J**	NA	0.038 U	NA	0.0028 U	0.0028 U	0.0029 U	NA
Heptachlor	0.042	0.38	2.1	0.21 U	0.42 U	NA	0.045 U	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
Heptachlor epoxide	NE	0.02*	NE	0.21 U	0.42 U	NA	0.045 UJ	NA	0.038 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	0.0028 U	0.0028 U	0.0029 U	NA
Methoxychlor	NE	900*	NE	0.4 U	0.81 UJ	NA	0.088 U	NA	0.073 UJ	NA	0.0028 U	0.0028 U	0.0029 U	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.49 UJ	0.098 UJ	NA	0.11 UJ	NA	0.089 U	NA	0.205 U	0.201 U	0.202 U	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.01 U	**0.01 J**	0.01 U	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.205 U	0.201 U	0.202 U	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**5.78 J**	20.1 U	**6.02 J**	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	20.3 U	19.9 U	20 U	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.12 UJ	0.025 U	NA	0.027 UJ	NA	0.022 U	NA	0.01 U	0.01 U	0.01 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.12 UJ	0.025 U	NA	0.027 UJ	NA	0.022 U	NA	0.01 U	0.01 U	0.01 U	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**6820**	**6650**	**8110**	**1370**	**3960**	**5160**	**2620**	**4960**	**7140**	**6310**	**3360 J**
Antimony	NE	NE	NE	5 UJ	4.8 UJ	5.1 UJ	5 UJ	5.9 UJ	4.3 UJ	5 UJ	2.51 U	2.45 UJ	2.55 UJ	2.9 UJ
Arsenic	13	16	16	6.3 UJ	6.2 U	6.5 U	**6.6**	**16.9**	**14.4 J**	**17.7 J**	**19.1**	**3.77**	**7.63**	**9.03 J**
Barium	350	820	400	**46.6**	**52.3**	**30.7**	**36.6 J**	**64.8 J**	**44.5**	**30.6**	**69.8**	**88.7 J**	**85.7 J**	**14.7 J**
Beryllium	7.2	47	72	1.5 UJ	1.5 U	1.5 U	1.5 U	**0.31 J**	**0.27 J**	**0.14 J**	**0.48 J**	**0.41 J**	**0.41 J**	**0.31 J**
Cadmium	2.5	7.5	4.3	**1.6 J**	**0.87 J**	**0.79 J**	1.5 U	1.8 UJ	1.3 U	1.5 U	2 U	1.96 U	2.04 U	2.32 UJ
Calcium	NE	NE	NE	**3230 J**	**2910 J**	**743 J**	**1380**	**4040**	**18700 J**	**21700 J**	**6930**	**70500 J**	**59200 J**	**169000 J**
Chromium	30	NE	180	**13 J**	**11.1 J**	**15.5 J**	**6.2**	**11**	**15 J**	**20.2 J**	**12.5**	**14.5**	**12.9**	**6.91 J**
Cobalt	NE	NE	NE	**5.8**	**5.7**	**6.9**	**2.2 J**	**8.4 J**	**5.7**	**3.2**	**4.62 J**	**2.51 J**	**2.14 J**	**0.83 J**
Copper	50	1720	270	**36.4**	**36.6**	**13**	**54.1**	**123**	**50.6**	**57.8**	**60.6**	**36.4**	**39.5**	**19.9 J**
Iron	NE	NE	NE	**32300 J**	**15800 J**	**20200**	**6470 J**	**25600 J**	**11400**	**9200**	**12400**	**8040**	**8100**	**2480 J**
Lead	63	450	400	**219 J**	**243 J**	**10.3 J**	**353**	**320**	**90.7 J**	**369 J**	**142**	**114**	**123**	**42.4 J**
Magnesium	NE	NE	NE	**1830**	**1830**	**2160**	**550**	**1310**	**3260**	**2120**	**1780**	**8580 J**	**8380 J**	**23700 J**
Manganese	1600	2000	2000	**268**	**180**	**230**	**25.3**	**174**	**111**	**103**	**126**	**210**	**157**	**112 J**
Mercury	0.18	0.73	0.81	**0.18**	**0.19**	**0.014 J**	**0.84 J**	**8.6 J**	**0.41 J**	**6.9 J**	**0.337**	**0.19**	**0.141**	**0.682 J**
Nickel	30	130	310	**14.5**	**13.3**	**12.7**	**6.6 J**	**18.8 J**	**22.9**	**14.3**	**15.5 J**	**10.5 J**	**11.1 J**	**2.95 J**
Potassium	NE	NE	NE	**793 J**	**796 J**	**868 J**	**359 J**	**635 J**	**914 J**	**640 J**	**715 J**	**637 J**	**652 J**	**363 J**
Selenium	3.9	4	180	11.3 R	11 R	11.5 R	11.3 UJ	13.5 UJ	9.8 U	11.4 U	**1.18 J**	2.45 UJ	2.55 UJ	2.9 UJ
Silver	2	8.3	180	1.5 UJ	1.5 U	1.5 U	1.5 U	**0.43 J**	**0.87 J**	**0.29 J**	2 U	1.96 U	2.04 U	2.32 U
Sodium	NE	NE	NE	**177 J**	**178**	**296**	75.5 UJ	**1270 J**	**391**	**2410**	2510 U	**409 J**	2550 U	**2220 J**
Thallium	NE	NE	NE	4.5 UJ	4.4 UJ	4.6 UJ	4.5 U	5.4 UJ	**1 J**	4.6 U	2.51 U	2.45 U	2.55 U	2.9 UJ
Tin	NE	NE	NE	**7.1**	**7.3**	3.8 U	**27.5**	**27.9**	**6.7**	**17.5**	50.1 UJ	**13.8 J**	**12.8 J**	**41.1 J**
Vanadium	NE	NE	NE	**21.5**	**19**	**24.5**	**5.2**	**16.4**	**36.7 J**	**10.3 J**	**16.6**	**13.1**	**15.4**	11.6 UJ
Zinc	109	2480	10000	**317**	**345**	**31.1**	**6.6 J**	**216**	**93.2**	**84.9**	**96.5**	**105 J**	**105 J**	**28.7 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.242 UJ	0.24 UJ	0.238 UJ	0.24 UJ	0.296 UJ	0.218 UJ	0.249 UJ	0.22 U	0.217 U	0.221 U	0.364 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0415**	**0.0649 J**	**0.11 J**	0.0176 U
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0319**	**0.0325**	**0.0491**	0.0176 U
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.018**	**0.0221**	**0.0342**	0.0176 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
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Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0148**	**0.0171**	**0.0258**	0.0176 U
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00892**	**0.0271**	**0.0331**	0.0176 U
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0125**	**0.0142**	**0.0235**	0.0176 U
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0119**	**0.0138**	**0.0204**	0.0176 U
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0106**	**0.0204**	**0.0308**	0.0176 U
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0122**	**0.0215**	**0.032**	0.0176 U
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00838**	**0.0249**	**0.0415**	0.0176 U
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00809**	**0.0246**	**0.0397**	0.0176 U
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0157**	**0.0558**	**0.0625**	0.0176 U
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0305**	**0.104**	**0.154**	**0.00994 J**
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00919**	**0.0324**	**0.0494**	0.0176 U
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0225**	**0.0451 J**	**0.0803 J**	0.0176 U
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.014**	**0.036**	**0.059**	**0.0131 J**
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00393 J**	**0.0171**	**0.0254**	0.0176 U
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.072**	**0.331**	**0.476**	**0.0141 J**
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.016**	**0.0581**	**0.0668**	**0.0136 J**
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00392 J**	**0.0141**	**0.0121**	0.0176 U
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.011**	**0.0379**	**0.0531**	0.0176 U
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00663**	**0.0231**	**0.0251**	0.0176 U
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0893**	**0.414**	**0.594**	**0.0257**
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.00452 U	**0.0162**	**0.0289**	0.0176 U
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0383**	**0.231**	**0.369**	0.0176 U
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0325**	**0.196**	**0.313**	0.0176 U
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.00452 U	0.00411 U	0.00451 U	0.0176 U
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0346**	**0.144**	**0.226**	0.0176 U
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0185**	**0.122**	**0.176**	0.0176 U
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0187**	**0.106**	**0.176**	0.0176 U
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0128**	**0.0721**	**0.116**	0.0176 U
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0238**	**0.0763**	**0.126**	0.0176 U
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0126**	**0.0553**	**0.0885**	**0.0184**
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0162**	**0.102 J**	**0.174 J**	0.0176 U
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.01**	**0.0564 J**	**0.095 J**	0.0176 U
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0177**	**0.061**	**0.0651**	0.0176 U
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0094**	**0.0335**	**0.0351**	0.0176 U
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0124**	**0.0392**	**0.0425**	0.0176 U
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0367**	**0.119**	**0.145**	0.0176 U
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0155**	**0.101**	**0.156**	0.0176 U
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0178**	**0.0989**	**0.155**	0.0176 U
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0482**	**0.158**	**0.205**	**0.036**
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	0.00452 U	**0.0122**	**0.0188**	0.0176 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
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Sample Location				Adjacent to Parcels 3 and 4 N. 12th St								Adjacent to Parcels 3 and 4 N. 11th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-14 (1-5) 9/11/2009	Duplicate of WW-SB-14 (1-5) 9/11/2009	WW-SB-14 (10-11) 9/11/2009	WW-SB-15 (3-5) 9/17/2009	WW-SB-15 (7-9) 9/17/2009	WW-SB-16 (0.5-5) 9/22/2009	WW-SB-16 (12-13) 9/23/2009	WW-SB-227 (0-5) 7/28/2022	WW-SB-253 (0-5) 8/8/2022	Duplicate of WW-SB-253 (0-5) 8/8/2022	WW-SB-253 (10-15) 8/9/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.00615**	**0.0265**	**0.0365**	0.0176 U
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0192**	**0.0739**	**0.0976**	0.0176 U
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0198**	**0.111**	**0.166**	0.0176 U
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0227**	**0.148**	**0.195**	0.0176 U
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0168**	**0.0715**	**0.109**	0.0176 U
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0244**	**0.108**	**0.167**	0.0176 U
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0334**	**0.164**	**0.221**	0.0176 U
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0253**	**0.12**	**0.188**	0.0176 U
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**0.0228**	**0.0991**	**0.151**	0.0176 U
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**99.6**	80.9 U	78.3 U	**350**
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**109**	**160**	**307**	**357**
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**123**	80.9 U	**117**	**438**
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**162**	80.9 U	**117**	**712**
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**703**	**318 J**	**796 J**	**2580**
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**406**	**396**	**457**	**2900**
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	**840**	**982**	**1390**	**4200**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
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Sample Location				Adjacent to Parcels 3 and 4				Adjacent to Parcel 5				
				N. 11th St	N. 12th St	N. 11th St		Kent Ave	Former N. 10th St	Former N. 10th St	Former N. 10th St	Former N. 10th St
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-253 (25-30) 8/9/2022	WW-TP-203A (2.5) 8/29/2022	WW-MW-12 (0.5-3) 8/28/2009	WW-MW-12 (9-10) 8/28/2009	WW-MW-20 (1.5-3) 11/3/2010	WW-MW-21 (3-5) 11/14/2012	WW-MW-21 (10-11) 11/14/2012	WW-MW-21 (50-52) 11/14/2012	WW-MW-22 (3-5) 11/12/2012
BTEX (mg/kg)												
Benzene	0.06	0.06	4.8	**0.0026**	**1.8**	0.0055 U	15 U	0.00097 U	**0.00039 J**	**0.0011**	0.00071 U	**0.00028 J**
Toluene	0.7	0.7	100	**0.0071**	**1.14**	0.0055 U	15 U	0.00097 U	**0.00013 J**	**6.4E-05 J**	0.00071 U	**0.00014 J**
Ethylbenzene	1	1	41	**0.0082**	**2.57**	0.0055 U	15 U	0.00097 U	0.00051 UJ	0.00034 U	0.00071 U	0.00076 U
o-Xylene	0.26	1.6	100	**0.0123**	**0.919**	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	**0.0261**	**1.35**	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	NA	NA	0.0055 U	15 U	0.0029 U	0.0015 UJ	0.001 U	0.0021 U	0.0023 U
Total BTEX	NE	NE	NE	**0.0563**	**7.779**	ND	ND	ND	**0.00052**	**0.001164**	ND	**0.00042**
Other VOCs (mg/kg)												
Acetone	0.05	0.05	100	0.0254 UJ	4.52 U	0.022 U	38 U	0.0097 U	**0.022**	**0.0074**	0.0071 U	**0.031 J**
n-Butylbenzene	12	12	100	**0.0008 J**	**5.02**	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	0.0025 U	**1.78**	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	0.0025 U	**0.344**	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	**0.0008 J**	0.181 U	0.0055 U	15 U	0.00097 U	**0.0011 J**	**0.00031 J**	0.00071 U	**0.0038**
Chlorobenzene	1.1	1.1	100	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 UJ	0.00034 U	0.00071 U	0.00076 U
Chloroform (Trichloromethane)	0.37	0.37	49	**0.0009 J**	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 U	0.00034 U	0.00071 U	0.00076 U
Cyclohexane	NE	NE	NE	0.0025 U	**0.448**	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**0.0071**	**3.57**	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	0.0025 UJ	1.08 UJ	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0025 U	0.181 U	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0025 U	0.181 U	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 U	0.00034 U	**0.00012 J**	0.00076 U
1,1-Dichloroethene	0.33	0.33	100	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	**0.0075 J**	0.00034 U	0.00071 U	0.00076 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	**0.05**	**0.00032 J**	**0.0011**	0.00076 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	**0.0063 J**	**5.2E-05 J**	0.00071 U	0.00076 U
1,2-Dichloropropane	NE	NE	NE	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 U	0.00034 U	0.00071 U	0.00076 U
Isopropylbenzene	NE	2.3*	NE	**0.0025 J**	**1.9**	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	0.0025 U	1.81 U	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0254 U	4.52 U	0.011 U	**260**	0.0097 U	**0.004 J**	**0.0015 J**	0.0071 R	0.0076 R
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.0025 U	0.181 U	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0254 U	1.81 U	0.0055 U	15 U	0.0097 U	0.0051 U	0.0034 U	0.0071 U	0.0076 U
Methylcyclohexane	NE	NE	NE	**0.0026**	**5.4**	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.0127 U	0.904 U	0.022 U	15 U	0.00097 U	0.00051 U	0.00034 U	0.00071 U	0.00076 U
Naphthalene	12	12	100	**3.24**	**42.3**	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	**0.0006 J**	**3.01**	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	**0.0012 J**	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 UJ	0.00034 U	0.00071 U	0.00076 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 U	0.00034 U	0.00071 U	0.00076 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	**0.039 J**	**9.5E-05 J**	**0.00016 J**	0.00076 U
Tetrahydrofuran	NE	NE	NE	0.0025 U	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	0.0025 U	0.181 U	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	0.00051 U	0.00034 U	0.00071 U	0.00076 U
Trichloroethene (TCE)	0.47	0.47	21	0.0025 U	0.181 U	0.0055 U	15 U	0.00097 U	**0.039 J**	0.00034 U	0.00071 U	0.00076 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4				Adjacent to Parcel 5				
				N. 11th St	N. 12th St	N. 11th St		Kent Ave	Former N. 10th St	Former N. 10th St	Former N. 10th St	Former N. 10th St
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-253 (25-30) 8/9/2022**	**WW-TP-203A (2.5) 8/29/2022**	**WW-MW-12 (0.5-3) 8/28/2009**	**WW-MW-12 (9-10) 8/28/2009**	**WW-MW-20 (1.5-3) 11/3/2010**	**WW-MW-21 (3-5) 11/14/2012**	**WW-MW-21 (10-11) 11/14/2012**	**WW-MW-21 (50-52) 11/14/2012**	**WW-MW-22 (3-5) 11/12/2012**
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.0272**	**7.34**	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.0124**	**3.08**	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0051 U	0.181 U	0.0055 U	15 U	0.00097 U	**0.0069 J**	**0.00028 J**	0.00071 U	0.00076 U
Total VOCs	NE	NE	NE	**3.3524**	**81.971**	ND	**260**	ND	**0.17632**	**0.011121**	**0.00138**	**0.03522**
PAHs (mg/kg)												
Acenaphthene	20	98	100	**0.15 J**	**34.7**	2.9 U	**3.9 J**	0.34 U	0.36 U	0.38 U	0.37 U	**0.24 J**
Acenaphthylene	100	107	100	**0.325**	**12.4**	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	**0.13 J**
Anthracene	100	1000	100	**0.425**	**24**	**1.1 J**	**6.1**	0.34 U	0.36 U	0.38 U	0.37 U	**0.92**
Benzo(a)anthracene	1	1	1	**0.313**	**24.6**	**2.5 J**	**25**	0.034 U	**0.12**	0.038 U	0.037 U	**2.8**
Benzo(b)fluoranthene	1	1.7	1	**0.224 J**	**18.5**	**3.5 J**	**53 J**	0.034 U	**0.28**	0.038 U	0.037 U	**3.2**
Benzo(k)fluoranthene	0.8	1.7	3.9	**0.0972 J**	**14.3**	**1.3 J**	**25 J**	0.034 U	**0.14**	0.038 UJ	0.037 UJ	**1.6**
Benzo(g,h,i)perylene	100	1000	100	**0.0848 J**	**15.4**	**1.5 J**	**28 J**	0.34 U	**0.19 J**	0.38 U	0.37 U	**1.4**
Benzo(a)pyrene	1	22	1	**0.244 J**	**32.4**	**2.4 J**	**48 J**	0.034 U	**0.27**	0.038 U	0.037 U	**3**
Chrysene	1	1	3.9	**0.263 J**	**22.9**	**2.4 J**	**23**	0.34 U	**0.14 J**	0.38 U	0.37 U	**2.8**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.0368 J**	**2.68**	**0.37 J**	**8.3 J**	0.034 U	0.036 U	0.038 U	0.037 U	0.04 U
Fluoranthene	100	1000	100	**0.657**	**53.2**	**5.7**	**18**	0.34 U	**0.084 J**	0.38 U	0.37 U	**5.8**
Fluorene	30	386	100	**0.424**	**19**	**0.28 J**	**4**	0.34 U	0.36 U	0.38 U	0.37 U	**0.24 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**0.117 J**	**16.7**	**1.6 J**	**33 J**	0.034 U	**0.17**	0.038 U	0.037 U	**1.5**
2-Methylnaphthalene	NE	36.4*	NE	**0.625**	**25.6**	2.9 U	**11**	0.34 U	0.36 U	0.38 U	0.37 U	**0.091 J**
Naphthalene	12	12	100	**1.66**	**40.2**	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	**0.13 J**
Phenanthrene	100	1000	100	**1.14**	**72**	**3.4**	**18**	0.34 U	0.36 U	0.38 U	0.37 U	**3.1**
Pyrene	100	1000	100	**0.517**	**62**	**6.7**	**29**	0.34 U	**0.16 J**	0.38 U	0.37 U	**5.4**
Total PAHs	NE	NE	NE	**7.3028**	**490.58**	**32.75**	**333.3**	ND	**1.554**	ND	ND	**32.351**
MAEPH (mg/kg)												
C-10	NE	NE	NE	NA	**6.09**	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4				Adjacent to Parcel 5				
				N. 11th St	N. 12th St	N. 11th St		Kent Ave	Former N. 10th St	Former N. 10th St	Former N. 10th St	Former N. 10th St
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-253 (25-30) 8/9/2022**	**WW-TP-203A (2.5) 8/29/2022**	**WW-MW-12 (0.5-3) 8/28/2009**	**WW-MW-12 (9-10) 8/28/2009**	**WW-MW-20 (1.5-3) 11/3/2010**	**WW-MW-21 (3-5) 11/14/2012**	**WW-MW-21 (10-11) 11/14/2012**	**WW-MW-21 (50-52) 11/14/2012**	**WW-MW-22 (3-5) 11/12/2012**
C-28	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	0.87 U	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	**5.44**	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	**4.07**	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)												
Acetophenone	NE	NE	NE	0.301 U	0.527 U	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.0954**	**2.14**	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	**0.22 J**
Butyl benzyl phthalate	NE	122*	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
Caprolactam	NE	NE	NE	0.301 U	0.527 U	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	**0.148 J**	**2.18**	2.9 U	**2.1 J**	0.34 U	0.36 U	0.38 U	0.37 U	**0.3 J**
2-Chloronaphthalene	NE	NE	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
Dibenzofuran	7	210, 6.2*	59	**0.329**	**7.48**	2.9 U	**1.6 J**	0.34 U	0.36 U	0.38 U	0.37 U	**0.15 J**
Diethyl phthalate	NE	7.1*	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
2,4-Dimethylphenol	NE	NE	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
Di-n-butyl phthalate	NE	8.1*	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
2,6-Dinitrotoluene	NE	1*	NE	0.301 U	0.527 U	2.9 U	4 U	0.07 U	0.073 U	0.078 U	0.074 U	0.08 U
Di-n-octyl phthalate	NE	120*	NE	0.603 U	1.05 UJ	2.9 UJ	4 UJ	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
2-Methylnaphthalene	NE	36.4*	NE	**0.625**	**25.6**	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.301 U	0.527 U	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
4-Nitroaniline	NE	NE	NE	0.603 U	1.05 U	2.9 U	4 U	0.7 U	0.73 U	0.78 U	0.74 U	0.8 UJ
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
Phenol	0.33	0.33	100	0.301 U	0.527 U	2.9 U	4 U	0.34 U	0.36 U	0.38 U	0.37 U	0.4 U
Total SVOCs	NE	NE	NE	**7.8752**	**502.38**	**32.75**	**337**	ND	**1.554**	ND	ND	**33.021**
Alkylated PAHs (mg/kg)												
Acenaphthene	20	98	100	NA	**33.7**	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	**15.5**	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	**29.3**	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	**1.98**	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4				Adjacent to Parcel 5				
				N. 11th St	N. 12th St	N. 11th St		Kent Ave	Former N. 10th St	Former N. 10th St	Former N. 10th St	Former N. 10th St
Sample Name				**WW-SB-253**	**WW-TP-203A**	**WW-MW-12**	**WW-MW-12**	**WW-MW-20**	**WW-MW-21**	**WW-MW-21**	**WW-MW-21**	**WW-MW-22**
Sample Depth (feet bgs)	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**(25-30)**	**(2.5)**	**(0.5-3)**	**(9-10)**	**(1.5-3)**	**(3-5)**	**(10-11)**	**(50-52)**	**(3-5)**
Sample Date				**8/9/2022**	**8/29/2022**	**8/28/2009**	**8/28/2009**	**11/3/2010**	**11/14/2012**	**11/14/2012**	**11/14/2012**	**11/12/2012**
C1-Benzene	NE	NE	NE	NA	**2.18 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	**4.66 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	**13.7 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	**41.9 JN**	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	**31.8 JN**	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	**27.2**	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	**22.6**	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	**20.2**	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	**4.56**	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	**1.85**	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	**3.46**	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	**19.6**	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	**33.6**	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	**18.3**	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	**1.05**	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	**3.27 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	**3.87 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	**2.3 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	**0.91 JN**	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	**2.07**	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	**2.56**	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	**1.31**	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	**0.173**	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**15.5 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**7.12 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**3.3 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	**1.33 JN**	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	**24.3**	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	**5.78**	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	**2.8**	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	**2.4**	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	**11.2**	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	**31.8 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	**24.7 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	**7.75 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	**5 JN**	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	**5.55**	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	**8.69**	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	**7.13**	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	**6.78 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	**4.75 JN**	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Adjacent to Parcels 3 and 4				Adjacent to Parcel 5				
				N. 11th St	N. 12th St	N. 11th St		Kent Ave	Former N. 10th St	Former N. 10th St	Former N. 10th St	Former N. 10th St
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-253 (25-30) 8/9/2022**	**WW-TP-203A (2.5) 8/29/2022**	**WW-MW-12 (0.5-3) 8/28/2009**	**WW-MW-12 (9-10) 8/28/2009**	**WW-MW-20 (1.5-3) 11/3/2010**	**WW-MW-21 (3-5) 11/14/2012**	**WW-MW-21 (10-11) 11/14/2012**	**WW-MW-21 (50-52) 11/14/2012**	**WW-MW-22 (3-5) 11/12/2012**
C3-Dibenzothiophenes	NE	NE	NE	NA	**2.43 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	**1.01 JN**	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	**2.78**	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	**48.9**	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	**36.5 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	**13 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	**5.55 JN**	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	**20.9**	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	**8.67 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	**5.78 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	**2.84 JN**	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	**24.7**	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	**1.55**	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	**1.51 J**	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	**34.8**	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	**25.7**	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	**4.25**	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	**4.86**	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	**38**	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	**36.6 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	**38.3 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	**17.3 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	**6.07 JN**	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	**4.69 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	**2.66 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	**1.52 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	**0.438 JN**	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	**8.39**	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	**64.7**	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	**35.1 JN**	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	**15.8 JN**	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	**5.39 JN**	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	**1.61 JN**	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	**2.22**	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	**55.9**	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	**0.368**	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	**3.8**	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	**2.5 J**	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	**2.89**	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	**6.33**	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	**2.43**	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	**1.27**	NA	NA	NA	NA	NA	NA	NA

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Brooklyn, New York

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Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-253 (25-30) 8/9/2022**	**WW-TP-203A (2.5) 8/29/2022**	**WW-MW-12 (0.5-3) 8/28/2009**	**WW-MW-12 (9-10) 8/28/2009**	**WW-MW-20 (1.5-3) 11/3/2010**	**WW-MW-21 (3-5) 11/14/2012**	**WW-MW-21 (10-11) 11/14/2012**	**WW-MW-21 (50-52) 11/14/2012**	**WW-MW-22 (3-5) 11/12/2012**
m/p-Xylene	0.26	1.6	100	NA	**3.13**	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	**4.84**	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)												
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)												
Phytane (C20)	NE	NE	NE	NA	**6.99**	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	**11.1**	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	**18.1**	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	**10.5**	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	**24.7**	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)												
Aroclor 1242	NE	NE	NE	NA	NA	0.018 U	NA	0.07 U	0.073 U	0.078 U	0.074 U	0.08 U
Aroclor 1248	NE	NE	NE	NA	NA	0.018 U	NA	0.07 U	0.073 U	0.078 U	0.074 U	0.08 U
Aroclor 1254	NE	NE	NE	NA	NA	**0.052 J**	NA	0.07 U	0.073 U	0.078 U	0.074 U	0.08 U
Aroclor 1260	NE	NE	NE	NA	NA	**0.026 J**	NA	0.07 U	0.073 U	0.078 U	0.074 U	**0.082**
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	0.073 U	0.078 U	0.074 U	0.08 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	**0.078**	NA	ND	ND	ND	ND	**0.082**
Pesticides (mg/kg)												
Aldrin	0.005	0.19	0.097	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	0.073 U	0.078 U	0.074 U	0.08 U
alpha-chlordane	0.094	2.9	4.2	NA	NA	0.019 UJ	NA	0.007 U	NA	NA	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	0.019 UJ	NA	0.007 U	NA	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.019 U	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	**0.024**
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	**0.036**
Dieldrin	0.005	0.1	0.2	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Endosulfan sulfate	2.4	1000	24	NA	NA	0.019 U	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Endrin	0.014	0.06	11	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Endrin aldehyde	NE	NE	NE	NA	NA	0.019 U	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Endrin ketone	NE	NE	NE	NA	NA	0.019 U	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Heptachlor	0.042	0.38	2.1	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U

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Portion of K - Williamsburg Works Site
Brooklyn, New York

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Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-253 (25-30) 8/9/2022**	**WW-TP-203A (2.5) 8/29/2022**	**WW-MW-12 (0.5-3) 8/28/2009**	**WW-MW-12 (9-10) 8/28/2009**	**WW-MW-20 (1.5-3) 11/3/2010**	**WW-MW-21 (3-5) 11/14/2012**	**WW-MW-21 (10-11) 11/14/2012**	**WW-MW-21 (50-52) 11/14/2012**	**WW-MW-22 (3-5) 11/12/2012**
Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.019 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	0.037 UJ	NA	0.007 U	0.0073 U	0.0078 U	0.0074 U	0.008 U
Herbicides (mg/kg)												
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.089 U	NA	0.018 UJ	0.019 U	0.02 U	0.019 U	0.02 U
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.022 U	NA	0.018 U	0.019 U	0.02 U	0.019 U	0.02 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.022 U	NA	0.018 UJ	0.019 UJ	0.02 UJ	0.019 UJ	0.02 UJ
Metals (mg/kg)												
Aluminum	NE	NE	NE	**4670 J**	**4680**	**3900**	**4970**	**3540**	**7630**	**7880**	**2120**	**4790**
Antimony	NE	NE	NE	2.3 UJ	**1.51 J**	4.4 UJ	6.2 UJ	2 UJ	2 UJ	2.2 UJ	2 UJ	**1.9 J**
Arsenic	13	16	16	2.3 UJ	**159**	**2.8 J**	**40.9**	**1.5**	**2.4**	**1.4**	**3.3**	**10.5**
Barium	350	820	400	**25.4 J**	**84.6**	**51.5 J**	**21.8 J**	**24.2 J**	**58.2**	**49.8**	**20.1 J**	**314**
Beryllium	7.2	47	72	**0.38 J**	**0.37 J**	**0.21 J**	**0.59 J**	**0.23 J**	**0.38 J**	**0.41 J**	0.41 U	**0.89**
Cadmium	2.5	7.5	4.3	1.84 UJ	**0.64 J**	1.3 U	1.9 U	1 U	**0.41 J**	**0.28 J**	**0.3 J**	**1.3**
Calcium	NE	NE	NE	**2780 J**	**6090 J**	**18400 J**	**1520 J**	**717 J**	**4030 J**	**773 J**	**470 J**	**14600**
Chromium	30	NE	180	**10 J**	**20.1**	**10.8 J**	**7.1 J**	**12.6**	**42.3**	**17.3**	**7**	**27.7**
Cobalt	NE	NE	NE	**5.08 J**	**4.71 J**	**3.4 J**	**4.4 J**	**3.1 J**	**6.7 J**	**7.9 J**	**3.6 J**	**11**
Copper	50	1720	270	**8.48 J**	**363**	**50.8 J**	**20.6 J**	**9**	**24.1**	**17.4**	**6.6**	**206**
Iron	NE	NE	NE	**12700 J**	**14600 J**	**8580 J**	**11700 J**	**10900**	**20000**	**20700**	**19100**	**26400**
Lead	63	450	400	46 UJ	**525**	**87.8 J**	**78.5 J**	**5.3**	**51.2**	**4.5**	1 U	**479**
Magnesium	NE	NE	NE	**3920 J**	**1830**	**3790 J**	**838 J**	**1150**	**1860**	**2620**	**732 J**	**3600**
Manganese	1600	2000	2000	**191 J**	**132**	**126 J**	**112 J**	**91 J**	**366**	**375**	**209**	**221**
Mercury	0.18	0.73	0.81	0.033 UJ	**2.6**	**0.12 J**	**0.22 J**	0.034 U	**0.13**	0.037 U	0.036 U	**0.6**
Nickel	30	130	310	**13.8 J**	**14.3 J**	**12.2**	**16.4**	**6.3 J**	**16.7**	**15.1**	**5.6 J**	**55.1**
Potassium	NE	NE	NE	**1010 J**	2460 U	**715 J**	**401 J**	**593 J**	**970 J**	**1570**	**352 J**	**631 J**
Selenium	3.9	4	180	2.3 UJ	**1.27 J**	9.9 U	14.1 U	**1.1 J**	2 U	2.2 U	2 U	2.1 U
Silver	2	8.3	180	1.84 U	**0.49 J**	**0.29 J**	1.9 U	2 U	2 U	2.2 U	2 U	**0.81 J**
Sodium	NE	NE	NE	**240 J**	2460 U	**327 J**	**1480 J**	**226 J**	**176 J**	1120 U	1020 U	**593 J**
Thallium	NE	NE	NE	2.3 UJ	0.49 U	4 U	5.6 U	2 U	2 U	2.2 U	2 U	2.1 U
Tin	NE	NE	NE	46 UJ	**53**	**4.1**	4.7 U	5.1 U	5 U	5.6 U	5.1 U	**54.1**
Vanadium	NE	NE	NE	**14.6 J**	**19.6**	**14.1 J**	**17.9 J**	**16.6**	**27**	**25.7**	**11.9**	**26.3**
Zinc	109	2480	10000	**24.8 J**	**280 J**	**126**	**321**	**17.6**	**79.8**	**39.4**	**14.5**	**1250**
Cyanides (mg/kg)												
Free Cyanide	NE	NE	NE	0.246 U	0.217 U	0.215 UJ	0.299 UJ	0.21 U	2.4 U	2.5 U	2.3 U	**0.27 J**
Biomarkers (mg/kg)												
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	**0.0895**	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	**0.0603**	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	**0.0395 J**	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	**0.0238 J**	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	**0.033 J**	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	**0.0281 J**	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	**0.0318 J**	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	**0.0332 J**	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	**0.0563**	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	**0.029 J**	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	**0.025 J**	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	**0.0594**	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	**0.103**	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	**0.0241 J**	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	**0.0517**	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	**0.0422 J**	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	**0.215**	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	**0.0677**	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	**0.0289 J**	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	**0.0486**	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	**0.0474**	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	**0.308**	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	**0.105**	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	**0.086**	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	**0.0823**	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	**0.0481**	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	**0.0541**	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	**0.0476**	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	**0.0828**	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	**0.0468**	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	**0.0462**	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	**0.179**	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	**0.0867**	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	**0.0768**	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	**0.189**	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	0.0435 U	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcels 3 and 4				Adjacent to Parcel 5				
				N. 11th St	N. 12th St	N. 11th St		Kent Ave	Former N. 10th St	Former N. 10th St	Former N. 10th St	Former N. 10th St
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-253 (25-30) 8/9/2022**	**WW-TP-203A (2.5) 8/29/2022**	**WW-MW-12 (0.5-3) 8/28/2009**	**WW-MW-12 (9-10) 8/28/2009**	**WW-MW-20 (1.5-3) 11/3/2010**	**WW-MW-21 (3-5) 11/14/2012**	**WW-MW-21 (10-11) 11/14/2012**	**WW-MW-21 (50-52) 11/14/2012**	**WW-MW-22 (3-5) 11/12/2012**
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	**0.0235 J**	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	**0.0967**	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	**0.0819**	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	**0.0899**	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	**0.0733**	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	**0.0733**	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	**0.142**	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	**0.0924**	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	**0.0886**	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)												
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	**1480**	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	**426 J**	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	**2390**	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	**2910**	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	**9230 J**	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	**5380**	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	**6920**	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.82**	0.00045 U	0.0063 U	**140**	6.9 U	0.006 U	**950**	**0.046**	0.031 U	**42**	**0.22 J**
Toluene	0.7	0.7	100	**3.9**	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Ethylbenzene	1	1	41	**9.3**	0.00045 U	0.0063 U	**220**	**20**	0.006 U	**440**	0.03 U	0.031 U	**130**	0.029 UJ
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	**16**	0.0013 U	0.0063 U	**340**	6.9 U	0.006 U	**1600**	0.03 U	0.031 U	6.2 U	0.029 UJ
Total BTEX	NE	NE	NE	**30.02**	ND	ND	**700**	**20**	ND	**2990**	**0.046**	ND	**172**	**0.22**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	2.8 R	0.0045 UJ	0.025 UJ	31 U	17 R	0.024 U	170 U	0.12 U	0.12 U	15 U	0.12 U
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.56 U	**0.00033 J**	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 UJ	0.031 UJ	6.2 U	0.029 UJ
Chlorobenzene	1.1	1.1	100	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Chloroform (Trichloromethane)	0.37	0.37	49	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
1,1-Dichloroethene	0.33	0.33	100	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
cis-1,2-Dichloroethene	0.25	0.25	100	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
trans-1,2-Dichloroethene	0.19	0.19	100	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
1,2-Dichloropropane	NE	NE	NE	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	2.8 U	0.0045 R	0.013 UJ	12 U	6.9 U	0.012 U	67 U	0.061 U	0.062 U	6.2 U	0.059 UJ
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	2.8 U	0.0045 U	0.0063 UJ	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.56 U	0.00045 U	0.025 U	12 U	6.9 U	0.024 U	67 U	0.12 U	0.12 U	6.2 U	0.12 UJ
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	**0.2 J**	0.00045 U	0.0063 U	**59**	**3.3 J**	0.006 U	**860**	0.03 U	0.031 U	6.2 U	0.029 UJ
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Tetrachloroethene (PCE)	1.3	1.3	19	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Trichloroethene (TCE)	0.47	0.47	21	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.56 U	0.00045 U	0.0063 U	12 U	6.9 U	0.006 U	67 U	0.03 U	0.031 U	6.2 U	0.029 UJ
Total VOCs	NE	NE	NE	**30.22**	**0.00033**	ND	**759**	**23.3**	ND	**3850**	**0.046**	ND	**172**	**0.22**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**21**	0.37 U	0.34 U	**3.5 J**	**0.64 J**	0.32 U	**49 J**	1.3 U	**0.095 J**	**140**	0.31 U
Acenaphthylene	100	107	100	**2.6 J**	0.37 U	0.34 U	**34**	**0.61 J**	0.32 U	**670**	1.3 U	**0.25 J**	**29 J**	0.31 U
Anthracene	100	1000	100	**14**	0.37 U	0.34 U	**13 J**	**0.58 J**	0.32 U	**230 J**	**0.057 J**	**0.14 J**	**58 J**	**0.19 J**
Benzo(a)anthracene	1	1	1	**8.5**	0.037 U	**0.023 J**	16 U	0.74 U	0.32 U	**110 J**	**0.084 J**	**0.18 J**	**27 J**	**0.35**
Benzo(b)fluoranthene	1	1.7	1	**4.1**	0.037 U	**0.027 J**	16 U	0.74 U	0.32 U	**71 J**	1.3 U	1.3 U	**14 J**	**0.44**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.42 U	0.037 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	**7.1 J**	**0.19 J**
Benzo(g,h,i)perylene	100	1000	100	**1.7 J**	0.37 U	0.34 U	16 U	0.74 UJ	0.32 U	360 U	1.3 U	1.3 U	65 U	**0.35**
Benzo(a)pyrene	1	22	1	**5.5**	0.037 U	0.34 U	16 U	0.74 U	0.32 U	**71 J**	1.3 U	1.3 U	**19 J**	**0.32**
Chrysene	1	1	3.9	**8.1**	0.37 U	0.34 U	16 U	0.74 U	0.32 U	**100 J**	1.3 U	**0.15 J**	**26 J**	**0.36**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.42 U	0.037 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	**0.044 J**
Fluoranthene	100	1000	100	**13**	0.37 U	**0.046 J**	**13 J**	**0.61 J**	**0.028 J**	**230 J**	**0.16 J**	**0.17 J**	**48 J**	**0.62**
Fluorene	30	386	100	**12**	0.37 U	0.34 U	**18**	**0.73 J**	0.32 U	**360 J**	1.3 U	**0.19 J**	**81**	**0.27 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**1.4**	0.037 U	0.34 U	**3.5 J**	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	**0.34**
2-Methylnaphthalene	NE	36.4*	NE	**17**	0.37 U	0.34 U	**83**	**3.5**	0.32 U	**1600**	1.3 U	1.3 U	**410**	**2.6**
Naphthalene	12	12	100	**7.6**	0.37 U	0.34 U	**190**	**7.5**	0.32 U	**3600**	1.3 U	1.3 U	**780**	0.31 U
Phenanthrene	100	1000	100	**54**	0.37 U	**0.027 J**	**51**	**2.2**	**0.028 J**	**850**	**0.24 J**	**0.5 J**	**200**	**0.86**
Pyrene	100	1000	100	**22**	0.37 U	**0.034 J**	**19**	**0.86**	**0.03 J**	**370**	**0.16 J**	**0.32 J**	**110**	**0.91**
Total PAHs	NE	NE	NE	**192.5**	ND	**0.157**	**428**	**17.23**	**0.086**	**8311**	**0.701**	**1.995**	**1949.1**	**7.844**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	**0.15 J**	**0.18 J**	65 U	**0.17 J**
Butyl benzyl phthalate	NE	122*	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	**0.064 J**
2-Chloronaphthalene	NE	NE	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
Dibenzofuran	7	210, 6.2*	59	**1.3 J**	0.37 U	0.34 U	**2.3 J**	**0.092 J**	0.32 U	**41 J**	1.3 U	1.3 U	**9.1 J**	**0.15 J**
Diethyl phthalate	NE	7.1*	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
2,4-Dimethylphenol	NE	NE	NE	4.2 U	0.37 U	0.34 U	16 U	**0.051 J**	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
Di-n-butyl phthalate	NE	8.1*	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
2,6-Dinitrotoluene	NE	1*	NE	0.84 U	0.076 UJ	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
Di-n-octyl phthalate	NE	120*	NE	4.2 U	0.37 U	**0.27 J**	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	4.2 U	0.37 U	0.34 U	16 U	**0.046 J**	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	4.2 U	0.37 U	0.34 U	16 U	**0.055 J**	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
4-Nitroaniline	NE	NE	NE	8.4 UJ	0.76 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
Phenol	0.33	0.33	100	4.2 U	0.37 U	0.34 U	16 U	0.74 U	0.32 U	360 U	1.3 U	1.3 U	65 U	0.31 U
Total SVOCs	NE	NE	NE	**193.8**	ND	**0.427**	**430.3**	**17.474**	**0.086**	**8352**	**0.851**	**2.175**	**1958.2**	**8.228**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.084 U	0.076 U	0.021 U	NA	NA	0.02 U	NA	0.02 U	0.021 U	NA	0.02 U
Aroclor 1248	NE	NE	NE	0.084 U	0.076 U	0.021 U	NA	NA	0.02 U	NA	0.02 U	0.021 U	NA	0.02 U
Aroclor 1254	NE	NE	NE	0.084 U	0.076 U	0.021 U	NA	NA	0.02 U	NA	0.02 U	0.021 U	NA	0.02 U
Aroclor 1260	NE	NE	NE	0.084 U	0.076 U	0.021 U	NA	NA	0.02 U	NA	0.02 U	0.021 U	NA	0.02 U
Aroclor 1268	NE	NE	NE	0.084 U	0.076 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	ND	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 U	NA	0.002 UJ
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 U	NA	0.002 UJ
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 UJ	NA	0.002 UJ
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 UJ	NA	0.002 U
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	0.084 U	0.076 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	0.0021 U	NA	NA	0.002 U	NA	0.002 U	0.0021 U	NA	0.002 U
gamma-Chlordane	NE	14*	NE	NA	NA	0.0021 U	NA	NA	0.002 U	NA	0.002 U	0.0021 U	NA	0.002 U
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 U	0.0041 U	NA	0.0039 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 U	0.0041 U	NA	0.0039 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 UJ	0.0041 UJ	NA	0.0039 UJ
Dieldrin	0.005	0.1	0.2	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 UJ	0.0041 UJ	NA	0.0039 UJ
alpha-Endosulfan (I)	2.4	102	24	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 UJ	NA	0.002 UJ
beta-Endosulfan (II)	2.4	102	24	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 UJ	0.0041 U	NA	0.0039 UJ
Endosulfan sulfate	2.4	1000	24	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 UJ	0.0041 U	NA	0.0039 U
Endrin	0.014	0.06	11	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 UJ	0.0041 U	NA	0.0039 UJ
Endrin aldehyde	NE	NE	NE	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 UJ	NA	0.004 UJ	0.0041 U	NA	0.0039 U
Endrin ketone	NE	NE	NE	0.0084 U	0.0076 U	0.0042 U	NA	NA	0.004 U	NA	0.004 UJ	0.0041 U	NA	0.0039 U
Heptachlor	0.042	0.38	2.1	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 UJ	NA	0.002 UJ

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
Heptachlor epoxide	NE	0.02*	NE	0.0084 U	0.0076 U	0.0021 U	NA	NA	0.002 U	NA	0.002 UJ	0.0021 UJ	NA	0.002 UJ
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.0084 U	0.0076 U	0.021 U	NA	NA	0.02 U	NA	0.02 UJ	0.021 U	NA	0.02 UJ
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.021 U	0.019 U	0.11 UJ	NA	NA	0.1 UJ	NA	0.1 UJ	0.096 UJ	NA	0.1 UJ
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.021 U	0.019 U	0.026 UJ	NA	NA	0.025 UJ	NA	0.025 UJ	0.024 UJ	NA	0.026 UJ
2,4,5-TP (Silvex)	3.8	3.8	100	0.021 UJ	0.019 UJ	0.026 UJ	NA	NA	0.025 UJ	NA	0.025 UJ	0.024 UJ	NA	0.026 UJ
Metals (mg/kg)														
Aluminum	NE	NE	NE	**6740**	**4100**	**10100**	**2120**	**9880**	**9160**	**2940**	**12500**	**8560**	**4550**	**9490**
Antimony	NE	NE	NE	**11.1 J**	2.1 UJ	5.1 UJ	4.8 UJ	5.7 UJ	4.9 UJ	5.3 UJ	4.9 UJ	5 UJ	4.9 UJ	4.7 UJ
Arsenic	13	16	16	**29.2**	1 R	6.5 U	**2.1 J**	7.3 U	**3.1 J**	6.8 U	**6.8 J**	**4.5 J**	6.3 UJ	**4.7 J**
Barium	350	820	400	**170**	**44.2**	**27.4**	**17.3**	**79.3**	**37.6**	**26**	**113**	**75.1**	**36.4**	**86.3**
Beryllium	7.2	47	72	**0.28 J**	**0.24 J**	**0.53 J**	**0.26 J**	**0.99 J**	**0.53 J**	**0.41 J**	**1.1 J**	**0.46 J**	**0.29 J**	**0.49 J**
Cadmium	2.5	7.5	4.3	**0.61 J**	1 U	1.6 U	1.5 UJ	1.7 UJ	1.5 UJ	1.6 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.4 UJ
Calcium	NE	NE	NE	**47800**	**5920**	**2530 J**	**525 J**	**1810 J**	**1360 J**	**594 J**	**4960 J**	**10800 J**	74.4 UJ	**7250 J**
Chromium	30	NE	180	**18.8**	**11.7**	**13.1 J**	**7.4 J**	**29.4 J**	**12.9 J**	**10.5 J**	**55.3 J**	**17.2 J**	**14.4 J**	**17.8 J**
Cobalt	NE	NE	NE	**66.5**	**4.8 J**	**9.8**	**3.4**	**9.9**	**5.7**	**3.8**	**7.5**	**6.4**	**5.5**	**7.2**
Copper	50	1720	270	**425**	**13.6**	**22.1 J**	**8.9 J**	**22.6 J**	**26.8 J**	**9.3 J**	**36.2**	**39.8**	**8.9**	**26.2**
Iron	NE	NE	NE	**32300**	**12300**	**19000**	**11200**	**25000**	**18400**	**15600**	**45000 J**	**20900 J**	**9620 J**	**21000 J**
Lead	63	450	400	**450**	**4.3**	**16.4**	4.4 U	**13.3 J**	**38.5**	4.8 U	**131 J**	**153 J**	4.5 U	**86.7 J**
Magnesium	NE	NE	NE	**4600**	**4020**	**3210 J**	**723 J**	**3120 J**	**1940 J**	**1170 J**	**1880 J**	**5400 J**	**1970 J**	**2390 J**
Manganese	1600	2000	2000	**196**	**238**	**218**	**154**	**583**	**300**	**136**	**423 J**	**495**	**112 J**	**493 J**
Mercury	0.18	0.73	0.81	**3.1**	0.037 U	**0.032**	0.06 U	**0.014 J**	**0.21**	0.061 U	**0.17**	**0.23**	**0.0062 J**	**0.18**
Nickel	30	130	310	**25.3**	**11.1**	**17.6**	**5.7**	**18.4**	**11.6**	**9.2**	**17.3**	**14.2**	**12.3**	**13.4**
Potassium	NE	NE	NE	**903 J**	**1560**	**810 J**	**397 J**	**1520 J**	**762 J**	**746 J**	**1100 J**	**744 J**	**1210 J**	**1050 J**
Selenium	3.9	4	180	2.5 U	2.1 U	11.7 U	11 U	13 UJ	11 U	12.1 UJ	11.2 UJ	11.3 UJ	11.2 UJ	10.8 UJ
Silver	2	8.3	180	**0.49 J**	2.1 U	1.6 U	1.5 U	1.7 UJ	1.5 U	1.6 U	1.5 UJ	1.5 UJ	1.5 U	1.4 UJ
Sodium	NE	NE	NE	**1960**	**367 J**	77.9 U	73.1 U	86.6 UJ	73.5 U	80.4 U	74.9 U	75.4 U	74.4 U	71.9 U
Thallium	NE	NE	NE	2.5 U	2.1 U	4.7 UJ	4.4 UJ	5.2 UJ	4.4 UJ	4.8 UJ	**1.5 J**	4.5 UJ	4.5 UJ	**1.1 J**
Tin	NE	NE	NE	**14.3**	5.2 U	3.9 U	3.7 U	4.3 U	3.7 U	4 U	**6.5**	**4.9**	3.7 U	**23.1**
Vanadium	NE	NE	NE	**17.4**	**16.1**	**17.2**	**14.6**	**33.7**	**20.5**	**14.8**	**59.1 J**	**30.2 J**	**16.1 J**	**27.6 J**
Zinc	109	2480	10000	**1020**	**23.9**	**52.9 J**	**15.5 J**	**52.7 J**	**36.6 J**	**21.9 J**	**189 J**	**80.1 J**	**28.3**	**60.5**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	**0.14 J**	**0.3 J**	0.252 U	0.244 U	0.276 U	0.239 U	0.263 U	0.239 U	0.248 U	0.247 U	0.233 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Adjacent to Parcel 5 Former N. 10th St		Adjacent to Parcel 5 N. 11th St								
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-MW-22 (24-25) 11/12/2012	WW-MW-22 (52-55) 11/12/2012	WW-SB-17 (2-4) 8/12/2009	WW-SB-17 (32-33) 8/12/2009	WW-SB-17 (45-46) 8/13/2009	WW-SB-28 (3-5) 8/14/2009	WW-SB-28 (22-23) 8/14/2009	WW-SB-29 (2-5) 8/18/2009	Duplicate of WW-SB-29 (2-5) 8/18/2009	WW-SB-29 (20-22) 8/18/2009	WW-SB-30 (2-5) 8/18/2009
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	0.03 UJ	0.0062 U	**0.03 J**	**0.00069**	**0.0065**	0.0066 U	0.04 U	**0.5 J**	**0.0011 J**	0.00053 U	0.00052 U	0.00032 U
Toluene	0.7	0.7	100	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Ethylbenzene	1	1	41	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	**6.8**	0.0058 U	0.00053 U	0.00052 U	0.00032 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.03 UJ	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.0016 U	0.0016 U	0.00095 U
Total BTEX	NE	NE	NE	ND	ND	**0.03**	**0.00069**	**0.0065**	ND	ND	**7.3**	**0.0011**	ND	ND	ND
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	0.12 U	0.025 UJ	0.12 U	0.0015 R	0.024 U	0.026 U	0.16 U	1.8 R	0.023 U	0.0053 U	0.0052 U	0.0032 U
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.03 UJ	0.0062 UJ	0.03 UJ	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Chlorobenzene	1.1	1.1	100	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	**0.00017 J**
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
1,1-Dichloroethene	0.33	0.33	100	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
1,2-Dichloropropane	NE	NE	NE	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.059 U	0.012 U	0.061 U	0.00061 U	0.012 U	0.013 U	0.08 U	**12 J**	0.012 U	0.0053 R	0.0052 R	0.0032 R
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.0053 U	0.0052 U	0.0032 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.12 U	0.025 U	0.12 U	0.00061 U	0.024 U	0.026 U	0.16 U	0.7 U	0.023 U	**0.0066 J**	0.00052 UJ	0.00032 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	**0.0037**	**0.0051**	**0.0015**
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.03 U	0.0062 U	**0.028 J**	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Trichloroethene (TCE)	0.47	0.47	21	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	**0.0017**	**0.002**	**0.00047**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.03 U	0.0062 U	0.03 U	0.00061 U	0.0061 U	0.0066 U	0.04 U	0.7 U	0.0058 U	0.00053 U	0.00052 U	0.00032 U
Total VOCs	NE	NE	NE	ND	ND	**0.058**	**0.00069**	**0.0065**	ND	ND	**19.3**	**0.0011**	**0.012**	**0.0071**	**0.00214**
PAHs (mg/kg)															
Acenaphthene	20	98	100	**0.61**	0.33 U	**0.5 J**	**33**	**0.09 J**	**0.052 J**	4.2 U	**20**	**0.059 J**	0.38 U	0.38 U	0.4 U
Acenaphthylene	100	107	100	0.32 U	0.33 UJ	**0.26 J**	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Anthracene	100	1000	100	**0.31 J**	0.33 U	**1.4 J**	**12**	**0.037 J**	**0.029 J**	4.2 U	**7.2**	**0.018 J**	0.38 U	**0.12 J**	0.4 U
Benzo(a)anthracene	1	1	1	**0.19 J**	0.33 U	**10**	**6.5**	**0.031 J**	**0.021 J**	4.2 UJ	**5.2**	**0.02 J**	0.038 UJ	**0.39 J**	0.04 U
Benzo(b)fluoranthene	1	1.7	1	**0.15 J**	0.33 U	**23 J**	**5.5 J**	0.33 U	0.35 U	**0.49 J**	**5.3 J**	0.31 U	0.038 UJ	**0.49 J**	0.04 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**0.058 J**	0.33 U	**9.7 J**	**2.1 J**	0.33 U	0.35 U	4.2 UJ	**1.7 J**	0.31 U	0.038 UJ	**0.23 J**	0.04 U
Benzo(g,h,i)perylene	100	1000	100	**0.064 J**	0.33 U	**10 J**	**2 J**	0.33 U	0.35 U	**0.46 J**	**1.7 J**	0.31 U	0.38 U	**0.43**	0.4 U
Benzo(a)pyrene	1	22	1	**0.15 J**	0.33 U	**18 J**	**5 J**	**0.02 J**	0.35 U	**0.44 J**	**4.4 J**	0.31 U	0.038 UJ	**0.52 J**	0.04 U
Chrysene	1	1	3.9	**0.19 J**	0.33 U	**10**	**6.2 J**	0.33 U	0.35 U	4.2 UJ	**5.4**	0.31 U	0.38 U	**0.38**	0.4 U
Dibenz(a,h)anthracene	0.33	1000	0.33	0.32 U	0.33 U	**3 J**	6.5 UJ	0.33 U	0.35 U	4.2 UJ	**0.44 J**	0.31 U	0.038 U	0.038 U	0.04 U
Fluoranthene	100	1000	100	**0.41**	0.33 U	**10**	**12**	**0.061 J**	**0.045 J**	**0.38 J**	**9.8**	**0.034 J**	0.38 U	**0.79**	0.4 U
Fluorene	30	386	100	**0.39**	0.33 U	**0.47 J**	**14**	**0.05 J**	0.35 U	**0.35 J**	**8.4**	**0.024 J**	0.38 U	0.38 U	0.4 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.32 U	0.33 U	**11 J**	**2 J**	0.33 U	0.35 U	**0.41 J**	**1.7 J**	0.31 U	0.038 UJ	**0.3 J**	0.04 U
2-Methylnaphthalene	NE	36.4*	NE	**4.7**	0.33 UJ	3.2 U	**78**	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Naphthalene	12	12	100	0.32 U	0.33 UJ	3.2 U	**86**	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Phenanthrene	100	1000	100	**1.1**	0.33 U	**4.5**	**40**	**0.17 J**	**0.11 J**	4.2 U	**26**	**0.074 J**	0.38 U	**0.59**	0.4 U
Pyrene	100	1000	100	**0.53**	0.33 U	**12**	**22**	**0.064 J**	**0.044 J**	**0.77 J**	**18**	**0.036 J**	0.38 U	**0.91**	0.4 U
Total PAHs	NE	NE	NE	**8.852**	ND	**123.83**	**326.3**	**0.523**	**0.301**	**3.3**	**115.24**	**0.265**	ND	**5.15**	ND
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.04 J**	**0.066 J**	3.2 U	6.5 U	0.33 U	0.35 U	4.2 UJ	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Butyl benzyl phthalate	NE	122*	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 UJ	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	**0.019 J**	0.33 U	**0.46 J**	**0.64 J**	0.33 U	0.35 U	4.2 U	**0.44 J**	0.31 U	0.38 U	**0.083 J**	0.4 U
2-Chloronaphthalene	NE	NE	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Dibenzofuran	7	210, 6.2*	59	**0.12 J**	0.33 UJ	**0.37 J**	**2.3 J**	0.33 U	0.35 U	**0.46 J**	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Diethyl phthalate	NE	7.1*	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
2,4-Dimethylphenol	NE	NE	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Di-n-butyl phthalate	NE	8.1*	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
2,6-Dinitrotoluene	NE	1*	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.078 U	0.077 U	0.082 U
Di-n-octyl phthalate	NE	120*	NE	0.32 U	0.33 U	3.2 UJ	6.5 UJ	0.33 U	0.35 U	4.2 UJ	3.7 UJ	0.31 U	0.38 U	0.38 U	0.4 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
4-Nitroaniline	NE	NE	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.78 U	0.77 U	0.82 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Phenol	0.33	0.33	100	0.32 U	0.33 U	3.2 U	6.5 U	0.33 U	0.35 U	4.2 U	3.7 U	0.31 U	0.38 U	0.38 U	0.4 U
Total SVOCs	NE	NE	NE	**9.031**	**0.066**	**124.66**	**329.24**	**0.523**	**0.301**	**3.76**	**115.68**	**0.265**	ND	**5.233**	ND
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	NA	NA	0.02 U	NA	NA	NA	0.027 UJ	NA	NA	0.078 U	0.077 U	0.082 U
Aroclor 1248	NE	NE	NE	NA	NA	0.02 U	NA	NA	NA	0.027 UJ	NA	NA	0.078 U	0.077 U	0.082 U
Aroclor 1254	NE	NE	NE	NA	NA	0.02 U	NA	NA	NA	0.027 UJ	NA	NA	0.078 U	0.077 U	0.082 U
Aroclor 1260	NE	NE	NE	NA	NA	0.02 UJ	NA	NA	NA	0.027 UJ	NA	NA	0.078 U	0.077 U	0.082 U
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.078 U	0.077 U	0.082 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	ND	NA	NA	NA	ND	NA	NA	ND	ND	ND
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.078 U	0.077 U	0.082 U
alpha-chlordane	0.094	2.9	4.2	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	NA	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.021 U	NA	NA	NA	0.03 U	NA	NA	0.0078 U	0.0077 U	0.0082 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
Dieldrin	0.005	0.1	0.2	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
Endosulfan sulfate	2.4	1000	24	NA	NA	0.021 U	NA	NA	NA	0.03 U	NA	NA	0.0078 U	0.0077 U	0.0082 U
Endrin	0.014	0.06	11	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
Endrin aldehyde	NE	NE	NE	NA	NA	0.021 U	NA	NA	NA	0.03 U	NA	NA	0.0078 U	0.0077 U	0.0082 U
Endrin ketone	NE	NE	NE	NA	NA	0.021 U	NA	NA	NA	0.03 U	NA	NA	0.0078 U	0.0077 U	0.0082 U
Heptachlor	0.042	0.38	2.1	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St									Adjacent to Parcel 5 Former N. 10th St		
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Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.021 UJ	NA	NA	NA	0.03 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	0.041 UJ	NA	NA	NA	0.058 UJ	NA	NA	0.0078 U	0.0077 U	0.0082 U
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.1 U	NA	NA	NA	0.14 UJ	NA	NA	0.02 U	0.02 U	0.021 U
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.025 U	NA	NA	NA	0.035 U	NA	NA	0.02 U	0.02 U	0.021 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.025 U	NA	NA	NA	0.035 U	NA	NA	0.02 UJ	0.02 UJ	0.021 UJ
Metals (mg/kg)															
Aluminum	NE	NE	NE	**10900**	**1000**	**4500**	**1290**	**2610**	**1960**	**4230**	**1650**	**5880**	**6750**	**5930**	**7940**
Antimony	NE	NE	NE	4.8 UJ	5 UJ	5 UJ	**3.5 J**	4.8 UJ	5.4 UJ	12.5 UJ	5.6 UJ	4.6 UJ	**4.2**	**3.8**	2.3 U
Arsenic	13	16	16	**10.9 J**	6.3 UJ	**9.2**	**9.9**	6.1 U	6.9 U	15.9 U	**9.3**	**2.6 J**	**4 J**	**7.1 J**	**3.7**
Barium	350	820	400	**60.2**	**21.6**	**51**	**20.9 J**	**14 J**	**12.6 J**	**27.1 J**	**28.1 J**	**31.4 J**	**47.9**	**56.2**	**34.9 J**
Beryllium	7.2	47	72	**0.53 J**	**0.26 J**	**0.41 J**	**0.17 J**	**0.46 J**	**0.43 J**	**0.36 J**	**0.24 J**	**0.76 J**	**0.3 J**	**0.28 J**	**0.33 J**
Cadmium	2.5	7.5	4.3	1.4 UJ	1.5 UJ	1.5 U	1.5 U	1.5 UJ	1.6 UJ	3.8 UJ	1.7 U	1.4 U	1.1 U	**0.46 J**	1.2 U
Calcium	NE	NE	NE	72 UJ	75 UJ	**4540 J**	**1960 J**	**397 J**	**344 J**	**321000 J**	**3350 J**	**4630 J**	**937 J**	**8300 J**	**837 J**
Chromium	30	NE	180	**29.5 J**	**9.5 J**	**9.6 J**	**8 J**	**12.2 J**	**10.9 J**	**4.7 J**	**9.5 J**	**16.9 J**	**24.8 J**	**27.2 J**	**10.7 J**
Cobalt	NE	NE	NE	**4.5**	**0.54 J**	**4.9**	**8.2 J**	**4.2 J**	**4.2 J**	**0.8 J**	**2.4 J**	**12 J**	**5.7 J**	**4.9 J**	**5.2 J**
Copper	50	1720	270	**21.5**	**7.7**	**28.2 J**	**194 J**	**14.2 J**	**13.6 J**	**9.1 J**	**35.1 J**	**22.3**	**13.4**	**20.1**	**10.5**
Iron	NE	NE	NE	**31000 J**	**36300 J**	**13200**	**18700 J**	**29100 J**	**29800 J**	**1980 J**	**6180 J**	**17300 J**	**15500**	**13100**	**18500**
Lead	63	450	400	**13.3 J**	4.5 UJ	**98.8 J**	**51.9 J**	**4.6 J**	**4.5 J**	**47 J**	**36.2 J**	**13**	**183 J**	**148 J**	**5.7 J**
Magnesium	NE	NE	NE	**3370 J**	**662 J**	**1190 J**	**365 J**	**420 J**	**429 J**	**2150 J**	**161 J**	**3210**	**2100**	**2260**	**2640**
Manganese	1600	2000	2000	**172 J**	**280 J**	**90.6**	**274 J**	**296 J**	**330 J**	**237 J**	**29.6 J**	**309 J**	**311**	**265**	**162**
Mercury	0.18	0.73	0.81	**0.015 J**	**0.015 J**	**0.39 J**	**0.065 J**	**0.0061 J**	**0.0061 J**	**0.22 J**	**0.26 J**	**0.015 J**	**0.12**	**0.15**	0.038 U
Nickel	30	130	310	**13.9**	**1.4 J**	**12.3**	**17**	**5**	**4.7**	**2.7 J**	**7.5**	**18.6**	**11.2**	**12.2**	**11.5**
Potassium	NE	NE	NE	**1570 J**	**371 J**	**473 J**	**173 J**	**232 J**	**220 J**	**358 J**	**244 J**	**1150 J**	**470 J**	**613 J**	**344 J**
Selenium	3.9	4	180	10.8 UJ	11.3 UJ	11.3 U	11 U	10.9 U	12.3 U	28.3 U	12.7 U	10.5 U	2.3 U	2.1 U	2.3 U
Silver	2	8.3	180	1.4 UJ	1.5 U	**0.1 J**	**0.15 J**	1.5 U	1.6 U	3.8 U	1.7 U	1.4 U	2.3 U	2.1 U	2.3 U
Sodium	NE	NE	NE	72 U	75 U	**298 J**	**332 J**	**84.2 J**	**85.5 J**	**2140 J**	**248 J**	**812 J**	1140 U	1050 U	1150 U
Thallium	NE	NE	NE	**1.1 J**	4.5 UJ	4.5 U	4.4 U	4.4 U	4.9 U	11.3 U	5.1 U	4.2 U	2.3 U	2.1 U	2.3 U
Tin	NE	NE	NE	3.6 U	3.8 U	**7.4**	**28.3**	3.6 U	3.6 U	9.4 U	4.2 U	3.5 U	5.7 U	5.3 U	5.8 U
Vanadium	NE	NE	NE	**40.2 J**	**9.4 J**	**16.1 J**	**17.2 J**	**26.9 J**	**24.2 J**	**7.6 J**	**16.1 J**	**25.9**	**14.6**	**13.2**	**14.5**
Zinc	109	2480	10000	**39.5**	7.5 UJ	**496**	**105**	**26.2**	**25.5**	**21.5 J**	**39.2**	**54.7**	**74.9 J**	**235 J**	**40.8**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	0.237 U	0.247 U	**0.0478 J**	0.24 UJ	0.244 UJ	0.259 UJ	0.318 UJ	**0.14 J**	0.23 UJ	2.5 U	2.5 U	2.6 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 N. 11th St										Adjacent to Parcel 5 Former N. 10th St		
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-30 (7-9) 8/18/2009	WW-SB-30 (45-50) 8/20/2009	WW-SB-31 (1-5) 8/26/2009	WW-SB-31 (15-17) 8/26/2009	WW-SB-31 (52-54) 8/27/2009	Duplicate of WW-SB-31 (52-54) 8/27/2009	WW-SB-32 (4-5) 8/27/2009	WW-SB-32 (10-11) 8/27/2009	WW-SB-32 (43-44) 8/28/2009	WW-SB-54 (3-5) 11/15/2012	Duplicate of WW-SB-54 (3-5) 11/15/2012	WW-SB-54 (7-9) 11/15/2012
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)															
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-54 (57-59) 11/15/2012	WW-SB-55 (3-5) 11/13/2012	WW-SB-55 (12-14) 11/13/2012	WW-SB-55 (55-57) 11/13/2012	WW-MW-18 (1-2) 10/26/2010	WW-MW-18 (6-7) 10/27/2010	WW-MW-18 (72-73) 10/28/2010	WW-MW-19 (1-2) 10/27/2010	WW-MW-19 (5-6) 11/2/2010	WW-SB-43 (1-2) 10/20/2010	WW-SB-43 (8-8.5) 10/21/2010	WW-SB-43 (44-44.5) 10/21/2010
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	**0.00032 J**	0.00072 U	**0.0019 J**	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	**0.019**	**0.02 J**	**0.0082**
Toluene	0.7	0.7	100	**0.00029 J**	**0.0002 J**	**0.011 J**	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	**0.019**	**0.054 J**	**0.011**
Ethylbenzene	1	1	41	0.00092 U	0.00072 U	**0.0023 J**	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	**0.002**	0.13 U	**0.001 J**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.0027 U	0.0022 U	**0.01 J**	0.0011 U	0.0031 UJ	0.0033 UJ	0.0031 UJ	0.0028 U	0.0048 U	**0.007 J**	**0.074 J**	**0.0032 J**
Total BTEX	NE	NE	NE	**0.00061**	**0.0002**	**0.0252**	ND	ND	ND	ND	ND	ND	**0.047**	**0.148**	**0.0234**
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	**0.039 J**	**0.022**	0.099 R	0.0041 U	0.01 U	0.011 U	0.01 U	0.0093 UJ	**0.13**	0.011 UJ	1.3 UJ	**0.044 J**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	**0.00021 J**	**0.00022 J**	0.02 U	**0.00015 J**	0.001 U	0.0011 U	0.001 U	0.00093 U	**0.0015 J**	0.0011 U	0.13 U	0.0011 U
Chlorobenzene	1.1	1.1	100	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
1,1-Dichloroethene	0.33	0.33	100	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
1,2-Dichloropropane	NE	NE	NE	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	**0.0017 J**	**0.0051 J**	0.099 R	**0.00055 J**	0.01 U	0.011 U	0.01 U	0.0093 U	**0.017**	0.011 U	1.3 U	0.011 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0092 U	0.0072 U	0.099 U	0.0038 U	0.01 U	0.011 U	0.01 U	0.0093 U	0.016 U	0.011 U	1.3 U	0.011 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	**0.05**	0.00072 U	0.02 U	0.00038 U	0.001 U	**0.0034**	**0.0018**	0.00093 U	0.0018 U	0.0022 U	0.13 UJ	0.0028 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	**0.0023**	0.13 U	0.0011 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Trichloroethene (TCE)	0.47	0.47	21	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-54 (57-59) 11/15/2012**	**WW-SB-55 (3-5) 11/13/2012**	**WW-SB-55 (12-14) 11/13/2012**	**WW-SB-55 (55-57) 11/13/2012**	**WW-MW-18 (1-2) 10/26/2010**	**WW-MW-18 (6-7) 10/27/2010**	**WW-MW-18 (72-73) 10/28/2010**	**WW-MW-19 (1-2) 10/27/2010**	**WW-MW-19 (5-6) 11/2/2010**	**WW-SB-43 (1-2) 10/20/2010**	**WW-SB-43 (8-8.5) 10/21/2010**	**WW-SB-43 (44-44.5) 10/21/2010**
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.00092 U	0.00072 U	0.02 U	0.00038 U	0.001 U	0.0011 U	0.001 U	0.00093 U	0.0016 U	0.0011 U	0.13 U	0.0011 U
Total VOCs	NE	NE	NE	**0.09152**	**0.02752**	**0.0252**	**0.0007**	ND	**0.0034**	**0.0018**	ND	**0.1485**	**0.0493**	**0.148**	**0.0674**
PAHs (mg/kg)															
Acenaphthene	20	98	100	0.39 U	**0.17 J**	**0.44 J**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.12 J**	0.41 U	0.94 U	0.39 U
Acenaphthylene	100	107	100	0.39 U	**0.11 J**	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Anthracene	100	1000	100	0.39 U	**0.47**	**0.25 J**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.61**	0.41 U	0.94 U	0.39 U
Benzo(a)anthracene	1	1	1	0.039 U	**2.1**	**0.31**	0.039 U	0.036 U	0.038 U	0.037 U	0.035 U	**0.98**	0.041 U	0.094 U	0.039 U
Benzo(b)fluoranthene	1	1.7	1	0.039 U	**2.3**	**0.24**	0.039 U	**0.061**	0.038 U	0.037 U	0.035 U	**0.66**	0.041 U	0.094 U	0.039 U
Benzo(k)fluoranthene	0.8	1.7	3.9	0.039 U	**0.91**	0.079 U	0.039 UJ	0.036 U	0.038 U	0.037 U	0.035 U	**0.35**	0.041 U	0.094 U	0.039 U
Benzo(g,h,i)perylene	100	1000	100	0.39 U	**0.87**	0.79 UJ	0.39 U	**0.066 J**	0.38 U	0.37 U	0.35 U	**0.36 J**	0.41 U	**0.12 J**	0.39 U
Benzo(a)pyrene	1	22	1	0.039 U	**2**	**0.18**	0.039 U	**0.069**	0.038 U	0.037 U	0.035 U	**0.76**	0.041 U	0.094 U	0.039 U
Chrysene	1	1	3.9	0.39 U	**2**	**0.27 J**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.98**	0.41 U	0.94 U	0.39 U
Dibenz(a,h)anthracene	0.33	1000	0.33	0.039 U	**0.24**	0.079 U	0.039 U	0.036 U	0.038 U	0.037 U	0.035 U	**0.16**	0.041 U	0.094 U	0.039 U
Fluoranthene	100	1000	100	0.39 U	**3.4**	**0.71 J**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**1.3**	0.41 U	0.94 U	0.39 U
Fluorene	30	386	100	0.39 U	**0.15 J**	**0.34 J**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.12 J**	0.41 U	0.94 U	0.39 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.039 U	**0.9**	0.079 U	0.039 U	0.036 U	0.038 U	0.037 U	0.035 U	**0.37**	0.041 U	0.094 U	0.039 U
2-Methylnaphthalene	NE	36.4*	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Naphthalene	12	12	100	0.39 U	**0.055 J**	**0.17 J**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.11 J**	0.41 U	0.94 U	0.39 U
Phenanthrene	100	1000	100	0.39 U	**2.1**	**1.2**	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.46 J**	0.41 U	0.94 U	0.39 U
Pyrene	100	1000	100	0.39 U	**3.6**	**0.86**	0.39 U	**0.12 J**	0.38 U	0.37 U	0.35 U	**1.4**	0.41 U	**0.32 J**	0.39 U
Total PAHs	NE	NE	NE	ND	**21.375**	**4.97**	ND	**0.316**	ND	ND	ND	**8.74**	ND	**0.44**	ND
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-54 (57-59) 11/15/2012	WW-SB-55 (3-5) 11/13/2012	WW-SB-55 (12-14) 11/13/2012	WW-SB-55 (55-57) 11/13/2012	WW-MW-18 (1-2) 10/26/2010	WW-MW-18 (6-7) 10/27/2010	WW-MW-18 (72-73) 10/28/2010	WW-MW-19 (1-2) 10/27/2010	WW-MW-19 (5-6) 11/2/2010	WW-SB-43 (1-2) 10/20/2010	WW-SB-43 (8-8.5) 10/21/2010	WW-SB-43 (44-44.5) 10/21/2010
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.39 U	**0.17 J**	0.79 U	0.39 U	**0.2 J**	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Butyl benzyl phthalate	NE	122*	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.39 U	**0.17 J**	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
2-Chloronaphthalene	NE	NE	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Dibenzofuran	7	210, 6.2*	59	0.39 U	**0.083 J**	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	**0.083 J**	0.41 UJ	0.94 UJ	0.39 U
Diethyl phthalate	NE	7.1*	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
2,4-Dimethylphenol	NE	NE	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Di-n-butyl phthalate	NE	8.1*	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
2,6-Dinitrotoluene	NE	1*	NE	0.079 U	0.08 U	0.16 U	0.08 U	0.073 U	0.077 U	0.076 U	0.07 U	0.11 U	0.084 U	0.19 U	0.078 U
Di-n-octyl phthalate	NE	120*	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
4-Nitroaniline	NE	NE	NE	0.79 U	0.8 U	1.6 U	0.8 U	0.73 U	0.77 U	0.76 U	0.7 U	1.1 U	0.84 U	1.9 U	0.78 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Phenol	0.33	0.33	100	0.39 U	0.39 U	0.79 U	0.39 U	0.36 U	0.38 U	0.37 U	0.35 U	0.54 U	0.41 U	0.94 U	0.39 U
Total SVOCs	NE	NE	NE	ND	**21.798**	**4.97**	ND	**0.516**	ND	ND	ND	**8.823**	ND	**0.44**	ND
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-54 (57-59) 11/15/2012	WW-SB-55 (3-5) 11/13/2012	WW-SB-55 (12-14) 11/13/2012	WW-SB-55 (55-57) 11/13/2012	WW-MW-18 (1-2) 10/26/2010	WW-MW-18 (6-7) 10/27/2010	WW-MW-18 (72-73) 10/28/2010	WW-MW-19 (1-2) 10/27/2010	WW-MW-19 (5-6) 11/2/2010	WW-SB-43 (1-2) 10/20/2010	WW-SB-43 (8-8.5) 10/21/2010	WW-SB-43 (44-44.5) 10/21/2010
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-54 (57-59) 11/15/2012	WW-SB-55 (3-5) 11/13/2012	WW-SB-55 (12-14) 11/13/2012	WW-SB-55 (55-57) 11/13/2012	WW-MW-18 (1-2) 10/26/2010	WW-MW-18 (6-7) 10/27/2010	WW-MW-18 (72-73) 10/28/2010	WW-MW-19 (1-2) 10/27/2010	WW-MW-19 (5-6) 11/2/2010	WW-SB-43 (1-2) 10/20/2010	WW-SB-43 (8-8.5) 10/21/2010	WW-SB-43 (44-44.5) 10/21/2010
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-54 (57-59) 11/15/2012	WW-SB-55 (3-5) 11/13/2012	WW-SB-55 (12-14) 11/13/2012	WW-SB-55 (55-57) 11/13/2012	WW-MW-18 (1-2) 10/26/2010	WW-MW-18 (6-7) 10/27/2010	WW-MW-18 (72-73) 10/28/2010	WW-MW-19 (1-2) 10/27/2010	WW-MW-19 (5-6) 11/2/2010	WW-SB-43 (1-2) 10/20/2010	WW-SB-43 (8-8.5) 10/21/2010	WW-SB-43 (44-44.5) 10/21/2010
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	0.079 U	0.08 U	0.08 U	0.08 U	0.073 U	NA	NA	0.07 U	NA	0.084 U	NA	NA
Aroclor 1248	NE	NE	NE	0.079 U	0.08 U	0.08 U	0.08 U	0.073 U	NA	NA	0.07 U	NA	0.084 U	NA	NA
Aroclor 1254	NE	NE	NE	0.079 U	0.08 U	0.08 U	0.08 U	0.073 U	NA	NA	0.07 U	NA	0.084 U	NA	NA
Aroclor 1260	NE	NE	NE	0.079 U	0.08 U	0.08 U	0.08 U	0.073 UJ	NA	NA	0.07 U	NA	0.084 UJ	NA	NA
Aroclor 1268	NE	NE	NE	0.079 U	0.08 U	0.08 U	0.08 U	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	ND	ND	ND	ND	ND	NA	NA	ND	NA	ND	NA	NA
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 UJ	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 UJ	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	0.079 U	**0.094 J**	0.08 U	0.08 U	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	NA	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	NA	0.0073 U	NA	NA	0.007 U	NA	**0.012**	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.0079 U	**0.03**	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 UJ	NA	**0.098 J**	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0079 U	**0.014**	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0079 U	**0.04**	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Dieldrin	0.005	0.1	0.2	0.0079 U	**0.0086 J**	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
alpha-Endosulfan (I)	2.4	102	24	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Endosulfan sulfate	2.4	1000	24	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Endrin	0.014	0.06	11	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	**0.051 J**	NA	NA
Endrin aldehyde	NE	NE	NE	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Endrin ketone	NE	NE	NE	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Heptachlor	0.042	0.38	2.1	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 UJ	NA	NA	0.007 U	NA	0.0084 UJ	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-54 (57-59) 11/15/2012**	**WW-SB-55 (3-5) 11/13/2012**	**WW-SB-55 (12-14) 11/13/2012**	**WW-SB-55 (55-57) 11/13/2012**	**WW-MW-18 (1-2) 10/26/2010**	**WW-MW-18 (6-7) 10/27/2010**	**WW-MW-18 (72-73) 10/28/2010**	**WW-MW-19 (1-2) 10/27/2010**	**WW-MW-19 (5-6) 11/2/2010**	**WW-SB-43 (1-2) 10/20/2010**	**WW-SB-43 (8-8.5) 10/21/2010**	**WW-SB-43 (44-44.5) 10/21/2010**
Heptachlor epoxide	NE	0.02*	NE	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 U	NA	0.0084 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.0079 U	0.008 U	0.008 U	0.008 U	0.0073 U	NA	NA	0.007 UJ	NA	**0.18 J**	NA	NA
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.02 U	0.02 U	0.02 U	0.02 U	0.019 U	NA	NA	0.018 U	NA	0.021 U	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.02 U	0.02 U	0.02 U	0.02 U	0.019 U	NA	NA	0.018 U	NA	0.021 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.019 UJ	NA	NA	0.018 UJ	NA	0.021 U	NA	NA
Metals (mg/kg)															
Aluminum	NE	NE	NE	**1740**	**5350**	**8000**	**3360**	**9950**	**5380**	**2430**	**1080**	**7710**	**4600**	**5720**	**1990**
Antimony	NE	NE	NE	2.2 U	2.3 UJ	2.3 UJ	5.2 UJ	2.1 U	2.2 UJ	2.1 UJ	2 UJ	3.3 UJ	2.5 U	2.6 U	2.3 UJ
Arsenic	13	16	16	1.1 U	**6**	**4.3**	**3.7**	**2.4 J**	**1.6**	**2.7 J**	**4.9**	**7.1**	**11.9**	**73.7**	**3 J**
Barium	350	820	400	**10.5 J**	**249**	**85.1**	**24.9 J**	**58.6**	**37.4 J**	**21.1 J**	**10.3 J**	**85.1**	**94.6**	**68.5**	**8.7 J**
Beryllium	7.2	47	72	0.44 U	**0.29 J**	**0.63**	**0.4 J**	**0.3 J**	**0.28 J**	**0.45**	0.4 U	**0.42 J**	**0.34 J**	**0.53**	**0.54**
Cadmium	2.5	7.5	4.3	1.1 U	**0.81 J**	**0.27 J**	**0.89 J**	1 UJ	1.1 U	1.1 UJ	1 U	1.6 U	1.2 U	1.3 U	1.1 UJ
Calcium	NE	NE	NE	**3980**	**19500 J**	**1870 J**	**807 J**	**11000**	**833 J**	**386 J**	**386 J**	**2500**	**12700**	**2940**	**443 J**
Chromium	30	NE	180	**6.8 J**	**14.7**	**16.7**	**16**	2.1 U	**12.6**	**13**	**3.6**	**19.8**	**9.3**	**8.6**	**9.9**
Cobalt	NE	NE	NE	**4.3 J**	**4.5 J**	**7.1 J**	**5.4 J**	**19.3**	**5.9 J**	**5.9 J**	**1.8 J**	**7.2 J**	**6.4 J**	**6.4 J**	**6.8 J**
Copper	50	1720	270	**5.2 J**	**136**	**29.3**	**16.5**	**112**	**12.7**	**15**	**3.3 J**	**57.3**	**87.6**	**28**	**15.9**
Iron	NE	NE	NE	**7560**	**14000**	**17400**	**60500**	**35000**	**15600**	**58700**	**3960**	**20900**	**10600**	**28900**	**64000**
Lead	63	450	400	**1.8 J**	**356**	**30.6**	**3.4 J**	**12.1**	**5.3**	**4.4 J**	**2.5**	**219**	**189**	**38.5**	**6.5 J**
Magnesium	NE	NE	NE	**2490**	**2500**	**2240**	**888 J**	**8570**	**1910**	**374 J**	**410 J**	**3090**	**5030**	**5570**	**385 J**
Manganese	1600	2000	2000	**153**	**208**	**147**	**871**	**433**	**209 J**	**423 J**	**68.4 J**	**213 J**	**322**	**602**	**594**
Mercury	0.18	0.73	0.81	0.037 U	**1.3**	**0.059**	0.038 U	**0.36**	0.035 U	0.035 U	0.032 U	**3.1**	**0.21**	**0.084**	0.034 U
Nickel	30	130	310	**5.8 J**	**13.7**	**13**	**7.2 J**	**14.1**	**10.6**	**5.2 J**	**4.4 J**	**15.7**	**16.6**	**13.9**	**6.6 J**
Potassium	NE	NE	NE	**339 J**	**706 J**	**1150**	**518 J**	**2170**	**1000 J**	**156 J**	**280 J**	**1190 J**	**937 J**	**423 J**	**179 J**
Selenium	3.9	4	180	2.2 U	2.3 U	2.3 U	5.2 U	**3.3 J**	2.2 U	**2.7 J**	2 U	3.3 U	2.5 U	2.6 U	**1.3 J**
Silver	2	8.3	180	2.2 U	2.3 U	2.3 U	5.2 U	2.1 U	2.2 U	2.1 U	2 U	3.3 U	2.5 U	2.6 U	2.3 U
Sodium	NE	NE	NE	**193 J**	**431 J**	**368 J**	2600 U	1040 U	**103 J**	**347 J**	996 U	**118 J**	1240 U	1320 U	1130 U
Thallium	NE	NE	NE	2.2 U	2.3 U	2.3 U	5.2 U	2.1 U	2.2 U	2.1 U	2 U	3.3 U	2.5 U	2.6 U	2.3 U
Tin	NE	NE	NE	5.5 U	**30.6**	5.7 U	13 U	5.2 U	5.6 U	5.3 U	5 U	**22.4**	**7.1**	6.6 U	5.7 U
Vanadium	NE	NE	NE	**13**	**22.8**	**26.2**	**32.4**	**98.9**	**19.4**	**32.4**	**4.7 J**	**22.4**	**19.5**	**26.2**	**27.9**
Zinc	109	2480	10000	**16.4**	**302**	**46.2**	**35.4**	**69.2**	**25.1**	**33.5**	**6.7**	**164**	**126**	**38.9**	**34.3**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	2.5 U	2.5 U	2.6 U	2.5 U	0.22 U	0.23 U	0.23 U	0.21 U	0.33 U	0.25 U	0.28 U	0.23 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-54 (57-59) 11/15/2012**	**WW-SB-55 (3-5) 11/13/2012**	**WW-SB-55 (12-14) 11/13/2012**	**WW-SB-55 (55-57) 11/13/2012**	**WW-MW-18 (1-2) 10/26/2010**	**WW-MW-18 (6-7) 10/27/2010**	**WW-MW-18 (72-73) 10/28/2010**	**WW-MW-19 (1-2) 10/27/2010**	**WW-MW-19 (5-6) 11/2/2010**	**WW-SB-43 (1-2) 10/20/2010**	**WW-SB-43 (8-8.5) 10/21/2010**	**WW-SB-43 (44-44.5) 10/21/2010**
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 5 Former N. 10th St				Parcel 6 [Block 2277 Lot 1]							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-54 (57-59) 11/15/2012	WW-SB-55 (3-5) 11/13/2012	WW-SB-55 (12-14) 11/13/2012	WW-SB-55 (55-57) 11/13/2012	WW-MW-18 (1-2) 10/26/2010	WW-MW-18 (6-7) 10/27/2010	WW-MW-18 (72-73) 10/28/2010	WW-MW-19 (1-2) 10/27/2010	WW-MW-19 (5-6) 11/2/2010	WW-SB-43 (1-2) 10/20/2010	WW-SB-43 (8-8.5) 10/21/2010	WW-SB-43 (44-44.5) 10/21/2010
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)															
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	0.21 UJ	**0.031 J**	**0.0036**	**0.029 J**	**430**	**0.032**	**0.035**	**0.073**	**17**	0.0012 U	**0.2**	**0.0031**
Toluene	0.7	0.7	100	0.21 UJ	**0.081 J**	**0.00056 J**	**0.062 J**	**1000**	**0.016**	**0.014**	**0.015**	**23**	**0.00059 J**	**0.12**	**0.00048 J**
Ethylbenzene	1	1	41	0.21 UJ	**0.099 J**	**0.0083**	**0.043 J**	**300**	**0.0025**	**0.003**	**0.00052 J**	**68**	**0.00072 J**	**0.089 J**	**0.00023 J**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.63 UJ	**0.44**	**0.0031 J**	**0.14 J**	**1400**	**0.0089 J**	**0.011**	0.0035 UJ	**83**	**0.0013 J**	**0.37**	0.0033 UJ
Total BTEX	NE	NE	NE	ND	**0.651**	**0.01556**	**0.274**	**3130**	**0.0594**	**0.063**	**0.08852**	**191**	**0.00261**	**0.779**	**0.00381**
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	2.1 UJ	1.1 UJ	0.011 U	1.1 UJ	43 UJ	0.011 UJ	**0.022**	0.012 UJ	12 UJ	0.012 U	1.1 UJ	0.011 U
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	**0.062 J**	0.11 U	0.0011 U	**0.07 J**	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 UJ	0.0012 UJ	**0.047 J**	**0.00065 J**
Chlorobenzene	1.1	1.1	100	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	**0.00041 J**	0.0012 U	1.2 U	**0.00037 J**	0.11 U	0.0011 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
1,1-Dichloroethene	0.33	0.33	100	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	**0.00075 J**	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.21 UJ	0.11 U	0.0011 U	**0.081 J**	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	**0.0029**
trans-1,2-Dichloroethene	0.19	0.19	100	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
1,2-Dichloropropane	NE	NE	NE	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	2.1 UJ	1.1 U	0.011 U	1.1 U	43 U	0.011 U	0.011 U	0.012 U	12 UJ	0.012 U	1.1 U	0.011 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	2.1 UJ	1.1 U	0.011 U	1.1 U	43 U	0.011 U	0.011 U	0.012 U	12 UJ	0.012 U	1.1 U	0.011 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.21 UJ	0.11 UJ	0.0011 U	0.11 UJ	4.3 UJ	0.0011 U	**0.00081 J**	0.01 U	1.2 UJ	**0.0019**	0.11 UJ	**0.0031**
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.21 UJ	0.11 U	0.0011 U	0.11 U	**830**	**0.0021**	**0.0032**	0.0012 U	**0.49 J**	0.0012 U	0.11 U	0.0011 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	**0.00079 J**	1.2 U	0.0012 U	0.11 U	0.0011 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U
Trichloroethene (TCE)	0.47	0.47	21	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	0.0011 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.21 UJ	0.11 U	0.0011 U	0.11 U	4.3 U	0.0011 U	0.0011 U	0.0012 U	1.2 U	0.0012 U	0.11 U	**0.0016**
Total VOCs	NE	NE	NE	**0.062**	**0.651**	**0.01556**	**0.425**	**3960**	**0.0615**	**0.09017**	**0.08931**	**191.49**	**0.00488**	**0.826**	**0.01206**
PAHs (mg/kg)															
Acenaphthene	20	98	100	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	**2.6**	0.4 U	0.37 U	0.42 U
Acenaphthylene	100	107	100	0.75 UJ	0.39 U	0.38 U	1.9 U	**14**	0.4 U	0.39 U	0.4 U	**7.4**	0.4 U	0.37 U	0.42 U
Anthracene	100	1000	100	0.75 UJ	0.39 U	0.38 U	**0.34 J**	**4.4 J**	0.4 U	0.39 U	**0.095 J**	**3.9**	0.4 U	0.37 U	0.42 U
Benzo(a)anthracene	1	1	1	**0.11 J**	**0.075**	0.038 U	**0.86**	**3.1**	0.04 U	0.039 U	**0.25**	**2**	0.04 U	**0.061**	0.042 U
Benzo(b)fluoranthene	1	1.7	1	0.075 UJ	**0.077**	0.038 U	**0.89**	0.95 U	0.04 U	0.039 U	**0.3**	**1.1**	0.04 U	**0.067**	0.042 U
Benzo(k)fluoranthene	0.8	1.7	3.9	0.075 UJ	0.039 U	0.038 U	**0.25**	0.95 U	0.04 U	0.039 U	**0.15**	**0.53**	0.04 U	0.037 U	0.042 U
Benzo(g,h,i)perylene	100	1000	100	0.75 UJ	0.39 U	0.38 U	**0.88 J**	9.5 U	0.4 U	0.39 U	**0.12 J**	**0.41 J**	0.4 U	**0.11 J**	0.42 U
Benzo(a)pyrene	1	22	1	0.075 UJ	**0.085**	0.038 U	**0.67**	0.95 U	0.04 U	0.039 U	**0.22**	**1.5**	0.04 U	**0.066**	0.042 U
Chrysene	1	1	3.9	**0.12 J**	**0.093 J**	0.38 U	**1.1 J**	**2.6 J**	0.4 U	0.39 U	**0.26 J**	**2.2**	0.4 U	**0.11 J**	0.42 U
Dibenz(a,h)anthracene	0.33	1000	0.33	0.075 UJ	0.039 U	0.038 U	**0.26**	0.95 U	0.04 U	0.039 U	0.04 U	0.21 U	0.04 U	**0.028 J**	0.042 U
Fluoranthene	100	1000	100	0.75 UJ	0.39 U	0.38 U	**1.2 J**	**3.6 J**	0.4 U	0.39 U	**0.49**	**2.8**	0.4 U	0.37 U	0.42 U
Fluorene	30	386	100	0.75 UJ	0.39 U	0.38 U	1.9 U	**5.8 J**	0.4 U	0.39 U	0.4 U	**5.2**	0.4 U	0.37 U	0.42 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.075 UJ	0.039 U	0.038 U	**0.81**	0.95 U	0.04 U	0.039 U	**0.12**	**0.34**	0.04 U	**0.075**	0.042 U
2-Methylnaphthalene	NE	36.4*	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	**38**	0.4 U	0.39 U	0.4 U	**19**	0.4 U	0.37 U	0.42 U
Naphthalene	12	12	100	0.75 UJ	0.39 U	0.38 U	1.9 U	**110**	0.4 U	0.39 U	0.4 U	**30**	0.4 U	0.37 U	0.42 U
Phenanthrene	100	1000	100	0.75 UJ	0.39 U	0.38 U	1.9 U	**15**	0.4 U	0.39 U	**0.44**	**13**	0.4 U	0.37 U	0.42 U
Pyrene	100	1000	100	0.75 UJ	**0.1 J**	0.38 U	**1.7 J**	**5.6 J**	0.4 U	0.39 U	**0.51**	**5.4**	0.4 U	**0.14 J**	0.42 U
Total PAHs	NE	NE	NE	**0.23**	**0.43**	ND	**8.96**	**202.1**	ND	ND	**2.955**	**97.38**	ND	**0.657**	ND
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	**0.091 J**	0.42 U
Butyl benzyl phthalate	NE	122*	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
2-Chloronaphthalene	NE	NE	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
Dibenzofuran	7	210, 6.2*	59	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 UJ	0.4 UJ	**0.98 J**	0.4 U	0.37 UJ	0.42 U
Diethyl phthalate	NE	7.1*	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
2,4-Dimethylphenol	NE	NE	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
Di-n-butyl phthalate	NE	8.1*	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
2,6-Dinitrotoluene	NE	1*	NE	0.15 UJ	0.079 U	0.078 U	0.39 U	1.9 U	0.081 U	0.08 U	0.081 U	0.44 U	0.081 U	0.076 U	0.086 U
Di-n-octyl phthalate	NE	120*	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 UJ	0.4 U	0.37 U	0.42 U
4-Nitroaniline	NE	NE	NE	1.5 UJ	0.79 U	0.78 U	3.9 U	19 U	0.81 U	0.8 U	0.81 U	4.4 UJ	0.81 U	0.76 U	0.86 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
Phenol	0.33	0.33	100	0.75 UJ	0.39 U	0.38 U	1.9 U	9.5 U	0.4 U	0.39 U	0.4 U	2.1 U	0.4 U	0.37 U	0.42 U
Total SVOCs	NE	NE	NE	**0.23**	**0.43**	ND	**8.96**	**202.1**	ND	ND	**2.955**	**98.36**	ND	**0.748**	ND
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	0.15 UJ	NA	0.078 U	0.079 U	NA	NA	NA	0.081 U	NA	NA	0.075 U	NA
Aroclor 1248	NE	NE	NE	0.15 UJ	NA	0.078 U	0.079 U	NA	NA	NA	0.081 U	NA	NA	0.075 U	NA
Aroclor 1254	NE	NE	NE	0.15 UJ	NA	0.078 U	0.079 U	NA	NA	NA	0.081 U	NA	NA	0.075 U	NA
Aroclor 1260	NE	NE	NE	0.15 UJ	NA	0.078 U	0.079 U	NA	NA	NA	0.081 UJ	NA	NA	0.075 UJ	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	ND	NA	ND	ND	NA	NA	NA	ND	NA	NA	ND	NA
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 UJ	NA	NA	0.0076 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
gamma-Chlordane	NE	14*	NE	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Dieldrin	0.005	0.1	0.2	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
alpha-Endosulfan (I)	2.4	102	24	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
beta-Endosulfan (II)	2.4	102	24	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Endosulfan sulfate	2.4	1000	24	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Endrin	0.014	0.06	11	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Endrin aldehyde	NE	NE	NE	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	**0.015**	NA
Endrin ketone	NE	NE	NE	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Heptachlor	0.042	0.38	2.1	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 UJ	NA	NA	0.0076 U	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
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Heptachlor epoxide	NE	0.02*	NE	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.015 UJ	NA	0.0078 U	0.0079 U	NA	NA	NA	0.0081 U	NA	NA	0.0076 U	NA
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.039 UJ	NA	0.02 U	0.02 U	NA	NA	NA	0.021 U	NA	NA	0.019 U	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.039 UJ	NA	0.02 U	0.02 U	NA	NA	NA	0.021 U	NA	NA	0.019 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.039 UJ	NA	0.02 U	0.02 U	NA	NA	NA	0.021 U	NA	NA	0.019 U	NA
Metals (mg/kg)															
Aluminum	NE	NE	NE	**6940 J**	**7400**	**2630**	**5530**	**1580**	**2090**	**1780**	**3830**	**3840**	**3240**	**4160**	**7730**
Antimony	NE	NE	NE	4.5 UJ	2.2 U	2.3 U	**4.9**	2.2 U	2.2 UJ	2.2 UJ	**1.5 J**	2.4 U	2.2 UJ	2.1 U	2.5 U
Arsenic	13	16	16	**11.6 J**	**14.2**	**5.1**	**132**	**2.3**	**1.9 J**	**2.1 J**	**37.2**	**1.1 J**	1.1 UJ	**20.8**	**1.7**
Barium	350	820	400	**59.1 J**	**107**	**16.5 J**	**351**	**9.9 J**	**5.9 J**	**7.3**	**152**	**26.3 J**	**15.1 J**	**97.5**	**49.9**
Beryllium	7.2	47	72	**0.39 J**	**0.31 J**	**0.52**	**0.37 J**	**0.25 J**	**0.47**	**0.47**	**0.36 J**	**0.35 J**	**0.54**	**0.39 J**	**0.37 J**
Cadmium	2.5	7.5	4.3	2.2 UJ	**1.1**	**0.53 J**	**2 J**	1.1 U	1.1 UJ	1.1 UJ	**2.4 J**	1.2 UJ	1.1 UJ	**0.27 J**	1.2 U
Calcium	NE	NE	NE	**74700 J**	**7550**	**499 J**	**24300**	**413 J**	**299 J**	**261**	**8240**	**1290**	**554 J**	**3470**	**1450**
Chromium	30	NE	180	**13.8 J**	**48**	**12.7**	**22.4**	**6.1**	**10.1**	**10.3**	**11.2**	**11.1**	**18.9**	**11.4**	**13.4**
Cobalt	NE	NE	NE	**7.9 J**	**8.8 J**	**9.6 J**	**10.4 J**	**4.4 J**	**8.5 J**	**7.2**	**7.7 J**	**6.9 J**	**11.6**	**6.2 J**	**6.4 J**
Copper	50	1720	270	**26.2 J**	**53.2**	**16.4**	**264**	**9.7**	**15.9**	**11.9**	**232**	**14.5 J**	**20.8 J**	**127**	**24.3**
Iron	NE	NE	NE	**21200 J**	**20600**	**91900**	**44700**	**21700**	**66800**	**55000**	**31600**	**34000**	**69200**	**16700**	**15600**
Lead	63	450	400	**65.4 J**	**148**	**7.3 J**	**1270**	**3.8**	**5.8 J**	**5.6 J**	**1230**	**4.5 J**	**6.1 J**	**452**	**22.9**
Magnesium	NE	NE	NE	**3890 J**	**2940**	**554 J**	**3160**	**609 J**	**355 J**	**316**	**1570**	**1820**	**535 J**	**1560**	**2220**
Manganese	1600	2000	2000	**558 J**	**322**	**942**	**319**	**432**	**486**	**459**	**222**	**128**	**915**	**129**	**452**
Mercury	0.18	0.73	0.81	**0.13 J**	**0.31**	0.036 U	**1.4**	0.035 U	0.039 U	0.037 U	**5.1**	0.042 U	0.035 U	**0.41**	0.041 U
Nickel	30	130	310	**15.9 J**	**21.2**	**8.1 J**	**38.4**	**6.3 J**	**8.2 J**	**7**	**19.3**	**10.4**	**9.6**	**12.4**	**12.2**
Potassium	NE	NE	NE	**1340 J**	**2090**	**265 J**	**688 J**	**279 J**	**177 J**	**143**	**438 J**	**1040 J**	**286 J**	**614 J**	**1080 J**
Selenium	3.9	4	180	4.5 UJ	**1.1 J**	**3.4 J**	**3.7 J**	2.2 U	**1.5 J**	**1.9**	**1.5 J**	**4.9 J**	**6.3 J**	**1.5 J**	2.5 U
Silver	2	8.3	180	4.5 UJ	2.2 U	2.3 U	**0.42 J**	2.2 U	2.2 U	2.2 U	2.4 U	2.4 U	2.2 U	**0.18 J**	2.5 U
Sodium	NE	NE	NE	2230 UJ	1120 UJ	1140 U	1140 UJ	1120 U	1110 U	1090 U	1210 U	1220 U	1110 U	1070 U	1230 U
Thallium	NE	NE	NE	4.5 UJ	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U	2.4 U	2.4 U	2.2 U	2.1 U	2.5 U
Tin	NE	NE	NE	11.2 U	**7**	5.7 U	**107**	5.6 U	5.5 U	5.4 U	**154**	6.1 U	5.5 U	**48.8**	6.2 U
Vanadium	NE	NE	NE	**30.8 J**	**30.3**	**31.4**	**75.2**	**15.1**	**25.1**	**27.2**	**22**	**23.1**	**39**	**20.4**	**21.8**
Zinc	109	2480	10000	**68.5 J**	**168**	**45.2**	**859**	**18.8**	**43**	**33.5**	**1080**	**31.5**	**43.3**	**317**	**34.4**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	0.45 UJ	0.24 U	0.23 U	0.23 U	0.23 U	0.24 U	0.24 U	0.24 U	0.26 U	0.24 U	0.23 U	0.26 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-44 (1-2) 10/18/2010	WW-SB-44 (7-8) 10/19/2010	WW-SB-44 (50-51) 10/19/2010	WW-SB-45 (1-2) 10/18/2010	WW-SB-45 (53-54) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-45 (64-64.5) 10/20/2010	WW-SB-46 (1.5-2.5) 10/21/2010	WW-SB-46 (33-34) 10/25/2010	WW-SB-46 (60.5-61) 10/25/2010	WW-SB-47 (1-2) 10/22/2010	WW-SB-47 (5-6) 10/26/2010
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)															
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
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Sample Location				Parcel 6 [Block 2277 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	0.0011 U	0.001 U	**0.055 J**	**0.016 J**	**0.18**	**0.37 J**	**0.47 J**	**4.7**	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Toluene	0.7	0.7	100	0.0011 U	0.001 U	**0.037 J**	0.11 U	**0.12**	**0.41**	**0.45 J**	**0.37 J**	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Ethylbenzene	1	1	41	0.0011 U	0.001 U	**0.049 J**	0.11 U	**0.098 J**	**0.42**	**0.86 J**	**4.6**	0.0011 U	0.0011 U	0.0012 U	0.0011 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.0034 UJ	0.0031 UJ	**0.11 J**	**0.13 J**	**0.33**	**2.2**	**3.9**	**7.4 J**	0.0034 U	0.0033 UJ	0.0036 U	0.0034 U
Total BTEX	NE	NE	NE	ND	ND	**0.251**	**0.146**	**0.728**	**3.4**	**5.68**	**17.07**	ND	ND	ND	ND
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	0.011 U	0.01 U	1.1 UJ	1.1 R	1 R	4.1 U	11 UJ	30 U	0.011 U	0.011 U	**0.05**	**0.035**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.0011 U	0.001 U	**0.043 J**	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Chlorobenzene	1.1	1.1	100	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
1,1-Dichloroethene	0.33	0.33	100	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
1,2-Dichloropropane	NE	NE	NE	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.011 U	0.01 U	1.1 U	1.1 R	1 R	4.1 U	11 UJ	30 U	0.011 U	0.011 U	0.012 U	0.011 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.011 U	0.01 U	1.1 U	1.1 U	1 U	4.1 U	11 UJ	30 U	0.011 U	0.011 U	0.012 U	0.011 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.0011 U	0.001 U	0.11 UJ	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Trichloroethene (TCE)	0.47	0.47	21	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U

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1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0011 U	0.001 U	0.11 U	0.11 U	0.1 U	0.41 U	1.1 U	3 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
Total VOCs	NE	NE	NE	ND	ND	**0.294**	**0.146**	**0.728**	**3.4**	**5.68**	**17.07**	ND	ND	**0.05**	**0.035**
PAHs (mg/kg)															
Acenaphthene	20	98	100	0.39 U	0.38 U	**0.19 J**	0.85 U	0.39 U	**0.33 J**	0.73 U	**0.079 J**	0.41 U	0.41 U	0.4 U	2.2 U
Acenaphthylene	100	107	100	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Anthracene	100	1000	100	0.39 U	0.38 U	**0.24 J**	**0.16 J**	0.39 U	**0.49 J**	**0.51 J**	**0.19 J**	0.41 U	0.41 U	0.4 U	2.2 U
Benzo(a)anthracene	1	1	1	0.039 U	0.038 U	**1.3**	0.085 U	0.039 U	**0.71**	**0.63**	**0.2**	0.041 U	**0.12**	0.04 U	**0.16 J**
Benzo(b)fluoranthene	1	1.7	1	0.039 U	0.038 U	**1.9**	0.085 U	0.039 U	**0.68**	**0.64**	**0.27**	0.041 U	**0.17**	0.04 U	**0.21 J**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.039 U	0.038 U	**0.81**	0.085 U	0.039 U	**0.32**	**0.22**	**0.14**	0.041 U	0.041 U	0.04 U	0.22 U
Benzo(g,h,i)perylene	100	1000	100	0.39 U	0.38 U	**1.4**	0.85 U	0.39 U	**0.68 J**	**0.56 J**	**0.21 J**	0.41 U	**0.21 J**	0.4 U	**2.1 J**
Benzo(a)pyrene	1	22	1	0.039 U	0.038 U	**1.8**	0.085 U	0.039 U	**0.74**	**0.58**	**0.23**	0.041 U	**0.19**	0.04 U	**0.086 J**
Chrysene	1	1	3.9	0.39 U	0.38 U	**1.7**	0.85 U	0.39 U	**1.1 J**	**0.99**	**0.38 J**	0.41 U	**0.16 J**	0.4 U	**0.68 J**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.039 U	0.038 U	**0.35**	0.085 U	0.039 U	**0.18**	**0.15**	**0.1**	0.041 U	0.041 U	0.04 U	**0.23**
Fluoranthene	100	1000	100	0.39 U	0.38 U	**1.3**	**0.2 J**	0.39 U	**0.65 J**	**0.66 J**	**0.16 J**	0.41 U	**0.18 J**	0.4 U	2.2 U
Fluorene	30	386	100	0.39 U	0.38 U	**0.12 J**	0.85 U	0.39 U	**0.34 J**	**0.31 J**	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.039 U	0.038 U	**1.2**	0.085 U	0.039 U	**0.57**	**0.48**	**0.3**	0.041 U	**0.16**	0.04 U	**0.4**
2-Methylnaphthalene	NE	36.4*	NE	0.39 U	0.38 U	**0.077 J**	0.85 U	0.39 U	**2.1**	**1.7**	**1.2**	0.41 U	0.41 U	0.4 U	2.2 U
Naphthalene	12	12	100	0.39 U	0.38 U	**0.12 J**	0.85 U	0.39 U	**0.42 J**	0.73 U	**0.23 J**	0.41 U	0.41 U	0.4 U	2.2 U
Phenanthrene	100	1000	100	0.39 U	0.38 U	**0.71**	**0.56 J**	0.39 U	**2.6**	**2.1**	**0.7**	0.41 U	0.41 U	0.4 U	2.2 U
Pyrene	100	1000	100	0.39 U	0.38 U	**1.6**	**0.25 J**	0.39 U	**1.9**	**1.4**	**0.42 J**	0.41 U	**0.24 J**	0.4 U	**0.67 J**
Total PAHs	NE	NE	NE	ND	ND	**14.817**	**1.17**	ND	**13.81**	**10.93**	**4.809**	ND	**1.43**	ND	**4.536**
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Butyl benzyl phthalate	NE	122*	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
2-Chloronaphthalene	NE	NE	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Dibenzofuran	7	210, 6.2*	59	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Diethyl phthalate	NE	7.1*	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
2,4-Dimethylphenol	NE	NE	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Di-n-butyl phthalate	NE	8.1*	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
2,6-Dinitrotoluene	NE	1*	NE	0.079 U	0.077 U	0.081 U	0.17 U	0.079 U	0.36 U	0.15 U	0.11 U	0.083 U	0.083 U	0.082 U	0.44 U
Di-n-octyl phthalate	NE	120*	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
4-Nitroaniline	NE	NE	NE	0.79 U	0.77 U	0.81 U	1.7 U	0.79 U	3.6 U	1.5 U	1.1 U	0.83 U	0.83 U	0.82 U	4.4 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Phenol	0.33	0.33	100	0.39 U	0.38 U	0.4 U	0.85 U	0.39 U	1.8 U	0.73 U	0.55 U	0.41 U	0.41 U	0.4 U	2.2 U
Total SVOCs	NE	NE	NE	ND	ND	**14.817**	**1.17**	ND	**13.81**	**10.93**	**4.809**	ND	**1.43**	ND	**4.536**
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	NA	NA	0.081 U	NA	NA	0.073 U	0.074 U	NA	NA	0.083 U	NA	0.088 U
Aroclor 1248	NE	NE	NE	NA	NA	0.081 U	NA	NA	0.073 U	0.074 U	NA	NA	0.083 U	NA	0.088 U
Aroclor 1254	NE	NE	NE	NA	NA	0.081 U	NA	NA	0.073 U	0.074 U	NA	NA	0.083 U	NA	0.088 U
Aroclor 1260	NE	NE	NE	NA	NA	0.081 UJ	NA	NA	0.073 U	0.074 U	NA	NA	0.083 U	NA	0.088 U
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
gamma-Chlordane	NE	14*	NE	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Dieldrin	0.005	0.1	0.2	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Endrin	0.014	0.06	11	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Endrin aldehyde	NE	NE	NE	NA	NA	**0.013**	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Endrin ketone	NE	NE	NE	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Heptachlor	0.042	0.38	2.1	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 U	NA	0.0088 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	0.0081 U	NA	NA	0.0073 U	0.0074 U	NA	NA	0.0083 UJ	NA	0.0088 U
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.021 U	NA	NA	0.018 UJ	0.019 UJ	NA	NA	0.021 U	NA	0.022 U
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.021 U	NA	NA	0.018 U	0.019 U	NA	NA	0.021 U	NA	0.022 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.021 UJ	NA	NA	0.018 UJ	0.019 UJ	NA	NA	0.021 UJ	NA	0.022 U
Metals (mg/kg)															
Aluminum	NE	NE	NE	**4500**	**3440**	**4840**	**5590**	**3030**	**775**	**681**	**6240**	**755**	**7690**	**4450**	**5880**
Antimony	NE	NE	NE	2.3 U	11.3 U	2.4 U	2.4 UJ	2.3 UJ	**3.9 J**	**2.2 J**	3.3 UJ	2.4 UJ	2.3 UJ	2.4 UJ	2.5 U
Arsenic	13	16	16	**2.3**	5.6 U	**23.5**	**2.3**	**1.7**	**38.4 J**	**21 J**	**36.3**	1.2 U	**16.9**	**1.8**	**9.9**
Barium	350	820	400	**23.6 J**	45.1 U	**76.1**	**47.9 J**	**31.9 J**	**69.6**	**51.4**	**269**	**14.2 J**	**127**	**39 J**	**55.5**
Beryllium	7.2	47	72	0.45 U	**0.87**	**0.25 J**	**0.31 J**	**0.25 J**	0.43 U	0.41 U	**0.53 J**	**0.31 J**	**0.32 J**	**0.26 J**	**0.54**
Cadmium	2.5	7.5	4.3	1.1 U	5.6 U	**0.43 J**	1.2 U	1.2 U	1.1 U	1 U	1.6 U	1.2 U	**0.89 J**	**0.63 J**	**0.29 J**
Calcium	NE	NE	NE	**770 J**	**450 J**	**41200**	**4500 J**	**6140 J**	**669 J**	**465 J**	**6430**	**273 J**	**6500 J**	**1210**	**16400**
Chromium	30	NE	180	**10.9 J**	**18.3 J**	**10.5**	**15.6**	**8.4**	**8.8**	**7.5**	**14.9**	**1.7 J**	**19.4**	**12.7**	**8.8**
Cobalt	NE	NE	NE	**7.3 J**	**12**	**5.4 J**	**6.8 J**	**3.7 J**	**1.8 J**	**1.6 J**	**7 J**	12 U	**9.6 J**	**7.4 J**	**14.9**
Copper	50	1720	270	**8.4 J**	5.6 U	**45.8**	**17.3**	**10.4**	**16.6**	**14.8**	**783**	**28**	**75.3**	**19.4**	**49**
Iron	NE	NE	NE	**8210**	**118000 J**	**15900**	**20400**	**11500**	**7740 J**	**4030 J**	**33800**	**329**	**24100**	**18600**	**12400**
Lead	63	450	400	**3.8 J**	**11.5 J**	**229**	**43.6**	**4.3**	**130 J**	**75.3 J**	**812**	**4.6**	**436**	**11.1**	**18**
Magnesium	NE	NE	NE	**1380**	**521 J**	**2680**	**1910**	**3070**	**132 J**	**101 J**	**2460**	**85.7 J**	**3030**	**1580**	**6050**
Manganese	1600	2000	2000	**222 J**	**685 J**	**267**	**521 J**	**161 J**	**48.8 J**	**15.7 J**	**213 J**	**7 J**	**281 J**	**443 J**	**158**
Mercury	0.18	0.73	0.81	0.039 U	0.033 U	**0.53**	**0.086**	0.039 U	**0.71 J**	**0.15 J**	**1.2**	0.04 U	**0.85**	0.036 U	**0.042**
Nickel	30	130	310	**7.9 J**	**12.3**	**11.9**	**12.9**	**10.2**	**5.5 J**	**5 J**	**18.3**	**2 J**	**20.8**	**10.3**	**23.2**
Potassium	NE	NE	NE	**447 J**	**223 J**	**900 J**	**857 J**	**787 J**	**141 J**	**158 J**	**612 J**	1200 U	**2040**	**839 J**	**2350**
Selenium	3.9	4	180	2.3 UJ	**7.2 J**	**1.2 J**	**1.4 J**	2.3 U	**2 J**	**1.9 J**	**4**	2.4 U	**2.5**	2.4 U	2.5 U
Silver	2	8.3	180	2.3 U	2.3 U	2.4 U	2.4 U	2.3 U	2.2 U	2 U	**2.5 J**	2.4 U	2.3 U	2.4 U	2.5 U
Sodium	NE	NE	NE	1130 U	**573 J**	1210 U	**116 J**	**1460**	**75.6 J**	**76.6 J**	**452 J**	**336 J**	**108 J**	**98.5 J**	1250 UJ
Thallium	NE	NE	NE	2.3 U	2.3 U	2.4 U	2.4 U	2.3 U	2.2 U	2 U	3.3 U	2.4 U	2.3 U	2.4 U	2.5 U
Tin	NE	NE	NE	5.7 U	5.6 U	**33.9**	6.1 U	5.8 U	**20.9**	**14.2**	**54.7**	6 U	**23.3**	5.9 U	6.3 U
Vanadium	NE	NE	NE	**11.1 J**	**52.1 J**	**22.1**	**25.7**	**13.1**	**5.9 J**	**4.7 J**	**36.9**	**17.4**	**38.3**	**21.2**	**33.4**
Zinc	109	2480	10000	**36.9 J**	**61.8 J**	**474**	**41.3**	**13.5**	**85.1 J**	**50.2 J**	**592**	**36.4**	**456**	**114**	**132**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	0.24 U	0.23 U	0.24 U	0.26 U	0.24 U	0.22 U	0.22 U	0.33 U	0.25 U	0.25 U	0.25 U	0.26 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Parcel 6 [Block 2277 Lot 1]												
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-47 (66-67) 10/26/2010	Duplicate of WW-SB-47 (66-67) 10/26/2010	WW-SB-48 (1-2) 10/26/2010	WW-SB-48 (7-8) 10/26/2010	WW-4SB-48 (65-66) 10/27/2010	WW-SB-49 (1-2) 11/3/2010	Duplicate of WW-SB-49 (1-2) 11/3/2010	WW-SB-49 (9-10) 11/3/2010	WW-SB-49 (84-85) 11/3/2010	WW-SB-50 (1-2) 10/27/2010	WW-SB-50 (5.5-6.5) 11/1/2010	WW-SB-51 (1-2) 10/19/2010
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)																
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name **Sample Depth (feet bgs)** **Sample Date**	**Unrestricted SCO**	**Protection of Groundwater SCO**	**Restricted-Residential SCO**	**WW-SB-51 (6-9) 10/21/2010**	**WW-SB-51 (52.5-53) 10/21/2010**	**WW-SB-52 (2-3) 10/27/2010**	**WW-SB-52 (9.5-10) 10/29/2010**	**WW-SB-52 (67.5-68.5) 10/29/2010**	**WW-SB-53 (1-2) 10/27/2010**	**WW-SB-53 (7.5-8) 12/8/2010**	**WW-SB-53 (24.5-25) 12/8/2010**	**WW-MW-16 (2-3.5) 7/27/2009**	**WW-MW-16 (20-21) 8/10/2009**	**Duplicate of WW-MW-16 (20-21) 8/10/2009**	**WW-MW-16 (38-40) 8/10/2009**
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	**0.02**	0.0011 U	0.00098 U	**0.48 J**	0.0054 U	**0.15**	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Toluene	0.7	0.7	100	**0.0073**	0.0011 U	0.00098 U	**0.3 J**	0.0054 U	**0.097 J**	0.0062 UJ	0.0056 U	**0.029**	0.58 U	0.59 U	**0.0012 J**
Ethylbenzene	1	1	41	**0.00037 J**	0.0011 U	**0.00022 J**	**0.83 J**	0.0054 U	**0.097 J**	0.0062 U	0.0056 U	**0.0045 J**	0.58 U	0.59 U	0.0061 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	0.0032 UJ	0.0033 UJ	0.0029 UJ	**4.4 J**	0.0054 U	**0.26 J**	0.0062 U	0.0056 U	**0.019**	0.58 U	0.59 U	0.0061 U
Total BTEX	NE	NE	NE	**0.02767**	ND	**0.00022**	**6.01**	ND	**0.604**	ND	ND	**0.0525**	ND	ND	**0.0012**
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	0.011 UJ	**0.04 J**	0.0098 U	0.78 U	0.022 U	1 R	**0.049**	0.022 U	0.023 U	1.4 U	1.5 U	0.024 UJ
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 UJ	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Chlorobenzene	1.1	1.1	100	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
1,1-Dichloroethene	0.33	0.33	100	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
1,2-Dichloropropane	NE	NE	NE	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.011 U	0.011 U	0.0098 U	0.31 U	0.011 U	1 R	0.012 U	0.011 U	0.011 U	0.58 U	0.59 U	0.012 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.011 U	0.011 U	0.0098 U	0.31 U	0.0054 U	1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.0026 U	0.0021 U	**0.0014**	0.31 U	0.022 U	0.1 U	0.025 UJ	0.022 UJ	0.023 U	0.58 U	0.59 U	0.024 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Trichloroethene (TCE)	0.47	0.47	21	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0011 U	0.0011 U	0.00098 U	0.31 U	0.0054 U	0.1 U	0.0062 U	0.0056 U	0.0057 U	0.58 U	0.59 U	0.0061 U
Total VOCs	NE	NE	NE	**0.02767**	**0.04**	**0.00162**	**6.01**	ND	**0.604**	**0.049**	ND	**0.0525**	ND	ND	**0.0012**
PAHs (mg/kg)															
Acenaphthene	20	98	100	0.39 U	0.39 U	0.38 U	**5.3**	0.36 U	**0.59**	**0.18 J**	0.3 U	**0.054 J**	0.31 U	0.31 U	0.32 U
Acenaphthylene	100	107	100	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	**0.091 J**	0.33 U	0.3 U	**0.068 J**	0.31 U	0.31 U	0.32 U
Anthracene	100	1000	100	0.39 U	0.39 U	0.38 U	**10**	0.36 U	**0.72**	**0.38**	0.3 U	**0.17 J**	0.31 U	**0.038 J**	0.32 U
Benzo(a)anthracene	1	1	1	0.039 U	0.039 U	**0.23**	**8.1**	0.036 U	**0.86**	**1.1**	0.3 U	**0.74**	0.31 U	0.31 U	0.32 U
Benzo(b)fluoranthene	1	1.7	1	0.039 U	0.039 U	**0.28**	**4.5**	0.036 U	**0.7**	**0.26 J**	0.3 U	**0.92**	0.31 U	0.31 U	0.32 U
Benzo(k)fluoranthene	0.8	1.7	3.9	0.039 U	0.039 U	**0.11**	**1.1**	0.036 U	**0.21**	**0.056 J**	0.3 U	**0.38**	0.31 U	0.31 U	0.32 U
Benzo(g,h,i)perylene	100	1000	100	0.39 U	0.39 U	**0.28 J**	**9.4**	0.36 U	**1.1**	**0.47**	0.3 U	**0.76**	0.31 U	0.31 U	0.32 U
Benzo(a)pyrene	1	22	1	0.039 U	0.039 U	**0.3**	**8.8**	0.036 U	**0.78**	**0.79**	0.3 U	**0.96**	0.31 U	0.31 U	0.32 U
Chrysene	1	1	3.9	0.39 U	0.39 U	**0.27 J**	**11**	0.36 U	**0.94**	**1.1**	0.3 U	**0.75**	0.31 U	0.31 U	0.32 U
Dibenz(a,h)anthracene	0.33	1000	0.33	0.039 U	0.039 U	**0.051**	**1.4**	0.036 U	**0.19**	**0.34 J**	0.3 UJ	**0.44**	0.31 U	0.31 U	0.32 U
Fluoranthene	100	1000	100	0.39 U	0.39 U	**0.33 J**	**13**	0.36 U	**1.6**	**0.3 J**	0.3 U	**1.1**	0.31 U	0.31 U	0.32 U
Fluorene	30	386	100	0.39 U	0.39 U	0.38 U	**6.1**	0.36 U	**0.83**	**0.26 J**	0.3 U	**0.044 J**	**0.019 J**	**0.051 J**	0.32 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.039 U	0.039 U	**0.23**	**4.7**	0.036 U	**0.57**	**0.17 J**	0.3 U	**0.85**	0.31 U	0.31 U	0.32 U
2-Methylnaphthalene	NE	36.4*	NE	0.39 U	0.39 U	0.38 U	**0.63 J**	0.36 U	**0.16 J**	0.33 U	0.3 U	**0.04 J**	0.31 U	0.31 U	0.32 U
Naphthalene	12	12	100	0.39 U	**0.12 J**	0.38 U	**0.62 J**	0.36 U	**0.1 J**	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Phenanthrene	100	1000	100	0.39 U	0.39 U	**0.079 J**	**35**	0.36 U	**2.2**	**1**	0.3 U	**0.67**	0.31 U	**0.16 J**	0.32 U
Pyrene	100	1000	100	0.39 U	0.39 U	**0.25 J**	**24**	0.36 U	**1.3**	**1.5**	0.3 U	**1**	0.31 U	0.31 U	0.32 U
Total PAHs	NE	NE	NE	ND	**0.12**	**2.41**	**143.65**	ND	**12.941**	**7.906**	ND	**8.946**	**0.019**	**0.249**	ND
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	**0.23 J**	**0.45**	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Butyl benzyl phthalate	NE	122*	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	**0.082 J**	0.31 U	0.31 U	0.32 U
2-Chloronaphthalene	NE	NE	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Dibenzofuran	7	210, 6.2*	59	0.39 UJ	0.39 U	0.38 U	2.1 U	0.36 U	**0.5**	**0.077 J**	0.3 U	**0.04 J**	0.31 U	0.31 U	0.32 U
Diethyl phthalate	NE	7.1*	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
2,4-Dimethylphenol	NE	NE	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Di-n-butyl phthalate	NE	8.1*	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
2,6-Dinitrotoluene	NE	1*	NE	0.079 U	0.08 U	0.077 U	0.42 U	0.073 U	0.077 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Di-n-octyl phthalate	NE	120*	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
4-Nitroaniline	NE	NE	NE	0.79 U	0.8 U	0.77 U	4.2 U	0.73 U	0.77 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Phenol	0.33	0.33	100	0.39 U	0.39 U	0.38 U	2.1 U	0.36 U	0.38 U	0.33 U	0.3 U	0.31 U	0.31 U	0.31 U	0.32 U
Total SVOCs	NE	NE	NE	ND	**0.12**	**2.41**	**143.65**	ND	**13.671**	**8.433**	ND	**9.068**	**0.019**	**0.249**	ND
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	NA	NA	0.077 U	NA	NA	0.077 U	NA	NA	0.019 U	NA	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	0.077 U	NA	NA	0.077 U	NA	NA	0.019 U	NA	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	0.077 U	NA	NA	0.077 U	NA	NA	0.019 U	NA	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	**0.021 J**	NA	NA	**0.019 J**	NA	NA	0.019 U	NA	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	**0.021**	NA	NA	**0.019**	NA	NA	ND	NA	NA	NA
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	**0.0046 J**	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	**0.0048 J**	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 UJ	NA	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
Endrin	0.014	0.06	11	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0038 U	NA	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0077 U	NA	NA	0.0077 U	NA	NA	0.0019 U	NA	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	0.0077 UJ	NA	NA	0.0077 UJ	NA	NA	0.019 UJ	NA	NA	NA
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.02 U	NA	NA	0.02 U	NA	NA	0.098 U	NA	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.02 U	NA	NA	0.02 U	NA	NA	0.024 U	NA	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.02 UJ	NA	NA	0.02 UJ	NA	NA	0.024 U	NA	NA	NA
Metals (mg/kg)															
Aluminum	NE	NE	NE	**6430**	**2160**	**7000**	**2570**	**5200**	**4510**	**9460**	**4310**	**5950**	**6680**	**9320**	**3380**
Antimony	NE	NE	NE	2.3 U	2.3 UJ	2.3 UJ	2.5 UJ	2.1 UJ	2.3 UJ	4.9 U	4.4 U	4.5 UJ	4.7 UJ	4.7 UJ	4.8 UJ
Arsenic	13	16	16	**2.4**	**1.7 J**	**2.6**	**24.4**	**1.7**	**64.9**	**4.3 J**	5.6 U	5.7 UJ	5.9 U	6 U	6.1 U
Barium	350	820	400	**53.2**	**9.8 J**	**67.9**	**42.6 J**	**41.1 J**	**103**	**48.5**	**16.1**	**67.7**	**33.4**	**42.3**	**19.7**
Beryllium	7.2	47	72	**0.43 J**	**0.46**	**0.2 J**	0.49 U	**0.32 J**	**0.25 J**	**0.46 J**	**0.22 J**	**0.5 J**	**0.45 J**	**0.56 J**	**0.34 J**
Cadmium	2.5	7.5	4.3	1.2 U	1.1 UJ	**0.52 J**	1.2 U	1 U	**0.94 J**	1.5 U	1.3 U	**0.32 J**	1.4 U	1.4 U	1.4 UJ
Calcium	NE	NE	NE	**748 J**	**255 J**	**47900 J**	**13100 J**	**6300 J**	**6320 J**	**1150**	**805**	**4320 J**	**796 J**	**1050 J**	**928 J**
Chromium	30	NE	180	**14.9**	**12.4 J**	**14.6**	**5.5**	**13.4**	**12.2**	**17.1**	**10.9**	**13.9 J**	**12 J**	**20.3 J**	**9.8 J**
Cobalt	NE	NE	NE	**7.3 J**	**6.8 J**	**4.2 J**	**5.3 J**	**5.9 J**	**6.3 J**	**6.6**	**4.2**	**5.9**	**4.8**	**5.8**	**4.8**
Copper	50	1720	270	**14.4**	**13.6**	**23.1**	**15.1**	**11.2**	**95.3**	**13**	**5.7**	**29.6**	**10.3 J**	**14.2 J**	**8.1 J**
Iron	NE	NE	NE	**17200**	**48600**	**10400**	**10900**	**13500**	**20900**	**17300**	**9450**	**20000**	**15700**	**18200**	**11300**
Lead	63	450	400	**8.7**	**7.3 J**	**42.4**	**14.9**	**4.8**	**504**	**11.6**	**2.5 J**	**179**	4.2 U	**12**	4.3 U
Magnesium	NE	NE	NE	**2350**	**442 J**	**7670**	**863 J**	**5140**	**1870**	**2500**	**1930**	**1880 J**	**2100 J**	**2930 J**	**1960 J**
Manganese	1600	2000	2000	**264**	**342**	**190 J**	**63 J**	**277 J**	**153 J**	**316**	**69.2**	**401**	**199**	**236**	**175**
Mercury	0.18	0.73	0.81	0.034 U	0.034 U	**0.073**	**0.039**	0.033 U	**1.9**	0.062 U	0.049 U	**0.63**	**0.0099 J**	**0.02**	0.058 U
Nickel	30	130	310	**13.4**	**6.6 J**	**11.2**	**12.2**	**12**	**21.4**	**13.6**	**11.2**	**12.4**	**11.1**	**13**	**9.3**
Potassium	NE	NE	NE	**981 J**	**205 J**	**1150**	**548 J**	**1730**	**408 J**	**1030**	**952**	**690 J**	**723 J**	**850 J**	**830 J**
Selenium	3.9	4	180	2.3 U	2.3 U	2.3 U	**1.7 J**	2.1 U	**2.3**	11.2 U	10.1 U	**4.4 J**	10.6 U	10.7 U	10.9 U
Silver	2	8.3	180	2.3 U	2.3 U	2.3 U	2.5 U	2.1 U	2.3 U	1.5 U	1.3 U	**0.12 J**	1.4 U	1.4 U	1.4 U
Sodium	NE	NE	NE	1160 U	1130 U	**273 J**	**167 J**	**480 J**	**136 J**	**50.8 J**	**169**	68.2 UJ	70.5 U	71.4 U	72.5 UJ
Thallium	NE	NE	NE	2.3 U	2.3 U	2.3 U	2.5 U	2.1 U	2.3 U	4.5 U	4 U	4.1 UJ	4.2 UJ	4.3 UJ	**1.7 J**
Tin	NE	NE	NE	5.8 U	5.7 U	5.6 U	6.2 U	5.2 U	**48.2**	3.7 U	3.4 U	**8.1**	3.5 U	3.6 U	3.6 U
Vanadium	NE	NE	NE	**24.5**	**32.3**	**20.2**	**13.7**	**17.9**	**156**	**23.5**	**12.3**	**19.3**	**17.5 J**	**29.2 J**	**14.5**
Zinc	109	2480	10000	**34.3**	**34.8**	**52.3**	**572**	**27.9**	**474**	**42.9**	**20.7**	**113**	**33.1 J**	**35.8 J**	**23.4 J**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	0.23 U	0.24 U	0.23 U	0.25 U	0.22 U	0.23 U	0.25 U	0.22 U	0.227 U	0.229 U	0.235 U	0.239 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Parcel 6 [Block 2277 Lot 1]								Adjacent to Parcel 6 Kent Ave			
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-51 (6-9) 10/21/2010	WW-SB-51 (52.5-53) 10/21/2010	WW-SB-52 (2-3) 10/27/2010	WW-SB-52 (9.5-10) 10/29/2010	WW-SB-52 (67.5-68.5) 10/29/2010	WW-SB-53 (1-2) 10/27/2010	WW-SB-53 (7.5-8) 12/8/2010	WW-SB-53 (24.5-25) 12/8/2010	WW-MW-16 (2-3.5) 7/27/2009	WW-MW-16 (20-21) 8/10/2009	Duplicate of WW-MW-16 (20-21) 8/10/2009	WW-MW-16 (38-40) 8/10/2009
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)															
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
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Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-18 (3.5-4.5) 7/27/2009	WW-SB-18 (9-10) 8/7/2009	Duplicate of WW-SB-18 (9-10) 8/7/2009	WW-SB-18 (51-53) 8/7/2009	WW-SB-25 (1-3) 7/28/2009	WW-SB-25 (34-35) 7/28/2009	WW-SB-25 (52-53) 7/29/2009	WW-SB-26 (1-4) 7/29/2009	Duplicate of WW-SB-26 (1-4) 7/29/2009	WW-SB-26 (12-13) 7/29/2009	WW-SB-27 (4-5) 8/3/2009	WW-SB-27 (14-15) 8/4/2009
BTEX (mg/kg)															
Benzene	0.06	0.06	4.8	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	**450**	**0.03**	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Toluene	0.7	0.7	100	0.0058 U	0.61 U	0.03 U	0.0058 U	**0.15**	**630**	**0.12**	**0.31 J**	0.0067 UJ	0.032 UJ	0.006 U	1.2 U
Ethylbenzene	1	1	41	**0.0034 J**	0.61 U	0.03 U	0.0058 U	**0.026**	**1400**	**0.052**	**0.066 J**	**0.016 J**	**0.025 J**	0.006 U	1.2 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	0.26	1.6	100	**0.019**	0.61 U	0.03 U	0.0058 U	**0.14**	**1700**	**0.11**	**0.26 J**	**0.094 J**	**0.1 J**	0.006 U	1.2 U
Total BTEX	NE	NE	NE	**0.0224**	ND	ND	ND	**0.316**	**4180**	**0.312**	**0.636**	**0.11**	**0.125**	ND	ND
Other VOCs (mg/kg)															
Acetone	0.05	0.05	100	0.023 U	1.5 U	0.12 U	0.023 U	**0.0041 J**	150 U	**0.016 J**	**0.16 J**	**0.025 J**	**0.4 J**	0.024 U	3.1 U
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	2.7*	NE	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	**0.0081 J**	0.006 U	1.2 U
Chlorobenzene	1.1	1.1	100	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.27	0.27	26	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
1,1-Dichloroethene	0.33	0.33	100	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
1,2-Dichloropropane	NE	NE	NE	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.012 U	0.61 U	0.061 U	0.012 U	0.012 U	58 U	0.013 U	0.059 U	0.013 U	0.065 U	0.012 U	1.2 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	0.05	100	0.023 U	0.61 U	0.12 U	0.023 U	0.023 U	58 U	0.025 U	0.12 U	0.027 U	0.13 U	0.024 U	1.2 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	**77**	**0.00045 J**	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NE	NE	NE	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Trichloroethene (TCE)	0.47	0.47	21	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	**22 J**	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-18 (3.5-4.5) 7/27/2009	WW-SB-18 (9-10) 8/7/2009	Duplicate of WW-SB-18 (9-10) 8/7/2009	WW-SB-18 (51-53) 8/7/2009	WW-SB-25 (1-3) 7/28/2009	WW-SB-25 (34-35) 7/28/2009	WW-SB-25 (52-53) 7/29/2009	WW-SB-26 (1-4) 7/29/2009	Duplicate of WW-SB-26 (1-4) 7/29/2009	WW-SB-26 (12-13) 7/29/2009	WW-SB-27 (4-5) 8/3/2009	WW-SB-27 (14-15) 8/4/2009
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.02	0.02	0.9	0.0058 U	0.61 U	0.03 U	0.0058 U	0.0058 U	58 U	0.0063 U	0.029 U	0.0067 U	0.032 U	0.006 U	1.2 U
Total VOCs	NE	NE	NE	**0.0224**	ND	ND	ND	**0.3201**	**4279**	**0.32845**	**0.796**	**0.135**	**0.5331**	ND	ND
PAHs (mg/kg)															
Acenaphthene	20	98	100	0.31 U	0.33 U	**0.022 J**	**0.075 J**	**0.24 J**	**26 J**	**0.042 J**	**0.12 J**	**0.16 J**	**0.16 J**	0.32 U	**0.056 J**
Acenaphthylene	100	107	100	0.31 U	0.33 U	0.32 U	0.3 U	**0.066 J**	**190**	**0.027 J**	0.32 U	0.36 U	0.35 U	**0.065 J**	0.33 U
Anthracene	100	1000	100	0.31 U	**0.052 J**	**0.061 J**	0.3 U	**0.53**	**69 J**	**0.029 J**	**0.32**	**0.44**	**0.22 J**	**0.036 J**	0.33 U
Benzo(a)anthracene	1	1	1	0.31 U	**0.091 J**	**0.1 J**	0.3 U	**2.1**	**39 J**	**0.025 J**	**2**	**2.6**	**0.57**	**0.24 J**	**0.035 J**
Benzo(b)fluoranthene	1	1.7	1	0.31 U	0.33 U	0.32 U	0.3 U	**2.7**	160 U	0.34 U	**3**	**3.4**	**0.78**	**0.48**	0.33 U
Benzo(k)fluoranthene	0.8	1.7	3.9	0.31 U	0.33 U	0.32 U	0.3 U	**1**	160 U	0.34 U	**1.2**	**1.4**	**0.32 J**	**0.2 J**	0.33 U
Benzo(g,h,i)perylene	100	1000	100	0.31 U	0.33 U	**0.032 J**	0.3 U	**1.6**	160 U	0.34 U	**2**	**2.4**	**0.49**	**0.65**	0.33 U
Benzo(a)pyrene	1	22	1	0.31 U	0.33 U	0.32 U	0.3 U	**2.9**	160 U	0.34 U	**3.6**	**3.9**	**0.95**	**0.48**	0.33 U
Chrysene	1	1	3.9	0.31 U	**0.083 J**	**0.11 J**	0.3 U	**2.2**	**33 J**	0.34 U	**1.9**	**2.4**	**0.55**	**0.22 J**	0.33 U
Dibenz(a,h)anthracene	0.33	1000	0.33	0.31 U	0.33 U	0.32 U	0.3 U	**0.49**	160 U	0.34 U	**0.73**	**1.1**	**0.17 J**	**0.3 J**	0.33 U
Fluoranthene	100	1000	100	0.31 U	**0.055 J**	**0.055 J**	0.3 U	**3.2**	**69 J**	**0.03 J**	**1.3**	**1.7**	**0.48**	**0.13 J**	**0.034 J**
Fluorene	30	386	100	0.31 U	**0.033 J**	**0.044 J**	0.3 U	**0.16 J**	**97 J**	**0.034 J**	**0.1 J**	**0.15 J**	**0.22 J**	0.32 U	**0.061 J**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.31 U	0.33 U	0.32 U	0.3 U	**1.7**	160 U	0.34 U	**2.1**	**2.9**	**0.51**	**0.6**	0.33 U
2-Methylnaphthalene	NE	36.4*	NE	0.31 U	0.33 U	**0.024 J**	**0.16 J**	**0.067 J**	**640**	**0.17 J**	**0.15 J**	**0.23 J**	**2.6**	**0.021 J**	**2.1**
Naphthalene	12	12	100	0.31 U	**0.017 J**	**0.027 J**	**0.79**	0.31 U	**1500**	**0.33 J**	0.32 U	0.36 U	0.35 U	0.32 U	**1.2**
Phenanthrene	100	1000	100	0.31 U	**0.15 J**	**0.15 J**	0.3 U	**2.6**	**260**	**0.12 J**	**0.75**	**1**	**0.52**	**0.056 J**	**0.093 J**
Pyrene	100	1000	100	0.31 U	**0.21 J**	**0.23 J**	0.3 U	**3.1**	**95 J**	**0.048 J**	**1.3**	**1.6**	**0.55**	**0.15 J**	**0.069 J**
Total PAHs	NE	NE	NE	ND	**0.691**	**0.855**	**1.025**	**24.653**	**3018**	**0.855**	**20.57**	**25.38**	**9.09**	**3.628**	**3.648**
MAEPH (mg/kg)															
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name				WW-SB-18	WW-SB-18	Duplicate of WW-SB-18	WW-SB-18	WW-SB-25	WW-SB-25	WW-SB-25	WW-SB-26	Duplicate of WW-SB-26	WW-SB-26	WW-SB-27	WW-SB-27
Sample Depth (feet bgs)	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	(3.5-4.5)	(9-10)	(9-10)	(51-53)	(1-3)	(34-35)	(52-53)	(1-4)	(1-4)	(12-13)	(4-5)	(14-15)
Sample Date				7/27/2009	8/7/2009	8/7/2009	8/7/2009	7/28/2009	7/28/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	8/3/2009	8/4/2009
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)															
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.31 U	0.33 U	0.32 U	0.3 U	**1.8**	160 U	**0.058 J**	**0.12 J**	**0.52**	**0.6**	**0.21 J**	**0.26 J**
Butyl benzyl phthalate	NE	122*	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NE	0.31 U	0.33 U	0.32 U	0.3 U	**0.25 J**	160 U	0.34 U	**0.18 J**	**0.25 J**	**0.045 J**	0.32 U	0.33 U
2-Chloronaphthalene	NE	NE	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
Dibenzofuran	7	210, 6.2*	59	0.31 U	0.33 U	0.32 U	0.3 U	**0.11 J**	160 U	0.34 U	**0.063 J**	**0.086 J**	**0.12 J**	0.32 U	0.33 U
Diethyl phthalate	NE	7.1*	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
2,4-Dimethylphenol	NE	NE	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
Di-n-butyl phthalate	NE	8.1*	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
2,6-Dinitrotoluene	NE	1*	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
Di-n-octyl phthalate	NE	120*	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol (p-Cresol)	0.33	0.33	100	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
4-Nitroaniline	NE	NE	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
Phenol	0.33	0.33	100	0.31 U	0.33 U	0.32 U	**0.046 J**	0.31 U	160 U	0.34 U	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
Total SVOCs	NE	NE	NE	ND	**0.691**	**0.855**	**1.071**	**26.813**	**3018**	**0.913**	**20.933**	**26.236**	**9.855**	**3.838**	**3.908**
Alkylated PAHs (mg/kg)															
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name				WW-SB-18	WW-SB-18	Duplicate of WW-SB-18	WW-SB-18	WW-SB-25	WW-SB-25	WW-SB-25	WW-SB-26	Duplicate of WW-SB-26	WW-SB-26	WW-SB-27	WW-SB-27
Sample Depth (feet bgs)	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	(3.5-4.5)	(9-10)	(9-10)	(51-53)	(1-3)	(34-35)	(52-53)	(1-4)	(1-4)	(12-13)	(4-5)	(14-15)
Sample Date				7/27/2009	8/7/2009	8/7/2009	8/7/2009	7/28/2009	7/28/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	8/3/2009	8/4/2009
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name				WW-SB-18	WW-SB-18	Duplicate of WW-SB-18	WW-SB-18	WW-SB-25	WW-SB-25	WW-SB-25	WW-SB-26	Duplicate of WW-SB-26	WW-SB-26	WW-SB-27	WW-SB-27
Sample Depth (feet bgs)	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	(3.5-4.5)	(9-10)	(9-10)	(51-53)	(1-3)	(34-35)	(52-53)	(1-4)	(1-4)	(12-13)	(4-5)	(14-15)
Sample Date				7/27/2009	8/7/2009	8/7/2009	8/7/2009	7/28/2009	7/28/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	8/3/2009	8/4/2009
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-18 (3.5-4.5) 7/27/2009	WW-SB-18 (9-10) 8/7/2009	Duplicate of WW-SB-18 (9-10) 8/7/2009	WW-SB-18 (51-53) 8/7/2009	WW-SB-25 (1-3) 7/28/2009	WW-SB-25 (34-35) 7/28/2009	WW-SB-25 (52-53) 7/29/2009	WW-SB-26 (1-4) 7/29/2009	Duplicate of WW-SB-26 (1-4) 7/29/2009	WW-SB-26 (12-13) 7/29/2009	WW-SB-27 (4-5) 8/3/2009	WW-SB-27 (14-15) 8/4/2009
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)															
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)															
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)															
Aroclor 1242	NE	NE	NE	0.02 U	NA	NA	NA	0.02 U	NA	NA	0.02 UJ	0.023 UJ	NA	0.02 U	NA
Aroclor 1248	NE	NE	NE	0.02 U	NA	NA	NA	0.02 U	NA	NA	0.02 UJ	0.023 UJ	NA	0.02 U	NA
Aroclor 1254	NE	NE	NE	0.02 U	NA	NA	NA	0.02 U	NA	NA	0.02 UJ	0.023 UJ	NA	0.02 U	NA
Aroclor 1260	NE	NE	NE	0.02 U	NA	NA	NA	**0.029 J**	NA	NA	0.02 UJ	0.023 UJ	NA	0.02 U	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB Aroclors	0.1	3.2	1	ND	NA	NA	NA	**0.029**	NA	NA	ND	ND	NA	ND	NA
Pesticides (mg/kg)															
Aldrin	0.005	0.19	0.097	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.002 U	NA	NA	NA	**0.0023 JN**	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
gamma-Chlordane	NE	14*	NE	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.0038 UJ	NA	NA	NA	**0.0077 J**	NA	NA	0.0038 UJ	0.0044 UJ	NA	0.004 UJ	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.0038 U	NA	NA	NA	0.0038 U	NA	NA	0.0038 U	0.0044 U	NA	0.004 UJ	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.0038 U	NA	NA	NA	**0.0041 JN**	NA	NA	0.0038 U	0.0044 U	NA	0.004 UJ	NA
Dieldrin	0.005	0.1	0.2	0.0038 U	NA	NA	NA	0.0038 U	NA	NA	0.0038 U	0.0044 U	NA	0.004 UJ	NA
alpha-Endosulfan (I)	2.4	102	24	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 UJ	NA
beta-Endosulfan (II)	2.4	102	24	0.0038 U	NA	NA	NA	0.0038 U	NA	NA	0.0038 U	0.0044 U	NA	0.004 UJ	NA
Endosulfan sulfate	2.4	1000	24	0.0038 U	NA	NA	NA	0.0038 U	NA	NA	0.0038 U	0.0044 U	NA	0.004 UJ	NA
Endrin	0.014	0.06	11	0.0038 U	NA	NA	NA	0.0038 U	NA	NA	0.0038 U	0.0044 U	NA	0.004 UJ	NA
Endrin aldehyde	NE	NE	NE	0.0038 U	NA	NA	NA	0.0038 U	NA	NA	0.0038 U	0.0044 U	NA	0.004 U	NA
Endrin ketone	NE	NE	NE	0.0038 U	NA	NA	NA	**0.017 J**	NA	NA	0.0038 U	0.0044 U	NA	0.004 U	NA
Heptachlor	0.042	0.38	2.1	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	0.002 U	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name		Protection of	Restricted-	WW-SB-18	WW-SB-18	Duplicate of WW-SB-18	WW-SB-18	WW-SB-25	WW-SB-25	WW-SB-25	WW-SB-26	Duplicate of WW-SB-26	WW-SB-26	WW-SB-27	WW-SB-27
Sample Depth (feet bgs)	Unrestricted	Groundwater	Residential	(3.5-4.5)	(9-10)	(9-10)	(51-53)	(1-3)	(34-35)	(52-53)	(1-4)	(1-4)	(12-13)	(4-5)	(14-15)
Sample Date	SCO	SCO	SCO	7/27/2009	8/7/2009	8/7/2009	8/7/2009	7/28/2009	7/28/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	8/3/2009	8/4/2009
Heptachlor epoxide	NE	0.02*	NE	0.002 U	NA	NA	NA	0.002 U	NA	NA	0.002 U	0.0023 U	NA	**0.00087 J**	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NE	900*	NE	0.02 UJ	NA	NA	NA	0.02 UJ	NA	NA	0.02 UJ	0.023 UJ	NA	0.02 UJ	NA
Herbicides (mg/kg)															
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.094 U	NA	NA	NA	0.1 U	NA	NA	0.099 U	0.1 U	NA	0.1 UJ	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.024 U	NA	NA	NA	0.025 U	NA	NA	0.025 U	0.026 U	NA	0.026 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	0.024 U	NA	NA	NA	0.025 U	NA	NA	0.025 U	0.026 U	NA	0.026 UJ	NA
Metals (mg/kg)															
Aluminum	NE	NE	NE	**10400**	**9540**	**10900**	**2530**	**6640**	**2660**	**2700**	**8570**	**8540**	**10700**	**8830**	**9520**
Antimony	NE	NE	NE	4.7 UJ	5 UJ	5 UJ	4.7 UJ	4.6 UJ	4.7 UJ	5.2 UJ	4.7 UJ	5.5 UJ	5.3 UJ	5.1 UJ	5.1 UJ
Arsenic	13	16	16	6 U	6.4 U	6.3 U	5.9 U	**273**	**2 J**	6.6 U	**3.7**	**3.3 J**	**3.6**	**10.9**	**2.8 J**
Barium	350	820	400	**35.6**	**34.5**	**38.6**	**19.7**	**67.9**	**15.8**	**17.8**	**71.5**	**85.8**	**46.2**	**109**	**54**
Beryllium	7.2	47	72	**0.49 J**	**0.46 J**	**0.52 J**	1.4 U	**0.5 J**	**0.34 J**	**0.35 J**	**0.63 J**	**0.61 J**	**0.6 J**	**0.65 J**	**0.73 J**
Cadmium	2.5	7.5	4.3	1.4 UJ	1.5 UJ	1.5 UJ	1.4 U	1.4 UJ	1.4 UJ	1.6 UJ	1.4 UJ	1.7 UJ	1.6 UJ	1.5 UJ	1.5 U
Calcium	NE	NE	NE	**1340 J**	**1220**	**1410**	**1340**	**8940 J**	**772 J**	**788 J**	**2070 J**	**2840 J**	**1880 J**	**2950**	**1600**
Chromium	30	NE	180	**13.4 J**	**13.6 J**	**16.3 J**	**7.6 J**	**14.1 J**	**9.5 J**	**9.7 J**	**20.7 J**	**20.1 J**	**19.4 J**	**21.9 J**	**17 J**
Cobalt	NE	NE	NE	**5.5**	**7.8**	**8.5**	**3.7**	**6.6**	**4.9**	**5.1**	**8.2**	**8**	**8.5**	**5.6**	**6.5**
Copper	50	1720	270	**11**	**14 J**	**14.7 J**	**6.7 J**	**57.6**	**10.1**	**11.2**	**29.2**	**31.4**	**18.1**	**51 J**	**16.8 J**
Iron	NE	NE	NE	**16900**	**20200**	**22600**	**10100**	**16300**	**17300**	**17500**	**25300**	**20300**	**22900**	**21600**	**19500**
Lead	63	450	400	**17.2**	**8.1**	**10.7**	4.2 U	**373**	4.2 U	4.7 U	**89**	**101**	**22**	**211**	**23.1**
Magnesium	NE	NE	NE	**2330 J**	**2680**	**2880**	**1530**	**2500 J**	**1210 J**	**1330 J**	**2680 J**	**2570**	**2990 J**	**2110**	**2580**
Manganese	1600	2000	2000	**272**	**1370 J**	**1540 J**	**140 J**	**409**	**84.8**	**102**	**370**	**327 J**	**356**	**142 J**	**311 J**
Mercury	0.18	0.73	0.81	**0.036**	**0.03**	**0.035**	**0.0047 J**	**0.26**	0.055 U	**0.0056 J**	**0.47 J**	**0.19 J**	**0.24**	**0.36**	**0.035**
Nickel	30	130	310	**11.5**	**13.1**	**14.3**	**5.5**	**14.9**	**6.9**	**7.2**	**16.4**	**15.8**	**15.8**	**14.7**	**12.7**
Potassium	NE	NE	NE	**597 J**	**616**	**641**	**517**	**855 J**	**486 J**	**541 J**	**1160 J**	**1120 J**	**878 J**	**1100**	**929**
Selenium	3.9	4	180	**4.1 J**	11.4 UJ	11.3 UJ	10.6 UJ	10.4 UJ	10.6 UJ	11.8 UJ	10.6 UJ	12.6 UJ	12 UJ	11.6 UJ	11.5 UJ
Silver	2	8.3	180	1.4 U	1.5 U	1.5 U	1.4 U	**0.084 J**	1.4 U	1.6 U	1.4 UJ	1.7 U	1.6 UJ	**0.17 J**	1.5 U
Sodium	NE	NE	NE	71.3 UJ	**204**	**223**	70.7 U	**172 J**	**181 J**	**190 J**	**156 J**	**195 J**	**142 J**	**199**	76.9 U
Thallium	NE	NE	NE	4.3 UJ	4.5 U	4.5 U	4.2 U	4.2 UJ	**1.1 J**	**1.2 J**	4.2 UJ	5 UJ	4.8 UJ	4.6 U	4.6 U
Tin	NE	NE	NE	**4.5**	3.8 U	3.8 U	3.5 U	**52.4**	3.5 U	3.9 U	**5.4**	**8**	4 U	**7.5**	3.8 U
Vanadium	NE	NE	NE	**19.1**	**20.4**	**22.8**	**12.6**	**23**	**16**	**15.7**	**33.1**	**29.5**	**28.2**	**32.1**	**23.4**
Zinc	109	2480	10000	**36.2**	**33.4**	**39.9**	**15.8**	**433**	**23**	**23.4**	**62**	**68.2**	**44.6**	**122**	**36.2**
Cyanides (mg/kg)															
Free Cyanide	NE	NE	NE	0.231 U	0.239 U	0.243 U	0.231 U	0.233 U	0.228 U	0.251 U	0.235 U	0.266 U	0.259 U	0.238 U	0.249 U
Biomarkers (mg/kg)															
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name				WW-SB-18	WW-SB-18	Duplicate of WW-SB-18	WW-SB-18	WW-SB-25	WW-SB-25	WW-SB-25	WW-SB-26	Duplicate of WW-SB-26	WW-SB-26	WW-SB-27	WW-SB-27
Sample Depth (feet bgs)	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	(3.5-4.5)	(9-10)	(9-10)	(51-53)	(1-3)	(34-35)	(52-53)	(1-4)	(1-4)	(12-13)	(4-5)	(14-15)
Sample Date				7/27/2009	8/7/2009	8/7/2009	8/7/2009	7/28/2009	7/28/2009	7/29/2009	7/29/2009	7/29/2009	7/29/2009	8/3/2009	8/4/2009
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 Kent Ave				Adjacent to Parcel 6 N. 12th St							
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-18 (3.5-4.5) 7/27/2009	WW-SB-18 (9-10) 8/7/2009	Duplicate of WW-SB-18 (9-10) 8/7/2009	WW-SB-18 (51-53) 8/7/2009	WW-SB-25 (1-3) 7/28/2009	WW-SB-25 (34-35) 7/28/2009	WW-SB-25 (52-53) 7/29/2009	WW-SB-26 (1-4) 7/29/2009	Duplicate of WW-SB-26 (1-4) 7/29/2009	WW-SB-26 (12-13) 7/29/2009	WW-SB-27 (4-5) 8/3/2009	WW-SB-27 (14-15) 8/4/2009
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)															
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
BTEX (mg/kg)														
Benzene	0.06	0.06	4.8	**0.0026 J**	**0.28 J**	0.0065 U	**0.0013 J**	0.0058 UJ	7.6 UJ	**0.0021 J**	**0.0332 J**	0.0024 U	0.0032 U	**0.0008 J**
Toluene	0.7	0.7	100	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	**0.0498 J**	**0.0008 J**	0.0032 U	0.0019 U
Ethylbenzene	1	1	41	0.0059 UJ	1.3 U	0.0065 U	**0.0011 J**	0.0058 UJ	**1.2 J**	**0.0026 J**	**0.102 J**	**0.0009 J**	0.0032 U	0.0019 U
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	**0.001 J**	**0.0913 J**	0.0024 U	0.0032 U	0.0019 U
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	**0.0041 J**	**0.152 J**	0.0048 U	0.0064 U	0.0038 U
Total Xylene	0.26	1.6	100	0.0059 UJ	1.3 U	0.0065 U	**0.0063 J**	0.0058 UJ	7.6 UJ	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**0.0026**	**0.28**	ND	**0.0087**	ND	**1.2**	**0.0098**	**0.4283**	**0.0017**	ND	**0.0008**
Other VOCs (mg/kg)														
Acetone	0.05	0.05	100	0.024 UJ	3.2 U	0.026 UJ	**0.058 J**	**0.0038 J**	19 UJ	**0.0328 J**	3.46 UJ	0.0241 UJ	0.0321 U	**0.0136 J**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	**0.0281**	**0.528 J**	0.0024 U	0.0032 U	**0.0012 J**
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	**0.0648**	**1.95 J**	0.0024 U	0.0032 U	**0.0007 J**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	**0.0594**	**0.448 J**	0.0024 U	0.0032 U	0.0019 U
Carbon disulfide	NE	2.7*	NE	0.0059 UJ	1.3 U	**0.0025 J**	**0.0018 J**	0.0058 UJ	7.6 UJ	**0.0014 J**	**0.0553 J**	0.0024 U	0.0032 U	**0.0012 J**
Chlorobenzene	1.1	1.1	100	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 U	7.6 UJ	0.0029 U	0.138 UJ	**0.0012 J**	0.0032 U	0.0019 U
Cyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	**0.0027**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	NA	NA	NA	NA	NA	NA	**0.0071**	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.0029 U	0.83 UJ	0.0024 U	0.0032 UJ	0.0019 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	NA	NA	NA	NA	NA	NA	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	NA	NA	NA	NA	NA	NA	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
1,1-Dichloroethane	0.27	0.27	26	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
1,1-Dichloroethene	0.33	0.33	100	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0059 U	1.3 U	0.0065 U	0.0062 U	0.0058 U	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
1,2-Dichloropropane	NE	NE	NE	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
Isopropylbenzene	NE	2.3*	NE	NA	NA	NA	NA	NA	NA	**0.0558**	**1.46 J**	0.0024 U	0.0032 U	**0.0014 J**
Methyl acetate	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.0029 U	**0.882 J**	0.0024 U	0.0032 U	0.0019 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.012 U	1.3 U	0.013 U	0.012 U	0.012 UJ	7.6 UJ	0.0287 U	3.46 UJ	0.0241 U	0.0321 U	0.019 UJ
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	NA	NA	NA	NA	NA	NA	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	**0.0017 J**
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0059 U	1.3 U	0.0065 U	0.0062 U	0.0058 U	7.6 UJ	0.0287 U	1.38 UJ	0.0241 U	0.0321 U	0.019 U
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	**37.1**	0.138 UJ	0.0024 U	0.0032 U	**0.0079**
Methylene chloride	0.05	0.05	100	0.024 UJ	1.3 U	0.026 U	0.025 U	0.023 UJ	7.6 UJ	0.0144 U	0.691 UJ	0.012 U	0.016 U	0.0095 U
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	**0.0086**	**0.315 J**	**0.0168**	0.0032 U	**0.0028 J**
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	**0.0753**	**0.221 J**	0.0024 U	0.0032 U	**0.0008 J**
Styrene	NE	NE	NE	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	**0.0007 J**
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0059 U	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	**0.0009 J**
Tetrachloroethene (PCE)	1.3	1.3	19	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
Tetrahydrofuran	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.0029 U	NA	0.0024 U	0.0032 U	0.0019 U
1,2,3-Trichlorobenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
1,1,2-Trichloroethane	NE	NE	NE	0.0059 U	1.3 U	0.0065 U	0.0062 U	0.0058 U	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U
Trichloroethene (TCE)	0.47	0.47	21	0.0059 UJ	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0029 U	0.138 UJ	0.0024 U	0.0032 U	0.0019 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	**0.004**	**0.116 J**	0.0024 U	0.0032 U	**0.0012 J**
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	**0.0014 J**	**0.0277 J**	0.0024 U	0.0032 U	0.0019 U
Vinyl chloride	0.02	0.02	0.9	0.0059 U	1.3 U	0.0065 U	0.0062 U	0.0058 UJ	7.6 UJ	0.0057 U	0.138 UJ	0.0048 U	0.0064 U	0.0038 U
Total VOCs	NE	NE	NE	**0.0026**	**0.28**	**0.0025**	**0.0685**	**0.0038**	**1.2**	**37.4485**	**6.4313**	**0.0197**	ND	**0.0376**
PAHs (mg/kg)														
Acenaphthene	20	98	100	**1 J**	**0.24 J**	**0.47 J**	**3.7**	**8 J**	**72 J**	**0.123 J**	**2.37**	0.309 U	0.279 U	**0.0273 J**
Acenaphthylene	100	107	100	**0.62 J**	**0.66 J**	6.8 U	**0.47 J**	**5.2 J**	**31 J**	**0.0427 J**	**0.99 J**	**0.0218 J**	0.279 U	0.31 U
Anthracene	100	1000	100	**0.67 J**	**1.1 J**	**0.5 J**	**2.2**	**26**	**60 J**	**0.236 J**	**2.41**	0.309 U	0.279 U	0.31 U
Benzo(a)anthracene	1	1	1	**0.96 J**	**3.2 J**	**0.81 J**	**2.3**	**89**	**120 J**	**0.302**	**2.33**	0.309 U	0.279 U	0.31 U
Benzo(b)fluoranthene	1	1.7	1	**1.6 J**	**3.5 J**	**0.84 J**	**2.2 J**	**100**	**120 J**	**0.197 J**	**1.52**	0.309 U	0.279 U	0.31 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**0.56 J**	**1.3 J**	6.8 U	**0.88 J**	**49**	**46 J**	**0.2 J**	**0.759 J**	0.309 U	0.279 U	0.31 U
Benzo(g,h,i)perylene	100	1000	100	**2.1 J**	**2.7 J**	6.8 U	**3.4 J**	**67**	**97 J**	**0.12 J**	**0.757 J**	0.309 U	**0.0243 J**	0.31 U
Benzo(a)pyrene	1	22	1	**1.4 J**	**3.9 J**	6.8 U	**2.7 J**	**95**	**140 J**	**0.255 J**	**1.88**	0.309 U	**0.0266 J**	0.31 U
Chrysene	1	1	3.9	**1.1 J**	**2.6 J**	**0.78 J**	**2.2**	**95**	**110 J**	**0.291**	**2.62**	0.309 U	0.279 U	0.31 U
Dibenz(a,h)anthracene	0.33	1000	0.33	1.3 UJ	1.7 UJ	6.8 U	**0.91 J**	**17**	**27 J**	0.284 U	**0.221 J**	0.309 U	0.279 U	0.31 U
Fluoranthene	100	1000	100	**1.3 J**	**3.8 J**	**0.87 J**	**2.6**	**150**	**140 J**	**0.93**	**4**	0.309 U	0.279 U	0.31 U
Fluorene	30	386	100	1.3 U	1.7 U	6.8 U	**0.8**	**9.2 J**	20 U	**0.185 J**	**0.162 J**	0.309 U	0.279 U	0.31 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**1.5 J**	**2.4 J**	6.8 U	**3.5 J**	**74**	**110 J**	**0.148 J**	**0.764 J**	0.309 U	**0.0238 J**	0.31 U
2-Methylnaphthalene	NE	36.4*	NE	1.3 U	1.7 U	6.8 U	**1.1**	**9.5 J**	**3.4 J**	**0.08 J**	1.2 U	0.309 U	0.279 U	0.31 U
Naphthalene	12	12	100	1.3 U	1.7 U	6.8 U	**1.7**	**15 J**	20 U	**0.0547 J**	**0.724 J**	0.309 U	0.279 U	0.31 U
Phenanthrene	100	1000	100	**0.74 J**	**0.25 J**	6.8 U	**1.2**	**100**	**34 J**	**0.833**	**0.353 J**	0.309 U	0.279 U	0.31 U
Pyrene	100	1000	100	**3.3 J**	**11**	**1.7 J**	**7.1**	**140**	**200 J**	**0.782**	**5.58**	0.309 U	**0.0216 J**	0.31 U
Total PAHs	NE	NE	NE	**16.85**	**36.65**	**5.97**	**38.96**	**1048.9**	**1310.4**	**4.7794**	**27.44**	**0.0218**	**0.0963**	**0.0273**
MAEPH (mg/kg)														
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)														
Acetophenone	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.0284 U	0.12 U	0.0309 U	0.0279 U	0.031 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.87 J**	1.7 U	6.8 U	0.67 U	16 U	20 U	**0.0494 J**	1.2 UJ	0.309 UJ	0.279 U	0.31 U
Butyl benzyl phthalate	NE	122*	NE	1.3 U	1.7 U	6.8 U	0.67 U	16 U	20 U	0.284 U	**0.167 J**	0.309 U	0.279 U	0.31 U
Caprolactam	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
Carbazole	NE	NE	NE	1.3 U	1.7 U	6.8 U	**0.1 J**	**14 J**	**2.3 J**	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
2-Chloronaphthalene	NE	NE	NE	1.3 U	1.7 U	6.8 U	0.67 U	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
Dibenzofuran	7	210, 6.2*	59	**0.18 J**	1.7 U	6.8 U	**0.39 J**	**5.2 J**	20 U	**0.112 J**	**0.173 J**	0.309 U	0.279 U	0.31 U
Diethyl phthalate	NE	7.1*	NE	1.3 U	1.7 U	6.8 U	0.67 U	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
2,4-Dimethylphenol	NE	NE	NE	1.3 UJ	1.7 UJ	6.8 U	0.67 U	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
Di-n-butyl phthalate	NE	8.1*	NE	1.3 U	1.7 U	6.8 U	0.67 U	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
2,6-Dinitrotoluene	NE	1*	NE	1.3 UJ	1.7 U	6.8 U	0.67 U	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
Di-n-octyl phthalate	NE	120*	NE	1.3 UJ	1.7 UJ	6.8 U	0.67 UJ	16 U	20 U	0.569 U	2.4 U	0.619 U	0.558 U	0.621 U
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	**0.08 J**	1.2 U	0.309 U	0.279 U	0.31 U
2-Methylphenol (o-Cresol)	0.33	0.33	100	1.3 U	1.7 U	6.8 U	0.67 R	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	1.3 U	1.7 U	6.8 U	0.67 R	16 U	20 U	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	1.3 UJ	1.7 U	6.8 U	0.67 U	16 U	20 U	0.569 U	2.4 U	0.619 U	0.558 U	0.621 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	1.3 U	1.7 U	6.8 U	0.67 U	16 U	20 U	0.284 U	1.2 U	0.309 U	0.279 U	0.31 U
Phenol	0.33	0.33	100	1.3 U	1.7 U	6.8 U	0.67 R	16 U	20 U	0.284 U	1.2 UJ	0.309 UJ	0.279 U	0.31 U
Total SVOCs	NE	NE	NE	**17.9**	**36.65**	**5.97**	**39.45**	**1068.1**	**1312.7**	**4.9408**	**27.78**	**0.0218**	**0.0963**	**0.0273**
Alkylated PAHs (mg/kg)														
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)														
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)														
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)														
Aroclor 1242	NE	NE	NE	0.38 U	NA	0.044 U	NA	0.02 U	NA	0.06 U	NA	NA	0.06 U	NA
Aroclor 1248	NE	NE	NE	0.38 U	NA	0.044 U	NA	0.02 U	NA	0.06 U	NA	NA	0.06 U	NA
Aroclor 1254	NE	NE	NE	0.38 U	NA	0.044 U	NA	0.02 U	NA	0.06 U	NA	NA	0.06 U	NA
Aroclor 1260	NE	NE	NE	0.38 U	NA	0.044 U	NA	0.02 UJ	NA	0.06 U	NA	NA	0.06 U	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.06 U	NA	NA	0.06 U	NA
Total PCB Aroclors	0.1	3.2	1	ND	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA
Pesticides (mg/kg)														
Aldrin	0.005	0.19	0.097	0.099 U	NA	0.023 UJ	NA	0.002 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	0.099 U	NA	0.023 UJ	NA	0.002 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	0.099 UJ	NA	0.023 UJ	NA	0.002 U	NA	0.0018 U	NA	NA	0.0017 U	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	0.099 UJ	NA	0.023 UJ	NA	0.002 U	NA	0.0029 U	NA	NA	0.0028 U	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.035 U	NA	NA	0.0335 U	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	0.099 U	NA	0.023 UJ	NA	0.002 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
gamma-Chlordane	NE	14*	NE	0.099 U	NA	0.023 UJ	NA	**0.0043 J**	NA	0.0029 U	NA	NA	0.0028 U	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	0.099 U	NA	0.023 UJ	NA	**0.0092 JN**	NA	0.0029 U	NA	NA	0.0028 U	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	0.099 U	NA	0.023 U	NA	0.0038 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	0.099 UJ	NA	0.023 UJ	NA	0.0038 U	NA	0.0029 U	NA	NA	0.0028 U	NA
Dieldrin	0.005	0.1	0.2	0.099 U	NA	0.023 UJ	NA	0.0038 U	NA	0.0029 U	NA	NA	0.0028 U	NA
alpha-Endosulfan (I)	2.4	102	24	0.099 UJ	NA	0.023 UJ	NA	0.002 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
beta-Endosulfan (II)	2.4	102	24	0.099 U	NA	0.023 U	NA	0.0038 U	NA	0.0029 U	NA	NA	0.0028 U	NA
Endosulfan sulfate	2.4	1000	24	0.099 U	NA	0.023 U	NA	0.0038 U	NA	0.0029 U	NA	NA	0.0028 U	NA
Endrin	0.014	0.06	11	0.099 U	NA	0.023 UJ	NA	**0.022 J**	NA	0.0029 U	NA	NA	0.0028 U	NA
Endrin aldehyde	NE	NE	NE	0.099 U	NA	0.023 U	NA	0.019 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
Endrin ketone	NE	NE	NE	0.099 U	NA	0.023 U	NA	0.0038 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
Heptachlor	0.042	0.38	2.1	0.099 U	NA	0.023 UJ	NA	0.002 U	NA	0.0029 U	NA	NA	0.0028 U	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
Heptachlor epoxide	NE	0.02*	NE	0.099 UJ	NA	0.023 UJ	NA	0.002 UJ	NA	0.0029 U	NA	NA	0.0028 U	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	NA	NA	NA	0.0029 U	NA	NA	0.0028 U	NA
Methoxychlor	NE	900*	NE	0.19 U	NA	0.044 UJ	NA	**0.023 JN**	NA	0.0029 U	NA	NA	0.0028 U	NA
Herbicides (mg/kg)														
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	0.19 UJ	NA	0.11 U	NA	0.089 U	NA	0.208 U	NA	NA	0.2 U	NA
Dicamba	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.01 U	NA	NA	0.01 U	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.64 JN**	NA	NA	0.2 U	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	NA	NA	NA	20.8 U	NA	NA	20 U	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	NA	NA	NA	20.5 U	NA	NA	19.8 U	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	0.047 U	NA	0.027 U	NA	0.022 U	NA	**0.051 JN**	NA	NA	0.01 U	NA
2,4,5-TP (Silvex)	3.8	3.8	100	**0.0068**	NA	0.027 U	NA	0.022 U	NA	0.01 U	NA	NA	0.01 U	NA
Metals (mg/kg)														
Aluminum	NE	NE	NE	**5520**	**5840**	**5700**	**4020**	**5490**	**15300 J**	**9030**	**775**	**306**	**9310**	**4820**
Antimony	NE	NE	NE	4.8 UJ	5.3 UJ	**6.7 J**	5 UJ	4.6 UJ	**5.3 J**	2.65 U	3.85 U	2.4 U	2.76 U	2.5 U
Arsenic	13	16	16	**23.1**	**20**	**32.8 J**	**20.5**	**24.8**	**300 J**	**2.32 J**	**44.8**	**1.38**	**2.68 J**	**0.73 J**
Barium	350	820	400	**124 J**	**60.4 J**	**80.1**	**46.5 J**	**74.9 J**	**88.8 J**	**46.5**	**5.78 J**	**3.17 J**	**62**	**28.4**
Beryllium	7.2	47	72	1.5 UJ	1.6 U	**0.31 J**	**0.37 J**	**0.42 J**	**1.2 J**	**0.46 J**	0.85 U	0.53 U	**0.55 J**	**0.31 J**
Cadmium	2.5	7.5	4.3	**0.57 J**	1.6 U	1.6 U	**1.4 J**	**0.44 J**	**9.8 J**	2.12 U	1.54 UJ	0.96 UJ	2.21 U	2 U
Calcium	NE	NE	NE	**43700**	**1580**	**3660 J**	**6310**	**3180**	**3310 J**	**2480 J**	**98.8 J**	**145 J**	**2000 J**	**1560 J**
Chromium	30	NE	180	**12.5**	**24.9**	**15.4 J**	**10 J**	**15.5 J**	**435 J**	**17.5 J**	**3.28 J**	**2.38 J**	**14.6 J**	**8.86 J**
Cobalt	NE	NE	NE	**6.1 J**	**5.4 J**	**8.3**	**8.1**	**6.1**	**15.5 J**	**6.01 J**	**0.78 J**	**0.5 J**	**6.6 J**	**4.84 J**
Copper	50	1720	270	**53.1**	**19.9**	**236**	**79.3**	**143**	**1180 J**	**26.2 J**	**8.8 J**	12 UJ	**24.6 J**	**9.88 J**
Iron	NE	NE	NE	**10600 J**	**11800 J**	**20300**	**21900**	**16600**	**98000 J**	**19000 J**	**1480 J**	**2010 J**	**18200 J**	**8260**
Lead	63	450	400	**273**	**23.2**	**872 J**	**271 J**	**524**	**3980 J**	**57.4 J**	**16.9 J**	24 U	**28.9 J**	50 U
Magnesium	NE	NE	NE	**2450**	**2890**	**2720**	**1810**	**2490**	**6720 J**	**3000 J**	**319 J**	**159 J**	**3160 J**	**1790 J**
Manganese	1600	2000	2000	**117**	**216**	**196**	**139**	**122**	**878 J**	**360**	**16.1**	**17.8**	**374**	**140**
Mercury	0.18	0.73	0.81	**0.45 J**	**0.75 J**	**0.69 J**	**1.2**	**1.7**	**14.4 J**	**0.035**	**5.71**	0.012 U	**0.023 J**	**0.098**
Nickel	30	130	310	**16.4 J**	**11.3 J**	**15**	**18.8 J**	**15.4**	**91.6 J**	**12.3 J**	19.2 U	12 U	**13.3 J**	**8.7 J**
Potassium	NE	NE	NE	**950 J**	**4610 J**	**1020 J**	**641 J**	**864 J**	**2940 J**	**1330 J**	**435 J**	1200 UJ	**1370 J**	**833 J**
Selenium	3.9	4	180	10.9 UJ	**4.9 J**	11.7 U	11.3 UJ	10.5 UJ	**12.3 J**	**1.06 J**	1.92 UJ	1.2 UJ	**1.26 J**	2.5 U
Silver	2	8.3	180	1.5 U	1.6 U	**0.19 J**	1.5 UJ	1.4 U	**10.1 J**	2.12 U	1.54 U	0.96 U	2.21 U	2 U
Sodium	NE	NE	NE	**511 J**	**976 J**	**310**	**353**	**810**	**13000 J**	**450 J**	**177 J**	1200 U	**284 J**	**279 J**
Thallium	NE	NE	NE	4.4 U	4.8 U	**1.6 J**	4.5 UJ	4.2 UJ	13.7 UJ	2.65 U	1.92 U	1.2 U	2.76 U	2.5 U
Tin	NE	NE	NE	**17.9**	**4.5**	**252**	**33.3**	**81.2**	**107**	52.9 U	38.5 U	24 U	55.2 U	50 U
Vanadium	NE	NE	NE	**15.4**	**17.6**	**22.3 J**	**15.3 J**	**20.9**	**66.3 J**	**24.9**	**1.95 J**	**3.63 J**	**23.2**	**14.4**
Zinc	109	2480	10000	**230**	**66.3**	**897**	**517 J**	**303 J**	**2470 J**	**146 J**	**20.3 J**	12 UJ	**79.4 J**	**19.5 J**
Cyanides (mg/kg)														
Free Cyanide	NE	NE	NE	0.23 UJ	0.256 UJ	0.257 UJ	0.24 UJ	0.231 U	**0.301 J**	0.228 U	0.254 U	0.242 U	0.225 U	0.243 U
Biomarkers (mg/kg)														
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St										
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St											
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-34 (2-5) 9/16/2009	WW-SB-34 (10-13) 9/16/2009	WW-SB-35 (1-4.5) 9/24/2009	WW-SB-35 (8-10) 9/30/2009	WW-SB-36 (3-5) 9/30/2009	WW-SB-36 (9-10) 9/30/2009	WW-SB-242 (0-5) 7/27/2022	WW-SB-242 (8-14) 9/22/2022	WW-SB-242 (25-30) 9/27/2022	WW-SB-243A (0-5) 7/27/2022	WW-SB-243B (10-15) 9/23/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other (mg/kg)														
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15) 9/23/2022	WW-SB-243B (30-35) 9/28/2022	WW-SB-244A (0-5) 7/26/2022	WW-SB-244B (20-25) 9/29/2022	Duplicate of WW-SB-244B (20-25) 9/29/2022	WW-SB-244B (35-40) 9/29/2022	WW-SB-245A (0-5) 7/26/2022	WW-SB-245B (5-10) 9/28/2022	WW-SB-245B (35-40) 9/29/2022	WW-SB-246A (0-5) 7/27/2022
BTEX (mg/kg)													
Benzene	0.06	0.06	4.8	0.0031 U	0.0028 U	0.0031 U	**1.28 J**	**0.363 J**	0.0031 U	**0.0022 J**	0.0025 U	0.0028 U	0.0031 U
Toluene	0.7	0.7	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
Ethylbenzene	1	1	41	0.0031 U	0.0028 U	0.0031 U	**0.0021 J**	**0.001 J**	0.0031 U	**0.0012 J**	0.0025 U	0.0028 U	0.0031 U
o-Xylene	0.26	1.6	100	0.0031 U	0.0028 U	0.0031 U	**0.0011 J**	**0.0008 J**	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
m/p-Xylene	0.26	1.6	100	0.0061 U	0.0057 U	0.0061 U	**0.0024 J**	**0.0017 J**	0.0063 U	0.0064 U	0.005 U	0.0056 U	0.0063 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	ND	ND	ND	**1.2856**	**0.3665**	ND	**0.0034**	ND	ND	ND
Other VOCs (mg/kg)													
Acetone	0.05	0.05	100	**0.0277 J**	0.0283 U	0.0307 U	0.028 U	0.0239 UJ	0.0315 UJ	0.0318 U	0.0329 U	0.0279 UJ	0.0314 U
n-Butylbenzene	12	12	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	**0.005**	0.0025 U	0.0028 U	**0.0012 J**
sec-Butylbenzene	11	11	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	**0.0083**	**0.0045**	0.0028 U	**0.0047**
tert-Butylbenzene	5.9	5.9	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	**0.0036**	**0.0189**	0.0028 U	**0.0013 J**
Carbon disulfide	NE	2.7*	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 UJ	0.0031 UJ	**0.002 J**	**0.0018 J**	0.0028 UJ	0.0031 U
Chlorobenzene	1.1	1.1	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.0031 U	**0.0045**	0.0031 U	0.0028 UJ	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
Cyclohexane	NE	NE	NE	**0.0026 J**	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	**0.0012 J**	0.0025 U	0.0028 U	**0.0028 J**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	**0.0009 J**	0.0028 U	**0.0013 J**
1,2-Dibromo-3-chloropropane	NE	NE	NE	**0.0045 J**	0.0028 U	0.0031 UJ	0.0028 U	0.0024 U	0.0031 U	0.0032 UJ	0.0025 U	0.0028 U	0.0031 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
1,1-Dichloroethane	0.27	0.27	26	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 UJ	0.0031 UJ	0.0032 U	0.0025 U	0.0028 UJ	0.0031 U
1,1-Dichloroethene	0.33	0.33	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 UJ	0.0031 UJ	0.0032 U	0.0025 U	0.0028 UJ	0.0031 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 UJ	0.0031 UJ	0.0032 U	0.0025 U	0.0028 UJ	0.0031 U
1,2-Dichloropropane	NE	NE	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
Isopropylbenzene	NE	2.3*	NE	**0.001 J**	0.0028 U	0.0031 U	**0.002 J**	**0.0011 J**	0.0031 U	**0.0061**	0.0025 U	0.0028 U	**0.0034**
Methyl acetate	NE	NE	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 UJ	0.0031 UJ	0.0032 U	0.0025 U	0.0028 UJ	0.0031 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	0.0306 U	0.0283 UJ	0.0307 U	0.028 U	0.0239 U	0.0315 U	0.0318 U	0.0252 UJ	0.0279 U	0.0314 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	**0.0015 J**	0.0028 U	0.0031 U	**0.0026 J**	**0.002 J**	0.0031 UJ	0.0032 U	**0.001 J**	0.0028 UJ	0.0031 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	0.0306 U	0.0283 U	0.0307 U	0.028 U	0.0239 U	0.0315 U	0.0318 U	0.0252 U	0.0279 U	0.0314 U
Methylcyclohexane	NE	NE	NE	**0.0076**	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	**0.0112**	**0.795**	0.0028 U	**0.791**
Methylene chloride	0.05	0.05	100	0.0153 U	0.0142 U	0.0154 U	0.014 U	0.0119 UJ	0.0157 UJ	0.0159 U	0.0126 U	0.0139 UJ	0.0157 U
Naphthalene	12	12	100	0.0031 U	0.0028 U	0.0031 U	**0.512 J**	**0.154 J**	0.0031 U	**0.0034**	**0.0028 J**	0.0028 U	**0.0013 J**
n-Propylbenzene	3.9	3.9	100	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	**0.0075**	0.0025 U	0.0028 U	**0.0021 J**
Styrene	NE	NE	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 UJ	0.0031 UJ	0.0032 U	0.0025 U	0.0028 UJ	0.0031 U
Tetrahydrofuran	NE	NE	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
1,1,2-Trichloroethane	NE	NE	NE	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U
Trichloroethene (TCE)	0.47	0.47	21	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	0.0025 U	0.0028 U	0.0031 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15) 9/23/2022	WW-SB-243B (30-35) 9/28/2022	WW-SB-244A (0-5) 7/26/2022	WW-SB-244B (20-25) 9/29/2022	Duplicate of WW-SB-244B (20-25) 9/29/2022	WW-SB-244B (35-40) 9/29/2022	WW-SB-245A (0-5) 7/26/2022	WW-SB-245B (5-10) 9/28/2022	WW-SB-245B (35-40) 9/29/2022	WW-SB-246A (0-5) 7/27/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.0012 J**	0.0028 U	0.0031 U	**0.0046**	**0.0032**	0.0031 U	0.0032 U	**0.0019 J**	0.0028 U	0.0031 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.0031 U	0.0028 U	0.0031 U	0.0028 U	0.0024 U	0.0031 U	0.0032 U	**0.0014 J**	0.0028 U	0.0031 U
Vinyl chloride	0.02	0.02	0.9	0.0061 U	0.0057 U	0.0061 U	0.0056 UJ	0.0048 U	0.0063 U	0.0064 U	0.005 U	0.0056 U	0.0063 U
Total VOCs	NE	NE	NE	**0.0461**	**0.0045**	ND	**1.8068**	**0.5268**	ND	**0.0517**	**0.8282**	ND	**0.8091**
PAHs (mg/kg)													
Acenaphthene	20	98	100	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.0913 J**	**0.275 J**	0.321 U	**0.307**
Acenaphthylene	100	107	100	0.294 U	0.283 U	**0.0235 J**	0.303 U	0.293 U	0.289 U	**0.237 J**	**0.122 J**	0.321 U	**0.142 J**
Anthracene	100	1000	100	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.292 J**	**0.415 J**	0.321 U	**0.573**
Benzo(a)anthracene	1	1	1	0.294 U	0.283 U	**0.0922 J**	0.303 U	0.293 U	0.289 U	**1.01**	**1.97**	0.321 U	**1.55**
Benzo(b)fluoranthene	1	1.7	1	0.294 U	0.283 U	**0.1 J**	0.303 U	0.293 U	0.289 U	**0.991**	**0.93 J**	0.321 U	**1.2**
Benzo(k)fluoranthene	0.8	1.7	3.9	0.294 U	0.283 U	**0.074 J**	0.303 U	0.293 U	0.289 U	**0.808**	**0.808 J**	0.321 U	**1.15**
Benzo(g,h,i)perylene	100	1000	100	0.294 U	0.283 U	**0.0837 J**	0.303 U	0.293 U	0.289 U	**1.11**	**0.631 J**	0.321 U	**0.835**
Benzo(a)pyrene	1	22	1	0.294 U	0.283 U	**0.112 J**	0.303 U	0.293 U	0.289 U	**1.42**	**1.16**	0.321 U	**1.67**
Chrysene	1	1	3.9	0.294 U	0.283 U	**0.0907 J**	0.303 U	0.293 U	0.289 U	**1.01**	**2.32**	0.321 U	**1.63**
Dibenz(a,h)anthracene	0.33	1000	0.33	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.216 J**	**0.249 J**	0.321 U	**0.227 J**
Fluoranthene	100	1000	100	0.294 U	0.283 U	**0.115 J**	0.303 U	0.293 U	0.289 U	**1.51**	**0.903 J**	0.321 U	**3.05**
Fluorene	30	386	100	**0.0189 J**	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.111 J**	**0.168 J**	0.321 U	**0.336**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.294 U	0.283 U	**0.0997 J**	0.303 U	0.293 U	0.289 U	**1.13**	**0.684 J**	0.321 U	**0.955**
2-Methylnaphthalene	NE	36.4*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.394**	**0.18 J**	0.321 U	**0.206 J**
Naphthalene	12	12	100	0.294 U	0.283 U	**0.0386 J**	0.303 U	0.293 U	0.289 U	**1.48**	1.03 U	0.321 U	**0.434**
Phenanthrene	100	1000	100	0.294 U	0.283 U	**0.0598 J**	0.303 U	0.293 U	0.289 U	**0.748**	**0.679 J**	0.321 U	**2.3**
Pyrene	100	1000	100	0.294 U	0.283 U	**0.111 J**	0.303 U	0.293 U	0.289 U	**1.67**	**2.67**	0.321 U	**2.86**
Total PAHs	NE	NE	NE	**0.0189**	ND	**1.0002**	ND	ND	ND	**14.2283**	**14.164**	ND	**19.425**
MAEPH (mg/kg)													
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA	**3.31**	0.838 U	NA	**0.24 J**
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	**0.423**
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.75**	0.838 U	NA	0.417 U
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.87**	0.838 U	NA	0.417 U
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.88**	0.838 U	NA	0.417 U
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	**0.394 J**
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA	**3.44**	0.838 U	NA	0.417 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15)	WW-SB-243B (30-35)	WW-SB-244A (0-5)	WW-SB-244B (20-25)	Duplicate of WW-SB-244B (20-25)	WW-SB-244B (35-40)	WW-SB-245A (0-5)	WW-SB-245B (5-10)	WW-SB-245B (35-40)	WW-SB-246A (0-5)
Sample Depth (feet bgs)				9/23/2022	9/28/2022	7/26/2022	9/29/2022	9/29/2022	9/29/2022	7/26/2022	9/28/2022	9/29/2022	7/27/2022
Sample Date													
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA	**7**	0.838 U	NA	0.417 U
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA	**11.8**	0.838 U	NA	0.417 U
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA	**17**	0.838 U	NA	0.417 U
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA	**2.08**	0.838 U	NA	0.417 U
Other SVOCs (mg/kg)													
Acetophenone	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.119 J**	1.03 U	0.321 U	0.273 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.0294 U	0.0283 U	0.0292 U	0.0303 U	0.0293 U	0.0289 U	**0.0605**	0.103 U	0.0321 U	**0.0418**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	**0.0504 J**
Butyl benzyl phthalate	NE	122*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Caprolactam	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Carbazole	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.081 J**	1.03 U	0.321 U	**0.195 J**
2-Chloronaphthalene	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Dibenzofuran	7	210, 6.2*	59	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.101 J**	**0.076 J**	0.321 U	**0.159 J**
Diethyl phthalate	NE	7.1*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
2,4-Dimethylphenol	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Di-n-butyl phthalate	NE	8.1*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
2,6-Dinitrotoluene	NE	1*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Di-n-octyl phthalate	NE	120*	NE	0.588 U	0.566 U	0.584 U	0.607 U	0.587 U	0.577 U	0.611 U	2.05 U	0.642 U	0.546 U
2-Methylnaphthalene	NE	36.4*	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	**0.394**	**0.18 J**	0.321 U	**0.206 J**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.588 U	0.566 U	0.584 U	0.607 U	0.587 U	0.577 U	0.611 U	2.05 U	0.642 U	0.546 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Phenol	0.33	0.33	100	0.294 U	0.283 U	0.292 U	0.303 U	0.293 U	0.289 U	0.305 U	1.03 U	0.321 U	0.273 U
Total SVOCs	NE	NE	NE	**0.0189**	ND	**1.0002**	ND	ND	ND	**14.5898**	**14.24**	ND	**19.8712**
Alkylated PAHs (mg/kg)													
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA	**2.15 J**	**0.00635 J**	NA	**0.0979**
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA	**0.894 J**	**0.00447 J**	NA	**0.204**
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA	**1.24 J**	**0.00899**	NA	**0.191**
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA	**1.32 J**	0.0259 U	NA	**0.14**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name				Duplicate of WW-SB-243B	WW-SB-243B	WW-SB-244A	WW-SB-244B	Duplicate of WW-SB-244B	WW-SB-244B	WW-SB-245A	WW-SB-245B	WW-SB-245B	WW-SB-246A
Sample Depth (feet bgs)	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	(10-15)	(30-35)	(0-5)	(20-25)	(20-25)	(35-40)	(0-5)	(5-10)	(35-40)	(0-5)
Sample Date				9/23/2022	9/28/2022	7/26/2022	9/29/2022	9/29/2022	9/29/2022	7/26/2022	9/28/2022	9/29/2022	7/27/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.84 JN**	0.0865 U	NA	**0.106 JN**
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**3.58 JN**	**0.00842 JN**	NA	**0.129 JN**
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**3.73 JN**	**0.0129 JN**	NA	**0.113 JN**
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.05 JN**	**0.0145 JN**	NA	**0.0915 JN**
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.31 JN**	**0.0152 JN**	NA	**0.0544 JN**
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA	**7.13 J**	**0.0494**	NA	**0.68**
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA	**11.4 J**	**0.0268**	NA	**0.637 J**
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**9.51 J**	**0.0208**	NA	**0.56**
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.528 J**	**0.00611 J**	NA	**0.0717**
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.309 J**	0.00838 U	NA	**0.0378**
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.241 J**	**0.0204**	NA	**0.0788**
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA	**45.7 J**	**0.0165**	NA	**0.453**
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA	**33.8 J**	**0.0298**	NA	**0.803**
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**22.9 J**	**0.0256**	NA	**0.512**
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.101 J**	0.00838 U	NA	**0.0069**
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.102 JN**	0.00838 U	NA	**0.0111 JN**
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0891 JN**	0.00838 U	NA	**0.00876 JN**
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0571 JN**	0.00838 U	NA	**0.00542 JN**
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.043 JN**	0.00838 U	NA	**0.00432 JN**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.14 J**	0.00838 U	NA	**0.0195**
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA	**0.0474 J**	0.00838 U	NA	**0.0064**
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA	**0.0134 J**	0.00838 U	NA	**0.00558**
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA	0.0249 U	0.00838 U	NA	0.00417 U
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**5.53 JN**	**0.144 JN**	NA	**0.42 JN**
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**3.12 JN**	**0.175 JN**	NA	**0.234 JN**
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.27 JN**	**0.142 JN**	NA	**0.114 JN**
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.494 JN**	**0.0963 JN**	NA	**0.0595 JN**
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**7.38 J**	**0.0609**	NA	**0.672**
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**16.4 J**	**0.00419 J**	NA	**0.105**
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.178 J**	0.00838 U	NA	**0.00964**
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.034 J**	0.00838 U	NA	**0.00744**
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.101 J**	**0.0133**	NA	**0.0533**
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.436 JN**	**0.0627 JN**	NA	**0.131 JN**
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.44 JN**	**0.0616 JN**	NA	**0.113 JN**
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.7 JN**	**0.036 JN**	NA	**0.0745 JN**
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.83 JN**	**0.0371 JN**	NA	**0.0596 JN**
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA	**6.45 J**	**0.00613 J**	NA	**0.14**
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA	**0.121 J**	0.00838 U	NA	**0.0356**
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0913 J**	0.00838 U	NA	**0.0501**
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.148 JN**	**0.00576 JN**	NA	**0.0472 JN**
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.294 JN**	**0.0295 JN**	NA	**0.0569 JN**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name				Duplicate of WW-SB-243B	WW-SB-243B	WW-SB-244A	WW-SB-244B	Duplicate of WW-SB-244B	WW-SB-244B	WW-SB-245A	WW-SB-245B	WW-SB-245B	WW-SB-246A
Sample Depth (feet bgs)	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	(10-15)	(30-35)	(0-5)	(20-25)	(20-25)	(35-40)	(0-5)	(5-10)	(35-40)	(0-5)
Sample Date				9/23/2022	9/28/2022	7/26/2022	9/29/2022	9/29/2022	9/29/2022	7/26/2022	9/28/2022	9/29/2022	7/27/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.286 JN**	**0.0583 JN**	NA	**0.0319 JN**
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.149 JN**	**0.0508 JN**	NA	**0.0185 JN**
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA	**1.26 J**	0.00838 U	NA	**0.0633**
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA	**4.71 J**	**0.0287**	NA	**1.13**
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**6.22 JN**	**0.0807 JN**	NA	**0.743 JN**
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**2.8 JN**	**0.109 JN**	NA	**0.341 JN**
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.35 JN**	**0.143 JN**	NA	**0.167 JN**
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA	**0.359 J**	0.00838 U	NA	**0.0634**
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.323 JN**	**0.0051 JN**	NA	**0.0693 JN**
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.599 JN**	**0.0145 JN**	NA	**0.0629 JN**
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.617 JN**	**0.0324 JN**	NA	**0.0699 JN**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA	**32.3 J**	**0.0196**	NA	**0.584**
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.12 J**	0.00838 U	NA	**0.0085**
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.114 J**	0.00838 UJ	NA	**0.0608 J**
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.845 J**	0.00838 U	NA	**0.0892**
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA	**1.22 J**	0.00838 U	NA	**0.108**
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.868 J**	**0.00964**	NA	**0.0846**
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.06 J**	**0.0144**	NA	**0.102**
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA	**4.02 J**	**0.00706 J**	NA	**0.222**
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.28 JN**	0.00838 U	NA	**0.121 JN**
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.648 JN**	**0.00922 JN**	NA	**0.0919 JN**
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.435 JN**	**0.0121 JN**	NA	**0.074 JN**
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.442 JN**	**0.0178 JN**	NA	**0.0546 JN**
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.326 JN**	**0.0872 JN**	NA	**0.102 JN**
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.239 JN**	**0.115 JN**	NA	**0.119 JN**
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.38 JN**	**0.0877 JN**	NA	**0.0427 JN**
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.108 JN**	**0.0444 JN**	NA	**0.0136 JN**
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**5.46 J**	**0.0113**	NA	**0.187**
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA	**3.1 J**	**0.0145**	NA	**0.565**
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**2.07 JN**	**0.0179 JN**	NA	**0.368 JN**
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.96 JN**	**0.0578 JN**	NA	**0.267 JN**
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.962 JN**	**0.138 JN**	NA	**0.132 JN**
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.481 JN**	**0.116 JN**	NA	**0.0611 JN**
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA	**0.097 J**	0.00838 U	NA	**0.0102**
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA	**10.8 J**	**0.0739**	NA	**1.2**
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0997 J**	0.00838 U	NA	**0.0562**
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1.43 J**	**0.00861**	NA	**0.0994**
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA	**2.14 J**	0.101 U	NA	**0.124 J**
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.836 J**	0.00838 U	NA	**0.0173**
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA	**2.08 J**	**0.00528 J**	NA	**0.0553**
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA	**0.895 J**	0.00838 U	NA	**0.0254**
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	**1.88 J**	0.00838 U	NA	**0.0485**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15) 9/23/2022	WW-SB-243B (30-35) 9/28/2022	WW-SB-244A (0-5) 7/26/2022	WW-SB-244B (20-25) 9/29/2022	Duplicate of WW-SB-244B (20-25) 9/29/2022	WW-SB-244B (35-40) 9/29/2022	WW-SB-245A (0-5) 7/26/2022	WW-SB-245B (5-10) 9/28/2022	WW-SB-245B (35-40) 9/29/2022	WW-SB-246A (0-5) 7/27/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	**2.69 J**	**0.00765 J**	NA	**0.099**
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.953 J**	**0.0147**	NA	**0.101**
PFAS (mg/kg)													
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)													
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.497 U	0.838 U	NA	0.417 U
PCB Aroclors (mg/kg)													
Aroclor 1242	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	0.05 U
Aroclor 1248	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	0.05 U
Aroclor 1254	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	0.05 U
Aroclor 1260	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	0.05 U
Aroclor 1268	NE	NE	NE	NA	NA	0.06 U	NA	NA	NA	0.06 U	NA	NA	0.05 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	ND	NA	NA	NA	ND	NA	NA	ND
Pesticides (mg/kg)													
Aldrin	0.005	0.19	0.097	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0018 U	NA	NA	NA	0.0019 U	NA	NA	0.0017 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Chlordane (Technical)	NE	NE	NE	NA	NA	0.035 U	NA	NA	NA	0.0382 U	NA	NA	0.0331 U
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
gamma-Chlordane	NE	14*	NE	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	**0.0017 J**	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Dieldrin	0.005	0.1	0.2	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Endrin	0.014	0.06	11	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Endrin aldehyde	NE	NE	NE	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Endrin ketone	NE	NE	NE	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Heptachlor	0.042	0.38	2.1	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U

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Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15) 9/23/2022	WW-SB-243B (30-35) 9/28/2022	WW-SB-244A (0-5) 7/26/2022	WW-SB-244B (20-25) 9/29/2022	Duplicate of WW-SB-244B (20-25) 9/29/2022	WW-SB-244B (35-40) 9/29/2022	WW-SB-245A (0-5) 7/26/2022	WW-SB-245B (5-10) 9/28/2022	WW-SB-245B (35-40) 9/29/2022	WW-SB-246A (0-5) 7/27/2022
Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Methoxychlor	NE	900*	NE	NA	NA	0.0029 U	NA	NA	NA	0.0032 U	NA	NA	0.0028 U
Herbicides (mg/kg)													
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.217 U	NA	NA	NA	0.225 U	NA	NA	0.197 U
Dicamba	NE	NE	NE	NA	NA	0.011 U	NA	NA	NA	0.011 U	NA	NA	**0.01 JN**
Dichloroprop	NE	NE	NE	NA	NA	0.217 U	NA	NA	NA	0.225 U	NA	NA	0.197 U
Mecoprop (MCPP)	NE	NE	NE	NA	NA	21.7 U	NA	NA	NA	22.5 U	NA	NA	19.7 U
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	21.5 U	NA	NA	NA	**2.12 J**	NA	NA	19.5 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.011 U	NA	NA	NA	0.011 U	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.011 U	NA	NA	NA	0.011 U	NA	NA	0.01 U
Metals (mg/kg)													
Aluminum	NE	NE	NE	**6170**	**363**	**9270**	**3970**	**5410**	**8040**	**7800**	**592**	**4320**	**7090**
Antimony	NE	NE	NE	2.11 U	4.32 U	2.77 U	2.58 U	2.78 U	2.49 U	3.01 U	2.29 U	2.76 U	2.61 U
Arsenic	13	16	16	**2.84**	**1.96 J**	**10.4**	**0.13 J**	**0.25 J**	**0.51**	**37.8**	**1.72**	**0.13 J**	**2.26 J**
Barium	350	820	400	**42.1**	**3.62 J**	**82.9**	**23 J**	**31.1**	**28.3**	**43.7**	**4.56 J**	**27.7**	**39.1**
Beryllium	7.2	47	72	**0.42 J**	0.95 U	**2.4**	**0.33 J**	**0.4 J**	**0.89 J**	**0.42 J**	0.5 U	**0.41 J**	**0.39 J**
Cadmium	2.5	7.5	4.3	1.69 U	1.73 UJ	**1.01 J**	2.06 U	2.23 U	1.99 U	2.41 U	0.92 UJ	2.21 U	2.09 U
Calcium	NE	NE	NE	**1030 J**	**82.2 J**	**7830 J**	**522**	**737**	**1790**	**3670 J**	**178 J**	**6410**	**2120 J**
Chromium	30	NE	180	**13.7**	**1.54 J**	**24.4 J**	**10 J**	**12.1**	**18.9**	**15.5 J**	**1.23 J**	**9.09 J**	**12.5 J**
Cobalt	NE	NE	NE	**7.34 J**	8.64 U	**12**	**3.47 J**	**4.52 J**	**12.7**	**6.75 J**	**0.58 J**	**5.64 J**	**5.3 J**
Copper	50	1720	270	**13.1 J**	21.6 UJ	**121 J**	**4.9 J**	**7.74 J**	**23.3 J**	**56 J**	11.4 UJ	**9.86 J**	**14.9 J**
Iron	NE	NE	NE	**17000**	**2620 J**	**32300 J**	**8450**	**13000**	**21600**	**22100 J**	**1440 J**	**10400**	**15500 J**
Lead	63	450	400	**15.6 J**	43.2 U	**208 J**	51.5 U	55.6 U	**8.66 J**	**194 J**	22.9 U	**3.06 J**	**27.2 J**
Magnesium	NE	NE	NE	**1960 J**	**135 J**	**2830 J**	**1200 J**	**1710 J**	**2770 J**	**3100 J**	**233 J**	**4940 J**	**2530 J**
Manganese	1600	2000	2000	**240**	**16.2**	**804**	**148**	**123**	**433**	**267**	**24.9**	**477**	**289**
Mercury	0.18	0.73	0.81	**1.3**	0.024 U	**0.213**	0.03 U	0.032 U	**0.01 J**	**0.544**	**0.148**	0.037 U	**0.034**
Nickel	30	130	310	**10.5 J**	21.6 U	**24.5 J**	**9.29 J**	**11.2 J**	**16.1 J**	**14.7 J**	11.4 U	**13.9 J**	**10.9 J**
Potassium	NE	NE	NE	**895 J**	2160 UJ	**945 J**	**601 J**	**730 J**	**1220 J**	**1170 J**	1140 UJ	**1020 J**	**1130 J**
Selenium	3.9	4	180	2.11 U	2.16 UJ	**1.85 J**	2.58 U	2.78 U	2.49 U	**1.6 J**	1.14 UJ	2.76 U	**0.99 J**
Silver	2	8.3	180	1.69 U	1.73 U	2.22 U	2.06 U	2.23 U	1.99 U	2.41 U	0.92 U	2.21 U	2.09 U
Sodium	NE	NE	NE	**142 J**	2160 U	**765 J**	2580 UJ	2780 UJ	**250 J**	**470 J**	1140 U	**248 J**	**414 J**
Thallium	NE	NE	NE	2.11 U	2.16 U	2.77 U	2.58 U	2.78 U	2.49 U	3.01 U	1.14 U	2.76 U	2.61 U
Tin	NE	NE	NE	42.2 U	43.2 U	**56.7**	51.5 U	55.6 U	49.7 U	**51.8 J**	22.9 U	55.3 U	52.3 U
Vanadium	NE	NE	NE	**23.4**	**2.59 J**	**27.3**	**12.3**	**17**	**40.3**	**25.2**	**2.37 J**	**11.7**	**20.4**
Zinc	109	2480	10000	**31.4**	**5.08 J**	**848 J**	**18.2 J**	**23.8 J**	**46.8**	**199 J**	**6.63 J**	**21.5 J**	**46.4 J**
Cyanides (mg/kg)													
Free Cyanide	NE	NE	NE	0.233 U	0.231 U	0.236 U	0.228 U	0.235 U	0.237 U	0.244 U	0.23 U	0.248 U	0.216 U
Biomarkers (mg/kg)													
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0372**	**0.0182**	NA	**0.00467**
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0282**	**0.0148**	NA	**0.00302 J**
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0225**	**0.0106**	NA	**0.00227 J**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15) 9/23/2022	WW-SB-243B (30-35) 9/28/2022	WW-SB-244A (0-5) 7/26/2022	WW-SB-244B (20-25) 9/29/2022	Duplicate of WW-SB-244B (20-25) 9/29/2022	WW-SB-244B (35-40) 9/29/2022	WW-SB-245A (0-5) 7/26/2022	WW-SB-245B (5-10) 9/28/2022	WW-SB-245B (35-40) 9/29/2022	WW-SB-246A (0-5) 7/27/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.011**	**0.00774 J**	NA	**0.00317 J**
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00389 J**	**0.00808 J**	NA	0.00417 U
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0135**	**0.00788 J**	NA	0.00417 U
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0126**	**0.00747 J**	NA	0.00417 U
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00908**	**0.0127**	NA	0.00417 U
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0298**	**0.0122**	NA	0.00417 U
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0398**	**0.0099**	NA	0.00417 U
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00975**	**0.0107**	NA	0.00417 U
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0132**	**0.0201**	NA	**0.00232 J**
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0118**	**0.0249**	NA	**0.0042**
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00834**	**0.00788 J**	NA	0.00417 U
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00895**	**0.00964**	NA	**0.00225 J**
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0137**	**0.0102**	NA	**0.00219 J**
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00511**	**0.00682 J**	NA	0.00417 U
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0303**	**0.0447**	NA	**0.0077**
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0112**	**0.0177**	NA	0.00417 U
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0116**	**0.0075 J**	NA	0.00417 U
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00638**	**0.0134**	NA	0.00417 U
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00616**	**0.00922**	NA	**0.0106**
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0579**	**0.0762**	NA	**0.00986**
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.00497 U	0.00838 U	NA	0.00417 U
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0192**	**0.0183**	NA	**0.00502**
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0103**	**0.0196**	NA	**0.00686**
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.00497 U	0.00838 U	NA	0.00417 U
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0138**	**0.0132**	NA	**0.00643**
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.023**	**0.0118**	NA	**0.00257 J**
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00954**	0.00838 U	NA	**0.00258 J**
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0296**	0.00838 U	NA	0.00417 U
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00864**	0.00838 U	NA	**0.00333 J**
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0136**	0.00838 U	NA	0.00417 U
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.00415 J**	0.00838 U	NA	0.00417 U
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.00497 U	0.00838 U	NA	0.00417 U
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0306**	**0.0373**	NA	**0.00277 J**
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0192**	**0.0201**	NA	0.00417 U
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0152**	**0.0145**	NA	0.00417 U
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0976**	**0.0545**	NA	**0.00583**
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0253**	**0.0272**	NA	**0.00227 J**
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0222**	**0.0235**	NA	**0.00223 J**
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0952**	**0.0579**	NA	**0.0103**
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0093**	**0.00729 J**	NA	0.00417 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	Duplicate of WW-SB-243B (10-15) 9/23/2022	WW-SB-243B (30-35) 9/28/2022	WW-SB-244A (0-5) 7/26/2022	WW-SB-244B (20-25) 9/29/2022	Duplicate of WW-SB-244B (20-25) 9/29/2022	WW-SB-244B (35-40) 9/29/2022	WW-SB-245A (0-5) 7/26/2022	WW-SB-245B (5-10) 9/28/2022	WW-SB-245B (35-40) 9/29/2022	WW-SB-246A (0-5) 7/27/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.00497 U	**0.00571 J**	NA	0.00417 U
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0366**	**0.0223**	NA	**0.0043**
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0247**	**0.0177**	NA	**0.00301 J**
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0469**	**0.0313**	NA	**0.00477**
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0298**	**0.0119**	NA	**0.00311 J**
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0345**	**0.0221**	NA	**0.00328 J**
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0766**	**0.0478**	NA	**0.00527**
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.0439**	**0.0256**	NA	**0.00288 J**
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**0.037**	**0.0213**	NA	**0.00225 J**
Other (mg/kg)													
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	**686**	**427 J**	NA	83.2 U
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	**638**	**4370**	NA	83.2 U
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA	**796**	**2260**	NA	83.2 U
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**974**	**2260**	NA	83.2 U
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA	**2890**	**7780**	NA	**131**
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA	**1310**	**151**	NA	**126**
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA	**2420**	**282**	NA	**400**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
BTEX (mg/kg)													
Benzene	0.06	0.06	4.8	**0.186 J**	**0.0064**	0.0033 U	0.234 U	0.0026 U	0.0028 U	**0.0035**	**0.0053**	0.0029 U	0.0036 U
Toluene	0.7	0.7	100	**0.22**	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	**0.0139**	0.0029 U	0.0036 U
Ethylbenzene	1	1	41	**30.9**	0.0026 U	0.0033 U	**0.197 J**	0.0026 U	0.0028 U	**0.0067**	**0.103**	0.0029 U	0.0036 U
o-Xylene	0.26	1.6	100	**1.33**	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	**0.0025 J**	**0.0638**	0.0029 U	0.0036 U
m/p-Xylene	0.26	1.6	100	**5.43**	0.0052 U	0.0067 U	0.469 U	0.0053 U	0.0055 U	**0.0077**	**0.203**	0.0058 U	0.0073 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**38.066**	**0.0064**	ND	**0.197**	ND	ND	**0.0204**	**0.389**	ND	ND
Other VOCs (mg/kg)													
Acetone	0.05	0.05	100	5.29 U	0.0261 UJ	0.0333 U	5.86 U	0.0265 UJ	0.0277 UJ	0.0318 UJ	0.0295 UJ	0.0291 UJ	0.0364 UJ
n-Butylbenzene	12	12	100	**4.55 J**	0.0026 U	0.0033 U	**0.103 J**	0.0026 U	0.0028 U	**0.0314**	**0.0634**	0.0029 U	0.0036 U
sec-Butylbenzene	11	11	100	**5.97**	0.0026 U	**0.0041**	**0.525**	0.0026 U	0.0028 U	**0.048**	**0.0549**	0.0029 U	0.0036 U
tert-Butylbenzene	5.9	5.9	100	**0.961**	0.0026 U	**0.0014 J**	**0.398**	0.0026 U	0.0028 U	**0.0156**	**0.0278**	0.0029 U	0.0036 U
Carbon disulfide	NE	2.7*	NE	0.212 U	0.0026 U	**0.0016 J**	**0.0703 J**	0.0026 U	0.0028 U	**0.0014 J**	**0.0071 J**	0.0029 U	0.0036 U
Chlorobenzene	1.1	1.1	100	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
Cyclohexane	NE	NE	NE	**39.3 J**	0.0026 U	0.0033 U	**4.68**	0.0026 U	0.0028 U	**0.0489**	**0.623**	0.0029 U	0.0036 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**3.44**	0.0026 U	0.0033 U	**0.108 J**	0.0026 U	0.0028 U	**0.0088**	**0.0145**	0.0029 U	0.0036 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	1.27 U	0.0026 U	0.0033 UJ	1.41 U	0.0026 U	0.0028 U	0.0032 UJ	0.0029 U	0.0029 U	0.0036 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
1,1-Dichloroethane	0.27	0.27	26	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 UJ	0.0029 U	0.0036 U
1,1-Dichloroethene	0.33	0.33	100	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 UJ	0.0029 U	0.0036 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 UJ	0.0029 U	0.0036 U
1,2-Dichloropropane	NE	NE	NE	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	**0.0057**	0.0029 U	0.0036 U
Isopropylbenzene	NE	2.3*	NE	**16.6**	0.0026 U	**0.002 J**	**2.61**	0.0026 U	0.0028 U	**0.0927**	**0.0469**	0.0029 U	0.0036 U
Methyl acetate	NE	NE	NE	**1.09 J**	0.0026 U	0.0033 U	**0.932 J**	0.0026 U	0.0028 U	0.0032 U	0.0029 UJ	0.0029 U	0.0036 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	5.29 U	0.0261 U	0.0333 U	5.86 U	0.0265 U	0.0277 U	0.0318 U	0.0295 U	0.0291 U	0.0364 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 UJ	0.0029 U	0.0036 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	2.12 UJ	0.0261 U	0.0333 U	2.34 U	0.0265 U	0.0277 U	0.0318 U	0.0295 U	0.0291 U	0.0364 U
Methylcyclohexane	NE	NE	NE	**199 J**	0.0026 U	0.0033 U	**3.9**	0.0026 U	0.0028 U	**40.7**	**3.09**	0.0029 U	0.0036 U
Methylene chloride	0.05	0.05	100	**0.0847 J**	0.013 U	0.0167 U	1.17 U	0.0132 U	0.0138 U	0.0159 U	0.0147 UJ	0.0146 U	0.0182 U
Naphthalene	12	12	100	**139**	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	**0.0559**	**0.0234**	0.0029 U	**0.001 J**
n-Propylbenzene	3.9	3.9	100	**14.5**	0.0026 U	**0.0013 J**	**1.12**	0.0026 U	0.0028 U	**0.0978**	**0.0744**	0.0029 U	0.0036 U
Styrene	NE	NE	NE	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	**0.0017 J**	0.0029 U	0.0036 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.212 U	0.0026 U	0.0033 U	0.234 UJ	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
Tetrahydrofuran	NE	NE	NE	NA	0.0026 U	0.0033 U	NA	0.0026 U	0.0028 U	0.0032 U	0.0029 UJ	0.0029 U	0.0036 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
1,1,2-Trichloroethane	NE	NE	NE	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U
Trichloroethene (TCE)	0.47	0.47	21	0.212 U	0.0026 U	0.0033 U	0.234 U	0.0026 U	0.0028 U	0.0032 U	0.0029 U	0.0029 U	0.0036 U

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Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**27.5 J**	0.0026 U	0.0033 U	**0.689**	0.0026 U	0.0028 U	**0.011**	**0.0551**	0.0029 U	0.0036 U
1,3,5-Trimethylbenzene	8.4	8.4	52	**4.82 J**	0.0026 U	0.0033 U	**0.103 J**	0.0026 U	0.0028 U	**0.0023 J**	**0.0136**	0.0029 U	0.0036 U
Vinyl chloride	0.02	0.02	0.9	0.212 U	0.0052 U	0.0067 U	0.234 U	0.0053 U	0.0055 U	0.0064 U	0.0059 U	0.0058 U	0.0073 U
Total VOCs	NE	NE	NE	**494.8817**	**0.0064**	**0.0104**	**15.4353**	ND	ND	**41.1342**	**4.4905**	ND	**0.001**
PAHs (mg/kg)													
Acenaphthene	20	98	100	**2.76**	**0.0237 J**	0.277 U	**0.676**	0.302 U	0.3 U	**0.19 J**	**1.82**	0.294 U	**0.44**
Acenaphthylene	100	107	100	**4.36**	0.31 U	**0.0492 J**	**0.792**	0.302 U	0.3 U	**0.116 J**	**1.64**	0.294 U	**1.45**
Anthracene	100	1000	100	**1.59**	0.31 U	**0.0171 J**	**1.2**	0.302 U	0.3 U	**0.345**	**2.75**	0.294 U	**1.67**
Benzo(a)anthracene	1	1	1	**1.74**	0.31 U	**0.0461 J**	**4.24**	0.302 U	0.3 U	**0.497**	**4.5**	0.294 U	**4.94**
Benzo(b)fluoranthene	1	1.7	1	**1.31**	0.31 U	**0.0474 J**	**4.66**	0.302 U	0.3 U	**0.361**	**2.62**	0.294 U	**5.57**
Benzo(k)fluoranthene	0.8	1.7	3.9	**0.56**	0.31 U	**0.034 J**	**2**	0.302 U	0.3 U	**0.356**	**1.21 J**	0.294 U	**4.28**
Benzo(g,h,i)perylene	100	1000	100	**0.863**	0.31 U	**0.0369 J**	**1.89**	0.302 U	0.3 U	**0.289**	**1.31**	0.294 U	**4.06**
Benzo(a)pyrene	1	22	1	**1.89**	0.31 U	**0.0523 J**	**5.01**	0.302 U	0.3 U	**0.531**	**3.34**	0.294 U	**7.38**
Chrysene	1	1	3.9	**1.58**	0.31 U	**0.0428 J**	**4.31**	0.302 U	0.3 U	**0.462**	**3.95**	0.294 U	**4.67**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.222 J**	0.31 U	0.277 U	**0.657**	0.302 U	0.3 U	**0.0787 J**	**0.387 J**	0.294 U	**0.956**
Fluoranthene	100	1000	100	**2.37**	0.31 U	**0.0514 J**	**4.95**	0.302 U	0.3 U	**1.03**	**7.2**	0.294 U	**8.82**
Fluorene	30	386	100	**1.28**	0.31 U	0.277 U	**0.107 J**	0.302 U	0.3 U	**0.24 J**	**0.409 J**	0.294 U	**0.524**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**0.813**	0.31 U	**0.0477 J**	**2.42**	0.302 U	0.3 U	**0.344**	**1.32**	0.294 U	**5.09**
2-Methylnaphthalene	NE	36.4*	NE	**3.12**	0.31 U	0.277 U	**0.0523 J**	0.302 U	0.3 U	**0.284**	**1.4**	0.294 U	**0.387**
Naphthalene	12	12	100	**3.81**	0.31 U	**0.0199 J**	**0.256 J**	0.302 U	0.3 U	**0.348**	**1.15 J**	0.294 U	**1.34**
Phenanthrene	100	1000	100	**2.97**	0.31 U	**0.0256 J**	**0.219 J**	0.302 U	0.3 U	**1.11**	**1.31**	0.294 U	**2.79**
Pyrene	100	1000	100	**3.25**	0.31 U	**0.0569 J**	**4.64**	0.302 U	0.3 U	**1.28**	**11.1**	0.294 U	**9.11**
Total PAHs	NE	NE	NE	**34.488**	**0.0237**	**0.5273**	**38.0793**	ND	ND	**7.8617**	**47.416**	ND	**63.477**
MAEPH (mg/kg)													
C-10	NE	NE	NE	**15.7**	NA	NA	NA	NA	NA	**2.01 J**	**8.08**	NA	**1.89**
C-11	NE	NE	NE	**6.14**	NA	NA	NA	NA	NA	**0.658 J**	**3.7**	NA	**0.504 J**
C-12	NE	NE	NE	**31.3**	NA	NA	NA	NA	NA	**1.34**	**3.44**	NA	**5.85**
C-13	NE	NE	NE	**6.24**	NA	NA	NA	NA	NA	**0.821**	1.07 U	NA	**1.31**
C-14	NE	NE	NE	**8.71**	NA	NA	NA	NA	NA	**0.797**	1.07 U	NA	**3.14**
C-15	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	**0.439 J**	1.07 U	NA	**1.66**
C-16	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**1.05**
C-17	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	**0.47 J**	1.07 U	NA	**2.39**
C-18	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**1.18**
C-19	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-20	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-21	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**3.2**
C-22	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-23	NE	NE	NE	**2.31**	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-24	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**3.05**
C-25	NE	NE	NE	**1.39**	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-26	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**1.73**
C-27	NE	NE	NE	**1.69**	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**5.6**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
C-28	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**1.68**
C-29	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**11.1**
C-30	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**3.67**
C-31	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**1.77**
C-32	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**5.19**
C-33	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	**0.969 J**	NA	**26.4**
C-34	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	**0.82 J**	NA	0.516 U
C-35	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**2.39**
C-36	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-37	NE	NE	NE	**0.815 J**	NA	NA	NA	NA	NA	0.608 U	**0.542 J**	NA	**7.05**
C-38	NE	NE	NE	**1.68**	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	**3.87**
C-39	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-40	NE	NE	NE	1.15 U	NA	NA	NA	NA	NA	0.608 U	1.07 U	NA	0.516 U
C-8	NE	NE	NE	**21.3**	NA	NA	NA	NA	NA	**9.68**	**18.4 J**	NA	**0.451 J**
C-9	NE	NE	NE	**6.55**	NA	NA	NA	NA	NA	**1.55 J**	**7.79**	NA	**0.309 J**
Other SVOCs (mg/kg)													
Acetophenone	NE	NE	NE	0.424 U	0.31 U	0.277 U	**0.118 J**	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.173**	0.031 U	0.0277 U	0.0466 U	0.0302 U	0.03 U	**0.0242 J**	0.128 U	0.0294 U	**0.111**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	**0.169 J**	0.31 U	0.277 U	0.466 U	0.302 UJ	0.3 U	**0.0489 J**	**0.449 J**	0.294 UJ	0.288 U
Butyl benzyl phthalate	NE	122*	NE	0.424 U	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
Caprolactam	NE	NE	NE	**2.36**	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	**0.525**	1.28 U	0.294 U	**0.157 J**
Carbazole	NE	NE	NE	0.424 U	0.31 U	0.277 U	**0.113 J**	0.302 U	0.3 U	**0.0517 J**	1.28 U	0.294 U	**0.128 J**
2-Chloronaphthalene	NE	NE	NE	**0.137 J**	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
Dibenzofuran	7	210, 6.2*	59	**0.245 J**	0.31 U	0.277 U	**0.0851 J**	0.302 U	0.3 U	**0.158 J**	1.28 U	0.294 U	**0.669**
Diethyl phthalate	NE	7.1*	NE	0.424 U	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
2,4-Dimethylphenol	NE	NE	NE	0.424 U	0.31 U	0.277 U	**0.359 J**	0.302 U	0.3 U	0.264 U	**2.44**	0.294 U	**0.036 J**
Di-n-butyl phthalate	NE	8.1*	NE	0.424 U	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
2,6-Dinitrotoluene	NE	1*	NE	0.424 U	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
Di-n-octyl phthalate	NE	120*	NE	0.848 U	0.619 U	0.554 U	0.933 U	0.605 U	0.6 U	0.528 U	2.55 U	0.588 U	0.576 U
2-Methylnaphthalene	NE	36.4*	NE	**3.12**	0.31 U	0.277 U	**0.0523 J**	0.302 U	0.3 U	**0.284**	**1.4**	0.294 U	**0.387**
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.424 U	0.31 U	0.277 U	0.466 U	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	**0.0339 J**
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	0.424 U	0.31 U	0.277 U	**0.102 J**	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	**0.0983 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.848 U	0.619 U	0.554 U	0.933 U	0.605 U	0.6 U	0.528 U	2.55 U	0.588 U	0.576 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	**0.424**	0.31 U	0.277 U	**0.337 J**	0.302 U	0.3 U	0.264 U	1.28 U	0.294 U	0.288 U
Phenol	0.33	0.33	100	0.424 U	0.31 U	0.277 U	0.466 U	0.302 UJ	0.3 U	0.264 U	1.28 UJ	0.294 UJ	0.288 U
Total SVOCs	NE	NE	NE	**37.996**	**0.0237**	**0.5273**	**39.1934**	ND	ND	**8.6695**	**50.305**	ND	**64.7102**
Alkylated PAHs (mg/kg)													
Acenaphthene	20	98	100	**11.7**	NA	NA	NA	NA	NA	**0.355**	**1.99 J**	NA	**14.9 J**
Acenaphthylene	100	107	100	**3.15**	NA	NA	NA	NA	NA	**0.286**	**0.942**	NA	**12.4 J**
Anthracene	100	1000	100	**7.11**	NA	NA	NA	NA	NA	**0.672**	**1.27**	NA	**55.5 J**
Benzene	0.06	0.06	4.8	**0.545**	NA	NA	NA	NA	NA	**0.239**	**0.478 J**	NA	**1.24 J**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
C1-Benzene	NE	NE	NE	**0.378 JN**	NA	NA	NA	NA	NA	**0.256 JN**	**1.07 JN**	NA	0.595 U
C2-Benzenes	NE	NE	NE	**2.7 JN**	NA	NA	NA	NA	NA	**0.541 JN**	**2.68 JN**	NA	**0.97 JN**
C3-Benzenes	NE	NE	NE	**11.2 JN**	NA	NA	NA	NA	NA	**1.08 JN**	**3.49 JN**	NA	**0.644 JN**
C4-Benzenes	NE	NE	NE	**19.1 JN**	NA	NA	NA	NA	NA	**2.35 JN**	**7.86 JN**	NA	**0.983 JN**
C5-Benzenes	NE	NE	NE	**12.9 JN**	NA	NA	NA	NA	NA	**1.46 JN**	**7.08 JN**	NA	**2.27 JN**
Benzo(a)anthracene	1	1	1	**6.34**	NA	NA	NA	NA	NA	**1.16**	**1.13 J**	NA	**57 J**
Benzo(b)fluoranthene	1	1.7	1	**4.54**	NA	NA	NA	NA	NA	**1 J**	**0.721 J**	NA	**44.6 J**
Benzo(j,k)fluoranthene	NE	NE	NE	**4.43**	NA	NA	NA	NA	NA	**0.843**	**0.676 J**	NA	**35.3 J**
Benzo(b)fluorene	NE	NE	NE	**1.32**	NA	NA	NA	NA	NA	**0.18**	**0.21**	NA	**9.01 J**
Benzo(c)fluorene	NE	NE	NE	**0.572**	NA	NA	NA	NA	NA	**0.0644**	**0.119**	NA	**3.66 J**
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	**1.01**	NA	NA	NA	NA	NA	**0.134**	**0.201**	NA	**5.36 J**
Benzo(g,h,i)perylene	100	1000	100	**3.07**	NA	NA	NA	NA	NA	**0.693**	**0.75**	NA	**28.2 J**
Benzo(a)pyrene	1	22	1	**6.82**	NA	NA	NA	NA	NA	**1.23**	**1.13 J**	NA	**54.1 J**
Benzo(e)pyrene	NE	NE	NE	**3.53**	NA	NA	NA	NA	NA	**0.761**	**0.664**	NA	**30.1 J**
Benzothiophene (1-Benzothiophene)	NE	NE	NE	**0.529**	NA	NA	NA	NA	NA	**0.0317**	0.0107 U	NA	**0.357 J**
C1-Benzo(b)thiophenes	NE	NE	NE	**1.92 JN**	NA	NA	NA	NA	NA	**0.0737 JN**	**0.52 JN**	NA	**0.442 JN**
C2-Benzo(b)thiophenes	NE	NE	NE	**2.32 JN**	NA	NA	NA	NA	NA	**0.0679 JN**	**0.477 JN**	NA	**0.804 JN**
C3-Benzo(b)thiophenes	NE	NE	NE	**2.38 JN**	NA	NA	NA	NA	NA	**0.0523 JN**	**0.597 JN**	NA	**0.752 JN**
C4-Benzo(b)thiophenes	NE	NE	NE	**1.88 JN**	NA	NA	NA	NA	NA	**0.0324 JN**	**0.457 JN**	NA	**0.301 JN**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**0.932**	NA	NA	NA	NA	NA	**0.0259**	**0.0636**	NA	**0.403 J**
n-Butylbenzene	12	12	100	**1.55**	NA	NA	NA	NA	NA	**0.418**	**0.831**	NA	**0.0753 J**
sec-Butylbenzene	11	11	100	**2.35**	NA	NA	NA	NA	NA	**0.446**	**0.919**	NA	**0.0704 J**
tert-Butylbenzene	5.9	5.9	100	**0.47**	NA	NA	NA	NA	NA	**0.129**	**0.166**	NA	**0.0224 J**
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	**4.65 JN**	NA	NA	NA	NA	NA	**0.583 JN**	**1.05 JN**	NA	**20.1 JN**
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	**2.81 JN**	NA	NA	NA	NA	NA	**0.332 JN**	**0.727 JN**	NA	**8.8 JN**
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	**1.56 JN**	NA	NA	NA	NA	NA	**0.191 JN**	**0.485 JN**	NA	**4.89 JN**
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	**0.826 JN**	NA	NA	NA	NA	NA	**0.106 JN**	**0.303 JN**	NA	**2.37 JN**
Chrysene/triphenylene	NE	NE	NE	**5.37**	NA	NA	NA	NA	NA	**1.02**	**0.959 J**	NA	**45.5 J**
Coronene	NE	NE	NE	**0.829**	NA	NA	NA	NA	NA	**0.175**	**0.245**	NA	**7.09 J**
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	**1.42**	NA	NA	NA	NA	NA	**0.0977**	**0.259**	NA	**0.0815 J**
cis-Decalin	NE	NE	NE	**2.26**	NA	NA	NA	NA	NA	**0.259**	**1.43**	NA	**0.188 J**
trans-Decalin	NE	NE	NE	**11.3**	NA	NA	NA	NA	NA	**1.86**	**6.62**	NA	**1.03 J**
C1-Decalins	NE	NE	NE	**47.4 JN**	NA	NA	NA	NA	NA	**3.83 JN**	**26.8 JN**	NA	**3.28 JN**
C2-Decalins	NE	NE	NE	**36.9 JN**	NA	NA	NA	NA	NA	**2.35 JN**	**20 JN**	NA	**3.97 JN**
C3-Decalins	NE	NE	NE	**17.6 JN**	NA	NA	NA	NA	NA	**0.94 JN**	**8.77 JN**	NA	**3.11 JN**
C4-Decalins	NE	NE	NE	**14.6 JN**	NA	NA	NA	NA	NA	**0.606 JN**	**8.07 JN**	NA	**3.09 JN**
Dibenz(a,h)anthracene	0.33	1000	0.33	**1.3**	NA	NA	NA	NA	NA	**0.21**	**0.265**	NA	**8.97 J**
Dibenzofuran	7	210, 6.2*	59	**1.17**	NA	NA	NA	NA	NA	**0.26**	**0.199**	NA	**15.1 J**
Dibenzothiophene	NE	NE	NE	**1.78**	NA	NA	NA	NA	NA	**0.168**	**0.237**	NA	**9.08 J**
C1-Dibenzothiophenes	NE	NE	NE	**3.43 JN**	NA	NA	NA	NA	NA	**0.152 JN**	**0.819 JN**	NA	**4.53 JN**
C2-Dibenzothiophenes	NE	NE	NE	**4.18 JN**	NA	NA	NA	NA	NA	**0.163 JN**	**1.11 JN**	NA	**2.69 JN**

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
C3-Dibenzothiophenes	NE	NE	NE	**2.94 JN**	NA	NA	NA	NA	NA	**0.0997 JN**	**0.838 JN**	NA	**1.26 JN**
C4-Dibenzothiophenes	NE	NE	NE	**1.55 JN**	NA	NA	NA	NA	NA	**0.0632 JN**	**0.43 JN**	NA	**0.608 JN**
Ethylbenzene	1	1	41	**2.21**	NA	NA	NA	NA	NA	**0.25**	**0.67 J**	NA	**0.21 J**
Fluoranthene	100	1000	100	**9.85**	NA	NA	NA	NA	NA	**2.18**	**1.69 J**	NA	**124 J**
C1-Fluoranthenes/pyrenes	NE	NE	NE	**10.5 JN**	NA	NA	NA	NA	NA	**1.21 JN**	**2.28 JN**	NA	**52.4 JN**
C2-Fluoranthenes/pyrenes	NE	NE	NE	**4.44 JN**	NA	NA	NA	NA	NA	**0.489 JN**	**1.15 JN**	NA	**15.9 JN**
C3-Fluoranthenes/pyrenes	NE	NE	NE	**2.48 JN**	NA	NA	NA	NA	NA	**0.252 JN**	**0.742 JN**	NA	**6.32 JN**
Fluorene	30	386	100	**4.53**	NA	NA	NA	NA	NA	**0.436**	**0.451**	NA	**27.5 J**
C1-Fluorenes	NE	NE	NE	**3.72 JN**	NA	NA	NA	NA	NA	**0.217 JN**	**1.36 JN**	NA	**9.97 JN**
C2-Fluorenes	NE	NE	NE	**3.94 JN**	NA	NA	NA	NA	NA	**0.199 JN**	**2.48 JN**	NA	**5.23 JN**
C3-Fluorenes	NE	NE	NE	**3.31 JN**	NA	NA	NA	NA	NA	**0.192 JN**	**1.86 JN**	NA	**3.14 JN**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**4.52**	NA	NA	NA	NA	NA	**0.915**	**0.91 J**	NA	**39.5 J**
Isopropylbenzene	NE	NE	NE	**2.92**	NA	NA	NA	NA	NA	**0.555**	**0.94**	NA	**0.0394 J**
Methylcyclohexane	NE	NE	NE	**13.2 J**	NA	NA	NA	NA	NA	**14.7 J**	**3.48 J**	NA	**0.2 J**
1-Methylnaphthalene	NE	NE	NE	**15.9**	NA	NA	NA	NA	NA	**0.405**	**1.91 J**	NA	**3.33 J**
2-Methylnaphthalene	NE	36.4*	NE	**16.4**	NA	NA	NA	NA	NA	**0.459**	**0.825**	NA	**1.49 J**
1-Methylpyrene	NE	NE	NE	**1.19**	NA	NA	NA	NA	NA	**0.108**	**0.308**	NA	**4.06 J**
2-Methylpyrene	NE	NE	NE	**1.5**	NA	NA	NA	NA	NA	**0.163**	**0.399**	NA	**6.27 J**
Naphthalene	12	12	100	**19.8**	NA	NA	NA	NA	NA	**0.501**	**1.15**	NA	**5.05 J**
C1-Naphthalenes	NE	NE	NE	**19.9 JN**	NA	NA	NA	NA	NA	**0.534 JN**	**1.64 JN**	NA	**2.96 JN**
C2-Naphthalenes	NE	NE	NE	**20 JN**	NA	NA	NA	NA	NA	**0.796 JN**	**3.94 JN**	NA	**7.71 JN**
C3-Naphthalenes	NE	NE	NE	**18.4 JN**	NA	NA	NA	NA	NA	**0.666 JN**	**7.59 JN**	NA	**12.4 JN**
C4-Naphthalenes	NE	NE	NE	**11.1 JN**	NA	NA	NA	NA	NA	**0.405 JN**	**5.24 JN**	NA	**5.85 JN**
C1-Naphthobenzothiophenes	NE	NE	NE	**1.68 JN**	NA	NA	NA	NA	NA	**0.165 JN**	**0.391 JN**	NA	**4.65 JN**
C2-Naphthobenzothiophenes	NE	NE	NE	**1.34 JN**	NA	NA	NA	NA	NA	**0.148 JN**	**0.349 JN**	NA	**2.31 JN**
C3-Naphthobenzothiophenes	NE	NE	NE	**0.887 JN**	NA	NA	NA	NA	NA	**0.0886 JN**	**0.265 JN**	NA	**1.51 JN**
C4-Naphthobenzothiophenes	NE	NE	NE	**0.394 JN**	NA	NA	NA	NA	NA	**0.033 JN**	**0.14 JN**	NA	**0.39 JN**
Perylene	NE	NE	NE	**1.47**	NA	NA	NA	NA	NA	**0.303**	**0.217**	NA	**13.9 J**
Phenanthrene	100	1000	100	**13.2**	NA	NA	NA	NA	NA	**2.17**	**1.61 J**	NA	**129 J**
C1-Phenanthrenes/anthracenes	NE	NE	NE	**13.6 JN**	NA	NA	NA	NA	NA	**1.03 JN**	**3.35 JN**	NA	**45 JN**
C2-Phenanthrenes/anthracenes	NE	NE	NE	**9.46 JN**	NA	NA	NA	NA	NA	**0.643 JN**	**3.2 JN**	NA	**19.1 JN**
C3-Phenanthrenes/anthracenes	NE	NE	NE	**4.41 JN**	NA	NA	NA	NA	NA	**0.318 JN**	**1.51 JN**	NA	**6.8 JN**
C4-Phenanthrenes/anthracenes	NE	NE	NE	**1.98 JN**	NA	NA	NA	NA	NA	**0.157 JN**	**0.607 JN**	NA	**2.24 JN**
n-Propylbenzene	3.9	3.9	100	**2.92**	NA	NA	NA	NA	NA	**0.96**	**1.44**	NA	**0.0828 J**
Pyrene	100	1000	100	**11.2**	NA	NA	NA	NA	NA	**2.12**	**2.63 J**	NA	**109 J**
Retene	NE	NE	NE	**0.956**	NA	NA	NA	NA	NA	**0.0961**	**0.134**	NA	**1.19 J**
Styrene	NE	NE	NE	**0.879**	NA	NA	NA	NA	NA	**0.0321**	**0.153**	NA	**0.777 J**
Toluene	0.7	0.7	100	**0.439 J**	NA	NA	NA	NA	NA	**0.298 J**	**1.25 J**	NA	0.685 U
1,2,3-Trimethylbenzene	NE	NE	NE	**2.54**	NA	NA	NA	NA	NA	**0.0679**	**0.48**	NA	**0.0816 J**
1,2,4-Trimethylbenzene	3.6	3.6	52	**5.04**	NA	NA	NA	NA	NA	**0.212**	**1.29**	NA	**0.29 J**
1,3,5-Trimethylbenzene	8.4	8.4	52	**1.23**	NA	NA	NA	NA	NA	**0.0555**	**0.376**	NA	**0.0691 J**
o-Xylene	0.26	1.6	100	**0.341**	NA	NA	NA	NA	NA	**0.11**	**0.741**	NA	**0.132 J**

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
m/p-Xylene	0.26	1.6	100	**1.8**	NA	NA	NA	NA	NA	**0.548**	**2.6 J**	NA	**1.11 J**
4-methylpyrene	NE	NE	NE	**1.33**	NA	NA	NA	NA	NA	**0.135**	**0.371**	NA	**4.45 J**
PFAS (mg/kg)													
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)													
Phytane (C20)	NE	NE	NE	**9.23**	NA	NA	NA	NA	NA	**1.38**	**6.16**	NA	**7.21**
Pristane (C19)	NE	NE	NE	**14.9**	NA	NA	NA	NA	NA	**2.13**	**9.39**	NA	**10.1**
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	**20.6**	NA	NA	NA	NA	NA	**2.07**	**12.4**	NA	**6.81**
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	**17.2**	NA	NA	NA	NA	NA	**2.04**	**8.27**	NA	**8.59**
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	**21.6**	NA	NA	NA	NA	NA	**1.92**	**10.9**	NA	**11.8**
PCB Aroclors (mg/kg)													
Aroclor 1242	NE	NE	NE	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	0.06 U
Aroclor 1248	NE	NE	NE	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	0.06 U
Aroclor 1254	NE	NE	NE	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	0.06 U
Aroclor 1260	NE	NE	NE	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	0.06 U
Aroclor 1268	NE	NE	NE	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	0.06 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	ND	NA	NA	NA	ND	NA	NA	ND
Pesticides (mg/kg)													
Aldrin	0.005	0.19	0.097	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	0.0017 U	NA	NA	NA	0.0016 U	NA	NA	0.0016 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Chlordane (Technical)	NE	NE	NE	NA	NA	0.0339 U	NA	NA	NA	0.0311 U	NA	NA	0.0327 U
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
gamma-Chlordane	NE	14*	NE	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Dieldrin	0.005	0.1	0.2	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
alpha-Endosulfan (I)	2.4	102	24	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Endosulfan sulfate	2.4	1000	24	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Endrin	0.014	0.06	11	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Endrin aldehyde	NE	NE	NE	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Endrin ketone	NE	NE	NE	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Heptachlor	0.042	0.38	2.1	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U

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Sample Location				Adjacent to Parcel 6 N. 12th St									
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Heptachlor epoxide	NE	0.02*	NE	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Methoxychlor	NE	900*	NE	NA	NA	0.0028 U	NA	NA	NA	0.0026 U	NA	NA	0.0027 U
Herbicides (mg/kg)													
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.2 U	NA	NA	NA	0.197 U	NA	NA	0.2 U
Dicamba	NE	NE	NE	NA	NA	0.01 U	NA	NA	NA	**0.026 JN**	NA	NA	0.01 U
Dichloroprop	NE	NE	NE	NA	NA	0.2 U	NA	NA	NA	0.197 U	NA	NA	0.2 U
Mecoprop (MCPP)	NE	NE	NE	NA	NA	20 U	NA	NA	NA	19.7 U	NA	NA	**11.2 J**
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	19.8 U	NA	NA	NA	19.5 U	NA	NA	19.8 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	0.01 U	NA	NA	NA	0.01 U	NA	NA	0.01 U
Metals (mg/kg)													
Aluminum	NE	NE	NE	**5690**	**298**	**7460**	**7470**	**528**	**667**	**4430**	**982**	**661**	**4900**
Antimony	NE	NE	NE	3.32 U	2.41 U	2.69 U	3.59 U	3.95 U	2.48 U	2.34 U	2.78 U	4.14 U	2.57 U
Arsenic	13	16	16	**20.4**	**0.74 J**	**5.15**	**69.8**	1.97 U	**0.68 J**	**5.09**	**31.1**	**1.16 J**	**13.7**
Barium	350	820	400	**39**	**2.54 J**	**66.7**	**43.4**	**3.05 J**	**4.35 J**	**32.5**	**8.72 J**	**5.03 J**	**43.7**
Beryllium	7.2	47	72	**0.35 J**	0.53 U	**0.49 J**	**0.33 J**	0.87 U	0.55 U	**0.36 J**	0.61 U	0.91 U	**0.37 J**
Cadmium	2.5	7.5	4.3	2.66 U	0.96 UJ	2.15 U	2.87 U	1.58 UJ	0.99 UJ	1.87 U	1.11 UJ	1.66 UJ	2.06 U
Calcium	NE	NE	NE	**2370 J**	**62.4 J**	**3360 J**	**1280 J**	**1120 J**	**876 J**	**5510**	**928 J**	**87.9 J**	**13200**
Chromium	30	NE	180	**13.9**	4.81 U	**14.1 J**	**23**	7.9 U	**1.45 J**	**8.98 J**	**4.03 J**	**2.11 J**	**12**
Cobalt	NE	NE	NE	**6.81 J**	4.81 U	**5.98 J**	**7 J**	7.9 U	**0.84 J**	**3.32 J**	**1.4 J**	8.28 U	**3.28 J**
Copper	50	1720	270	**180**	12 UJ	**21.9 J**	**57.8**	19.7 UJ	12.4 UJ	**18.2 J**	**23.8 J**	20.7 UJ	**52.6**
Iron	NE	NE	NE	**14000**	**1110 J**	**16900 J**	**18500**	**1040 J**	**1330 J**	**11700**	**2430 J**	**2610 J**	**10200**
Lead	63	450	400	**133**	24.1 U	**40.2 J**	**135**	39.5 U	24.8 U	**35.2 J**	**36.7**	41.4 U	**169**
Magnesium	NE	NE	NE	**2270 J**	**116 J**	**2750 J**	**2750 J**	**652 J**	**600 J**	**2290**	**395 J**	**238 J**	**3260**
Manganese	1600	2000	2000	**326**	**6.93**	**275**	**211**	**31.1**	**42.4**	**254**	**15.7**	**9.48**	**204**
Mercury	0.18	0.73	0.81	**0.592**	0.012 U	**0.068**	**5.41**	0.027 U	0.012 U	**0.095**	**11.6**	0.024 U	**0.315**
Nickel	30	130	310	**12.3 J**	12 U	**12.9 J**	**14.8 J**	19.7 U	12.4 U	**11.5 J**	**2.8 J**	20.7 U	**20.9 J**
Potassium	NE	NE	NE	**1130 J**	1200 UJ	**1150 J**	**2480 J**	1970 UJ	1240 UJ	**841 J**	**391 J**	**351 J**	**733 J**
Selenium	3.9	4	180	3.32 U	1.2 UJ	**1.08 J**	3.59 U	1.97 UJ	1.24 UJ	2.34 U	1.39 UJ	2.07 UJ	2.57 U
Silver	2	8.3	180	2.66 U	0.96 U	2.15 U	2.87 U	1.58 U	0.99 U	1.87 U	1.11 U	1.66 U	2.06 U
Sodium	NE	NE	NE	**1140 J**	1200 U	**672 J**	**1110 J**	1970 U	1240 U	**475 J**	**212 J**	2070 U	**391 J**
Thallium	NE	NE	NE	3.32 U	1.2 U	2.69 U	3.59 U	1.97 U	1.24 U	2.34 U	1.39 U	2.07 U	2.57 U
Tin	NE	NE	NE	66.5 U	24.1 U	53.7 U	71.7 U	39.5 U	24.8 U	46.8 UJ	27.8 U	41.4 U	51.5 UJ
Vanadium	NE	NE	NE	**21.3**	**1.41 J**	**21.6**	**23.2**	**1.42 J**	**1.97 J**	**15.5**	**3.21 J**	**2.64 J**	**15.5**
Zinc	109	2480	10000	**69.4**	**2.66 J**	**73.9 J**	**171**	19.7 UJ	**3.92 J**	**48.5**	**111 J**	**4.53 J**	**111**
Cyanides (mg/kg)													
Free Cyanide	NE	NE	NE	0.326 U	0.242 U	0.219 U	0.36 U	0.248 U	0.243 U	0.216 U	0.269 U	0.238 U	0.221 U
Biomarkers (mg/kg)													
C23 Tricyclic Terpane (T4)	NE	NE	NE	**0.165**	NA	NA	NA	NA	NA	**0.0175**	**0.0722**	NA	**0.0422**
C24 Tricyclic Terpane (T5)	NE	NE	NE	**0.0791**	NA	NA	NA	NA	NA	**0.0131**	**0.0385**	NA	**0.0364**
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	**0.0451**	NA	NA	NA	NA	NA	**0.00714**	**0.0207**	NA	**0.0249 J**

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	**0.0289**	NA	NA	NA	NA	NA	**0.00784**	**0.016**	NA	0.0258 U
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	**0.0626**	NA	NA	NA	NA	NA	**0.00426 J**	**0.0261**	NA	0.0258 U
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	**0.0344**	NA	NA	NA	NA	NA	**0.00675**	**0.0146**	NA	**0.0156 J**
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	**0.0319**	NA	NA	NA	NA	NA	**0.00534 J**	**0.0143**	NA	0.0258 U
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	**0.0337**	NA	NA	NA	NA	NA	**0.0056 J**	**0.0135**	NA	**0.0164 J**
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	**0.0345**	NA	NA	NA	NA	NA	**0.0056 J**	**0.0146**	NA	0.0258 U
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	**0.0344**	NA	NA	NA	NA	NA	**0.00454 J**	**0.0111**	NA	**0.0198 J**
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	**0.0354**	NA	NA	NA	NA	NA	**0.00463 J**	**0.0124**	NA	**0.02 J**
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	**0.135**	NA	NA	NA	NA	NA	**0.00856**	**0.0639**	NA	**0.0156 J**
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	**0.172**	NA	NA	NA	NA	NA	**0.0106**	**0.0845**	NA	**0.0418**
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	**0.0342**	NA	NA	NA	NA	NA	**0.00518 J**	**0.0108**	NA	0.0258 U
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	**0.0346**	NA	NA	NA	NA	NA	**0.00373 J**	**0.0211**	NA	0.0258 U
C30 Tricyclic Terpane-22R	NE	NE	NE	**0.0531**	NA	NA	NA	NA	NA	**0.00613**	**0.0331**	NA	**0.0331**
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	**0.0261**	NA	NA	NA	NA	NA	**0.00322 J**	**0.0122**	NA	**0.0197 J**
30-Norhopane (T15)	NE	NE	NE	**0.541**	NA	NA	NA	NA	NA	**0.0217**	**0.233**	NA	**0.0866**
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	**0.138**	NA	NA	NA	NA	NA	**0.00653**	**0.0693**	NA	**0.0243 J**
17a(H)-Diahopane (X)	NE	NE	NE	**0.0371**	NA	NA	NA	NA	NA	**0.00317 J**	**0.0206**	NA	0.0258 U
30-Normoretane (T17)	NE	NE	NE	**0.0921**	NA	NA	NA	NA	NA	**0.00373 J**	**0.0551**	NA	**0.0141 J**
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	**0.0607**	NA	NA	NA	NA	NA	0.00608 U	**0.0631**	NA	0.0258 U
Hopane (T19)	NE	NE	NE	**0.798**	NA	NA	NA	NA	NA	**0.0311**	**0.401**	NA	**0.111**
Moretane (T20)	NE	NE	NE	**0.0248**	NA	NA	NA	NA	NA	**0.00429 J**	**0.0259**	NA	0.0258 U
30-Homohopane-22S (T21)	NE	NE	NE	**0.222**	NA	NA	NA	NA	NA	**0.0116**	**0.11**	NA	**0.0508**
30-Homohopane-22R (T22)	NE	NE	NE	**0.193**	NA	NA	NA	NA	NA	**0.0126**	**0.0847**	NA	**0.0451**
Gammacerane	NE	NE	NE	0.0115 U	NA	NA	NA	NA	NA	0.00608 U	0.0107 U	NA	0.0258 U
30,31-Bishomohopane-22S (T26)	NE	NE	NE	**0.151**	NA	NA	NA	NA	NA	**0.00923**	**0.078**	NA	**0.0373**
30,31-Bishomohopane-22R (T27)	NE	NE	NE	**0.119**	NA	NA	NA	NA	NA	**0.00679**	**0.0747**	NA	**0.0382**
30,31-Trishomohopane-22S (T30)	NE	NE	NE	**0.0818**	NA	NA	NA	NA	NA	**0.00428 J**	**0.0411**	NA	**0.0295**
30,31-Trishomohopane-22R (T31)	NE	NE	NE	**0.0513**	NA	NA	NA	NA	NA	**0.00534 J**	**0.0315**	NA	**0.0243 J**
Tetrakishomohopane-22S (T32)	NE	NE	NE	**0.0456**	NA	NA	NA	NA	NA	**0.00318 J**	**0.0306**	NA	0.0258 U
Tetrakishomohopane-22R (T33)	NE	NE	NE	**0.0555**	NA	NA	NA	NA	NA	**0.0114**	**0.0279**	NA	**0.0308**
Pentakishomohopane-22S (T34)	NE	NE	NE	**0.0408**	NA	NA	NA	NA	NA	0.00608 U	**0.0321**	NA	**0.026**
Pentakishomohopane-22R (T35)	NE	NE	NE	**0.0285**	NA	NA	NA	NA	NA	0.00608 U	**0.0266**	NA	0.0258 U
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	**0.101**	NA	NA	NA	NA	NA	**0.0174**	**0.0357**	NA	**0.0448**
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	**0.0574**	NA	NA	NA	NA	NA	**0.00876**	**0.0204**	NA	0.0258 U
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	**0.0535**	NA	NA	NA	NA	NA	**0.00807**	**0.0209**	NA	0.0258 U
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	**0.211**	NA	NA	NA	NA	NA	**0.0265**	**0.0924**	NA	**0.103**
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	**0.144**	NA	NA	NA	NA	NA	**0.0102**	**0.0411**	NA	**0.0476**
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	**0.133**	NA	NA	NA	NA	NA	**0.0102**	**0.0414**	NA	**0.0319**
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	**0.246**	NA	NA	NA	NA	NA	**0.0324**	**0.132**	NA	**0.156**
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	**0.0182**	NA	NA	NA	NA	NA	0.00608 U	**0.00871 J**	NA	0.0258 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-246B (10-13) 9/23/2022	WW-SB-246B (30-35) 9/27/2022	WW-SB-247A (0-5) 7/27/2022	WW-SB-247B (10-15) 9/23/2022	WW-SB-247B (35-40) 9/27/2022	Duplicate of WW-SB-247B (35-40) 9/27/2022	WW-SB-248A (0-5) 7/29/2022	WW-SB-248B (5-14) 9/22/2022	WW-SB-248B (20-25) 9/27/2022	WW-SB-249A (0-5) 7/28/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	**0.0365**	NA	NA	NA	NA	NA	0.00608 U	**0.0207**	NA	**0.0307**
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	**0.104**	NA	NA	NA	NA	NA	**0.00874**	**0.0566**	NA	**0.0841**
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	**0.122**	NA	NA	NA	NA	NA	**0.0104**	**0.0531**	NA	**0.0289**
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	**0.174**	NA	NA	NA	NA	NA	**0.0172**	**0.072**	NA	**0.0434**
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	**0.0987**	NA	NA	NA	NA	NA	**0.00927**	**0.0335**	NA	**0.0262**
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	**0.146**	NA	NA	NA	NA	NA	**0.0133**	**0.0653**	NA	**0.0923**
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	**0.228**	NA	NA	NA	NA	NA	**0.0238**	**0.111**	NA	**0.0623**
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	**0.111**	NA	NA	NA	NA	NA	**0.0152**	**0.0618**	NA	**0.0482**
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	**0.183**	NA	NA	NA	NA	NA	**0.0128**	**0.067**	NA	**0.0537**
Other (mg/kg)													
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	**387 J**	NA	NA	NA	NA	NA	**126**	**1840**	NA	**114**
C19-C36 Aliphatics	NE	NE	NE	289 R	NA	NA	NA	NA	NA	78.7 U	**379 J**	NA	**128**
C11-C22 Aromatics	NE	NE	NE	**384 J**	NA	NA	NA	NA	NA	78.7 U	**625 J**	NA	**221**
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	**476 J**	NA	NA	NA	NA	NA	78.7 U	**634 J**	NA	**334**
Total Petroleum Hydrocarbons	NE	NE	NE	**1930 J**	NA	NA	NA	NA	NA	**551**	**4180**	NA	**912**
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	**6210**	NA	NA	NA	NA	NA	**636**	**3320**	NA	**2850**
C9-C40	NE	NE	NE	**7740**	NA	NA	NA	NA	NA	**1050**	**4150**	NA	**3940**

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
BTEX (mg/kg)													
Benzene	0.06	0.06	4.8	**4.89**	**9.37**	0.0031 U	**0.0025 J**	0.0034 U	**0.0287 J**	**7.94**	**7.71**	0.0029 U	0.0033 U
Toluene	0.7	0.7	100	**1.61**	**1.72**	0.0031 U	0.0035 U	0.0034 U	**0.0097 J**	**0.0747 J**	**0.0219 J**	0.0029 U	0.0033 U
Ethylbenzene	1	1	41	**82.3**	**79.1**	0.0031 U	0.0035 U	0.0034 U	**0.0109 J**	**44.9**	**38.2**	0.0029 U	0.0033 U
o-Xylene	0.26	1.6	100	**39**	**36.9**	0.0031 U	0.0035 U	0.0034 U	**0.0199 J**	**2.24**	**2.14**	0.0029 U	0.0033 U
m/p-Xylene	0.26	1.6	100	**33.2**	**39.3**	0.0061 U	0.0071 U	0.0067 U	**0.0154 J**	**1.67 J**	**0.183 J**	0.0059 U	0.0066 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**161**	**166.39**	ND	**0.0025**	ND	**0.0846**	**56.8247**	**48.2549**	ND	ND
Other VOCs (mg/kg)													
Acetone	0.05	0.05	100	9.99 U	0.0373 UJ	0.0306 UJ	0.0353 UJ	**0.0349 J**	**0.131 J**	0.0424 UJ	0.0444 UJ	0.0294 UJ	**0.0144 J**
n-Butylbenzene	12	12	100	**3.11 J**	**3.33**	0.0031 U	0.0035 U	0.0034 U	**0.0477 J**	0.0042 U	0.0044 U	0.0029 U	0.0033 U
sec-Butylbenzene	11	11	100	**1.54**	**0.0432**	0.0031 U	0.0035 U	0.0034 U	**0.0294 J**	**1.96**	**2.53**	0.0029 U	0.0033 U
tert-Butylbenzene	5.9	5.9	100	**0.527**	0.0037 U	0.0031 U	0.0035 U	0.0034 U	**0.0043 J**	**0.0952 J**	**0.0192 J**	0.0029 U	0.0033 U
Carbon disulfide	NE	2.7*	NE	**0.639**	**0.0102**	0.0031 U	0.0035 U	0.0034 U	**0.0025 J**	**0.0206 J**	**0.0063**	0.0029 U	0.0033 U
Chlorobenzene	1.1	1.1	100	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Cyclohexane	NE	NE	NE	**3.62 J**	**6.28**	0.0031 U	0.0035 U	0.0034 U	**0.0043 J**	**5.98**	**6.2**	0.0029 U	0.0033 U
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**8.91**	**9.5**	0.0031 U	0.0035 U	0.0034 U	**0.0253 J**	**6.44**	**7.85**	0.0029 U	0.0033 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	2.4 U	0.0037 U	0.0031 U	0.0035 UJ	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 UJ
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
1,1-Dichloroethane	0.27	0.27	26	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
1,1-Dichloroethene	0.33	0.33	100	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
trans-1,2-Dichloroethene	0.19	0.19	100	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
1,2-Dichloropropane	NE	NE	NE	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Isopropylbenzene	NE	2.3*	NE	**11.5**	**9.05**	0.0031 U	0.0035 U	0.0034 U	**0.0954 J**	**14.4**	**17.3**	0.0029 U	0.0033 U
Methyl acetate	NE	NE	NE	**1.72 J**	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	9.99 U	0.0373 U	0.0306 U	0.0353 U	0.0337 U	**0.0112 J**	0.0424 U	0.0444 U	0.0294 U	0.0332 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	3.99 UJ	0.0373 U	0.0306 U	0.0353 U	0.0337 U	0.0389 UJ	0.0424 U	0.0444 U	0.0294 U	0.0332 U
Methylcyclohexane	NE	NE	NE	**10.4 J**	**16.6**	0.0031 U	**0.0012 J**	0.0034 U	**0.0191 J**	**13.9**	**14**	0.0029 U	0.0033 U
Methylene chloride	0.05	0.05	100	2 U	0.0187 U	0.0153 U	0.0176 U	0.0168 U	0.0195 UJ	0.0212 U	0.0222 U	0.0147 U	0.0166 U
Naphthalene	12	12	100	**1200**	**1160**	**0.0038**	0.0035 U	0.0034 U	**6.71**	**902 J**	**1020 J**	**0.002 J**	**0.0014 J**
n-Propylbenzene	3.9	3.9	100	**5.99**	**4.89**	0.0031 U	0.0035 U	0.0034 U	**0.0683 J**	**8.39**	**9.92**	0.0029 U	0.0033 U
Styrene	NE	NE	NE	**0.439**	**0.0325**	0.0031 U	0.0035 U	0.0034 U	**0.0025 J**	**0.0052 J**	**0.0016 J**	0.0029 U	0.0033 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Tetrahydrofuran	NE	NE	NE	NA	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	**0.0148 J**	0.0042 U	0.0044 U	0.0029 U	0.0033 U
1,1,2-Trichloroethane	NE	NE	NE	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U
Trichloroethene (TCE)	0.47	0.47	21	0.399 U	0.0037 U	0.0031 U	0.0035 U	0.0034 U	0.0039 UJ	0.0042 U	0.0044 U	0.0029 U	0.0033 U

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Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**53.9 J**	**59**	0.0031 U	0.0035 U	0.0034 U	**0.085 J**	**39.3**	**38.8**	**0.0017 J**	0.0033 U
1,3,5-Trimethylbenzene	8.4	8.4	52	**7.02 J**	**15**	0.0031 U	0.0035 U	0.0034 U	**0.0044 J**	**8.2**	**7.03**	**0.001 J**	0.0033 U
Vinyl chloride	0.02	0.02	0.9	0.399 U	0.0075 U	0.0061 U	0.0071 U	0.0067 U	0.0078 UJ	0.0085 U	0.0089 U	0.0059 U	0.0066 U
Total VOCs	NE	NE	NE	**1470.315**	**1450.1259**	**0.0038**	**0.0037**	**0.0349**	**7.3398**	**1057.5157**	**1171.912**	**0.0047**	**0.0158**
PAHs (mg/kg)													
Acenaphthene	20	98	100	**65.2**	**48.4**	0.303 U	**0.148 J**	**0.0691 J**	**13**	**33.5 J**	**126 J**	0.294 U	**0.457**
Acenaphthylene	100	107	100	**93.3**	**26.4**	0.303 U	**1.31**	**0.271**	**10**	**4.74 J**	**9.92 J**	0.294 U	**3.18**
Anthracene	100	1000	100	**104**	**44.9**	0.303 U	**0.771**	**0.109 J**	**11.5**	**16.9 J**	**49.3 J**	**0.0188 J**	**1.51**
Benzo(a)anthracene	1	1	1	**87.7**	**35.4**	0.303 U	**3.42**	**0.267**	**7.95**	**18.2 J**	**35 J**	0.294 U	**4.98**
Benzo(b)fluoranthene	1	1.7	1	**60.7**	**20.3**	0.303 U	**4.53**	**0.355**	**4.45**	**12.1**	**17**	0.294 U	**5.32**
Benzo(k)fluoranthene	0.8	1.7	3.9	**25.2 J**	**19.1**	0.303 U	**3.15**	**0.284**	**4.6**	**6.95 J**	**12 J**	0.294 U	**4.74**
Benzo(g,h,i)perylene	100	1000	100	**30.2 J**	**11.3**	0.303 U	**4**	**0.313**	**4.13**	**5.22 J**	**10.8 J**	0.294 U	**6.21**
Benzo(a)pyrene	1	22	1	**81.7**	**31.2**	0.303 U	**6.23**	**0.582**	**8.57**	**14 J**	**29.6 J**	0.294 U	**8.72**
Chrysene	1	1	3.9	**77.5**	**28.3**	0.303 U	**3.44**	**0.282**	**7.55**	**16 J**	**30.7 J**	0.294 U	**4.68**
Dibenz(a,h)anthracene	0.33	1000	0.33	**9.72 J**	**3.43**	0.303 U	**0.904**	**0.0932 J**	**1.1**	**1.85**	**3**	0.294 U	**1.85**
Fluoranthene	100	1000	100	**165**	**80.4**	0.303 U	**4.98**	**0.326**	**12.3**	**32.9 J**	**56.1 J**	0.294 U	**4.61**
Fluorene	30	386	100	**13 J**	**44.8**	0.303 U	**0.193 J**	**0.028 J**	**10.1**	**13.8 J**	**55.7 J**	0.294 U	**0.352**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**33.5 J**	**14**	0.303 U	**4.52**	**0.357**	**4.9**	**7.3 J**	**15 J**	0.294 U	**7.39**
2-Methylnaphthalene	NE	36.4*	NE	**0.433 J**	**154**	0.303 U	**0.247 J**	**0.0541 J**	**0.953**	**53.3 J**	**267 J**	**0.0484 J**	**0.808**
Naphthalene	12	12	100	**1.23 J**	**442**	0.303 U	**1.08**	**0.09 J**	**2.44**	**185 J**	**769 J**	**0.274 J**	**1.45**
Phenanthrene	100	1000	100	**212**	**160**	0.303 U	**1.55**	**0.199**	**33.1**	**40 J**	**145 J**	**0.0235 J**	**2.81**
Pyrene	100	1000	100	**216**	**78.6**	0.303 U	**5.74**	**0.475**	**21.3**	**32.6 J**	**76.9 J**	**0.0195 J**	**5.92**
Total PAHs	NE	NE	NE	**1276.383**	**1242.53**	ND	**46.213**	**4.1544**	**157.943**	**494.36**	**1708.02**	**0.3842**	**64.987**
MAEPH (mg/kg)													
C-10	NE	NE	NE	1.8 U	**52.1 J**	NA	NA	NA	**6.36**	NA	NA	NA	NA
C-11	NE	NE	NE	1.8 U	**5.74**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-12	NE	NE	NE	1.8 U	1.43 U	NA	NA	NA	**8.06**	NA	NA	NA	NA
C-13	NE	NE	NE	**14.1**	**7.7**	NA	NA	NA	**3.32**	NA	NA	NA	NA
C-14	NE	NE	NE	**73.1**	**54.4 J**	NA	NA	NA	**8.84**	NA	NA	NA	NA
C-15	NE	NE	NE	**12.1**	**11.7**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-16	NE	NE	NE	**6.29**	**10.8**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-17	NE	NE	NE	**19.4**	**12.1**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-18	NE	NE	NE	**9**	**9.99**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-19	NE	NE	NE	1.8 U	**11.3**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-20	NE	NE	NE	**13.7**	**7.68**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-21	NE	NE	NE	1.8 U	**3.33**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-22	NE	NE	NE	1.8 U	**3.37**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-23	NE	NE	NE	1.8 U	**28.3**	NA	NA	NA	**12.4**	NA	NA	NA	NA
C-24	NE	NE	NE	1.8 U	**12.2**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-25	NE	NE	NE	1.8 U	**7.3**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-26	NE	NE	NE	1.8 U	1.43 U	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-27	NE	NE	NE	1.8 U	1.43 U	NA	NA	NA	**8.52**	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
C-28	NE	NE	NE	1.8 U	**3.02**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-29	NE	NE	NE	1.8 U	**2.34**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-30	NE	NE	NE	1.8 U	**5.37**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-31	NE	NE	NE	1.8 U	**2.52**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-32	NE	NE	NE	1.8 U	1.43 U	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-33	NE	NE	NE	1.8 U	1.43 U	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-34	NE	NE	NE	1.8 U	**5.93**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-35	NE	NE	NE	1.8 U	**5.61**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-36	NE	NE	NE	1.8 U	**1.82**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-37	NE	NE	NE	1.8 U	**11.4**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-38	NE	NE	NE	1.8 U	**12.5**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-39	NE	NE	NE	1.8 U	**1.84**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-40	NE	NE	NE	1.8 U	**1.35 J**	NA	NA	NA	0.931 U	NA	NA	NA	NA
C-8	NE	NE	NE	**4.83**	**2.34**	NA	NA	NA	**0.62 J**	NA	NA	NA	NA
C-9	NE	NE	NE	**29.4**	**23.8**	NA	NA	NA	**1.8**	NA	NA	NA	NA
Other SVOCs (mg/kg)													
Acetophenone	NE	NE	NE	1.71 U	1.22 U	0.303 U	**0.0236 J**	0.172 U	**0.307 J**	0.347 U	0.363 U	0.294 U	**0.124 J**
Biphenyl (1,1-Biphenyl)	NE	NE	NE	0.171 U	**16.5**	0.0303 U	**0.0702**	0.0172 U	**0.298**	**1.9 J**	**7.86 J**	0.0294 U	**0.141**
Bis(2-ethylhexyl)phthalate	NE	435*	NE	1.71 U	**0.155 J**	0.303 U	0.275 U	**0.15 J**	0.315 U	0.347 U	0.363 U	0.294 U	**0.178 J**
Butyl benzyl phthalate	NE	122*	NE	1.71 U	**0.18 J**	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Caprolactam	NE	NE	NE	1.71 R	1.22 U	0.303 U	**0.045 J**	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Carbazole	NE	NE	NE	1.71 U	**11**	0.303 U	**0.0997 J**	**0.0157 J**	**0.402**	**1.11**	**2.45**	0.294 U	**0.277 J**
2-Chloronaphthalene	NE	NE	NE	1.71 U	1.22 U	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Dibenzofuran	7	210, 6.2*	59	**16.1 J**	**26.8**	0.303 U	**0.324**	**0.0205 J**	**1.28**	**3.4 J**	**5.91 J**	0.294 U	**0.304**
Diethyl phthalate	NE	7.1*	NE	1.71 U	1.22 U	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
2,4-Dimethylphenol	NE	NE	NE	1.71 U	**0.635 J**	0.303 U	**0.0278 J**	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Di-n-butyl phthalate	NE	8.1*	NE	1.71 U	1.22 U	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
2,6-Dinitrotoluene	NE	1*	NE	1.71 U	1.22 U	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Di-n-octyl phthalate	NE	120*	NE	3.43 U	2.44 U	0.606 U	0.551 U	0.343 U	0.63 U	0.695 U	0.725 U	0.589 U	0.57 U
2-Methylnaphthalene	NE	36.4*	NE	**0.433 J**	**154**	0.303 U	**0.247 J**	**0.0541 J**	**0.953**	**53.3 J**	**267 J**	**0.0484 J**	**0.808**
2-Methylphenol (o-Cresol)	0.33	0.33	100	1.71 U	**0.106 J**	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	1.71 U	**0.249 J**	0.303 U	**0.0593 J**	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	**0.0463 J**
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	3.43 U	2.44 U	0.606 U	0.551 U	0.343 U	0.63 U	0.695 U	0.725 U	0.589 U	0.57 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	1.71 U	1.22 U	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Phenol	0.33	0.33	100	1.71 U	1.22 U	0.303 U	0.275 U	0.172 U	0.315 U	0.347 U	0.363 U	0.294 U	0.285 U
Total SVOCs	NE	NE	NE	**1292.483**	**1298.155**	ND	**46.8626**	**4.3406**	**160.23**	**500.77**	**1724.24**	**0.3842**	**66.0573**
Alkylated PAHs (mg/kg)													
Acenaphthene	20	98	100	**281**	**119**	NA	NA	NA	**60.9 J**	NA	NA	NA	NA
Acenaphthylene	100	107	100	**158**	**60.5**	NA	NA	NA	**38.7 J**	NA	NA	NA	NA
Anthracene	100	1000	100	**312**	**116**	NA	NA	NA	**55 J**	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	**1.86 J**	**2.52 J**	NA	NA	NA	**2.08 J**	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
C1-Benzene	NE	NE	NE	1.52 U	1.24 U	NA	NA	NA	**2.82 JN**	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	**57.4 JN**	**48.1 JN**	NA	NA	NA	**2.94 JN**	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	**91.1 JN**	**68 JN**	NA	NA	NA	**4.37 JN**	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	**70.4 JN**	**43.8 JN**	NA	NA	NA	**10.7 JN**	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	**31.8 JN**	**12.6 JN**	NA	NA	NA	**13.7 JN**	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	**158 J**	**74.4**	NA	NA	NA	**38.1 J**	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	**87.8 J**	**41.8**	NA	NA	NA	**24.6 J**	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	**80.1 J**	**41.3**	NA	NA	NA	**26.5 J**	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	**34**	**14.2**	NA	NA	NA	**7.44 J**	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	**13.3**	**5.28**	NA	NA	NA	**3.87 J**	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	**20.6**	**8.13**	NA	NA	NA	**5.92 J**	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	**60.1 J**	**26.6**	NA	NA	NA	**23.4 J**	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	**135 J**	**63.6**	NA	NA	NA	**41.4 J**	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	**67.1 J**	**31.7**	NA	NA	NA	**23.8 J**	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	**38.1**	**33.7**	NA	NA	NA	**1.75 J**	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	**30.1 JN**	**18.5 JN**	NA	NA	NA	**8.4 JN**	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	**37.3 JN**	**13.4 JN**	NA	NA	NA	**9.93 JN**	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	**19.8 JN**	**5.19 JN**	NA	NA	NA	**7.81 JN**	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	**4.92 JN**	**1.3 JN**	NA	NA	NA	**3.5 JN**	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**47.4**	**35**	NA	NA	NA	**1.84 J**	NA	NA	NA	NA
n-Butylbenzene	12	12	100	**2.79 J**	**1.39 J**	NA	NA	NA	**0.597 J**	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	**1.42 J**	**0.454**	NA	NA	NA	**0.219 J**	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	0.0899 U	0.0717 U	NA	NA	NA	0.0465 U	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	**83.3 JN**	**32.4 JN**	NA	NA	NA	**27.8 JN**	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	**34.6 JN**	**13.1 JN**	NA	NA	NA	**13.4 JN**	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	**13.3 JN**	**5.71 JN**	NA	NA	NA	**5.22 JN**	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	**5.29 JN**	**2.18 JN**	NA	NA	NA	**2.09 JN**	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	**130 J**	**55.4**	NA	NA	NA	**34 J**	NA	NA	NA	NA
Coronene	NE	NE	NE	**14.4**	**7.16**	NA	NA	NA	**6.89 J**	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	**12.7**	**7.65**	NA	NA	NA	**0.401 J**	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	**1.16**	**0.307**	NA	NA	NA	**0.539 J**	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	**4.36 J**	**1.14 J**	NA	NA	NA	**1.75 J**	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	**21.2 JN**	**4.03 JN**	NA	NA	NA	**10 JN**	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	**19.4 JN**	**4.76 JN**	NA	NA	NA	**17.2 JN**	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	**13.9 JN**	**3.36 JN**	NA	NA	NA	**14.6 JN**	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	**11.8 JN**	**3.15 JN**	NA	NA	NA	**13.6 JN**	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	**21.5 J**	**9.56**	NA	NA	NA	**7.78 J**	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	**89.4**	**61.7**	NA	NA	NA	**6.23 J**	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	**69.3**	**29.4**	NA	NA	NA	**20.6 J**	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	**68.3 JN**	**20.7 JN**	NA	NA	NA	**22 JN**	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	**40.3 JN**	**12.1 JN**	NA	NA	NA	**16.1 JN**	NA	NA	NA	NA

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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
C3-Dibenzothiophenes	NE	NE	NE	17.4 JN	4.58 JN	NA	NA	NA	7.42 JN	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	4.44 JN	1.41 JN	NA	NA	NA	3.15 JN	NA	NA	NA	NA
Ethylbenzene	1	1	41	46.4	36.6	NA	NA	NA	1.95 J	NA	NA	NA	NA
Fluoranthene	100	1000	100	427 J	180	NA	NA	NA	48.6 J	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	256 JN	96.6 JN	NA	NA	NA	68.4 JN	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	75.9 JN	26.7 JN	NA	NA	NA	24.9 JN	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	28 JN	9.82 JN	NA	NA	NA	8.98 JN	NA	NA	NA	NA
Fluorene	30	386	100	135	102	NA	NA	NA	45 J	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	93.9 JN	31.9 JN	NA	NA	NA	24.7 JN	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	64.9 JN	17 JN	NA	NA	NA	16.2 JN	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	22.5 JN	6.6 JN	NA	NA	NA	8.28 JN	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	82.6 J	38	NA	NA	NA	29.4 J	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	9.14	5.15 J	NA	NA	NA	0.536 J	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	1.81 J	1.39 J	NA	NA	NA	0.55 J	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	331	216	NA	NA	NA	90.8 J	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	455	335	NA	NA	NA	5.07 J	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	28.1	9.81	NA	NA	NA	8.34 J	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	31.1	11.5	NA	NA	NA	8.51 J	NA	NA	NA	NA
Naphthalene	12	12	100	1220	956	NA	NA	NA	14 J	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	489 JN	345 JN	NA	NA	NA	56.5 JN	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	290 JN	149 JN	NA	NA	NA	53.3 JN	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	163 JN	50.3 JN	NA	NA	NA	50.2 JN	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	46.4 JN	13.7 JN	NA	NA	NA	23.3 JN	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	24.4 JN	8.48 JN	NA	NA	NA	9.47 JN	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	11.4 JN	3.94 JN	NA	NA	NA	5.91 JN	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	5.11 JN	1.82 JN	NA	NA	NA	3.29 JN	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	1.23 JN	0.462 JN	NA	NA	NA	0.859 JN	NA	NA	NA	NA
Perylene	NE	NE	NE	29.1 J	14.2	NA	NA	NA	7.81 J	NA	NA	NA	NA
Phenanthrene	100	1000	100	801	354	NA	NA	NA	134	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	361 JN	128 JN	NA	NA	NA	84.9 JN	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	149 JN	46.9 JN	NA	NA	NA	34.5 JN	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	39.3 JN	12.4 JN	NA	NA	NA	10.9 JN	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	9.95 JN	3.83 JN	NA	NA	NA	3.69 JN	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	5.27 J	2.93 J	NA	NA	NA	0.699 J	NA	NA	NA	NA
Pyrene	100	1000	100	452 J	177	NA	NA	NA	69.4 J	NA	NA	NA	NA
Retene	NE	NE	NE	4.52 J	3.39 J	NA	NA	NA	0.375 J	NA	NA	NA	NA
Styrene	NE	NE	NE	17.9	4.82 J	NA	NA	NA	7.4 J	NA	NA	NA	NA
Toluene	0.7	0.7	100	1.68 U	1.44 U	NA	NA	NA	3.24 J	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	20.8	13.6	NA	NA	NA	1.26 J	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	53.7	38.9	NA	NA	NA	1.51 J	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	8.39	10.3	NA	NA	NA	0.279 J	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	23.6	19.1	NA	NA	NA	0.745 J	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
m/p-Xylene	0.26	1.6	100	**19.4**	**19.1**	NA	NA	NA	**1.92 J**	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	**27.5**	**10.5**	NA	NA	NA	**8.9 J**	NA	NA	NA	NA
PFAS (mg/kg)													
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)													
Phytane (C20)	NE	NE	NE	**9.25**	**4.21**	NA	NA	NA	**13.7**	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	**11.9**	**5.5**	NA	NA	NA	**18.6**	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	**12.8**	**5.34**	NA	NA	NA	**21.9**	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	**14.5**	**4.64**	NA	NA	NA	**18.4**	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	1.8 U	**47.6**	NA	NA	NA	**22**	NA	NA	NA	NA
PCB Aroclors (mg/kg)													
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.05 U	0.03 U	NA	NA	NA	NA	0.06 U
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.05 U	0.03 U	NA	NA	NA	NA	0.06 U
Aroclor 1254	NE	NE	NE	NA	NA	NA	0.05 U	0.03 U	NA	NA	NA	NA	0.06 U
Aroclor 1260	NE	NE	NE	NA	NA	NA	0.05 U	0.03 U	NA	NA	NA	NA	**0.07**
Aroclor 1268	NE	NE	NE	NA	NA	NA	0.05 U	0.03 U	NA	NA	NA	NA	0.06 U
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	ND	ND	NA	NA	NA	NA	**0.07**
Pesticides (mg/kg)													
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.0016 U	0.0015 U	NA	NA	NA	NA	0.0017 U
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	0.0313 U	0.0307 U	NA	NA	NA	NA	**0.101 J**
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	**0.0124**
gamma-Chlordane	NE	14*	NE	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	**0.0097**
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	0.0026 U	**0.0015 J**	NA	NA	NA	NA	**0.0149 J**
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	**0.0031 JN**
Dieldrin	0.005	0.1	0.2	NA	NA	NA	0.0026 U	**0.0016 J**	NA	NA	NA	NA	**0.0037 JN**
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	**0.0033 JN**
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Endrin	0.014	0.06	11	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Endrin aldehyde	NE	NE	NE	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Endrin ketone	NE	NE	NE	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Heptachlor	0.042	0.38	2.1	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
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Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
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Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Methoxychlor	NE	900*	NE	NA	NA	NA	0.0026 U	0.0026 U	NA	NA	NA	NA	0.0028 U
Herbicides (mg/kg)													
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.193 U	0.19 U	NA	NA	NA	NA	0.202 U
Dicamba	NE	NE	NE	NA	NA	NA	0.01 U	0.009 U	NA	NA	NA	NA	0.01 U
Dichloroprop	NE	NE	NE	NA	NA	NA	0.193 U	0.19 U	NA	NA	NA	NA	0.202 U
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	**2.33 J**	19 U	NA	NA	NA	NA	20.2 U
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	19.1 U	18.8 U	NA	NA	NA	NA	20 U
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA	NA	0.01 U
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.01 U	0.01 U	NA	NA	NA	NA	0.01 U
Metals (mg/kg)													
Aluminum	NE	NE	NE	**8540**	**1050**	**374**	**5080**	**3460**	**6440**	**2960**	**3540**	**7720**	**7730 J**
Antimony	NE	NE	NE	4.58 U	1.3 U	2.43 U	2.36 U	2.55 U	2.92 U	**2.36 J**	**0.78 J**	2.74 U	2.15 UJ
Arsenic	13	16	16	**97.9**	**12.8**	**1.29**	**63.4**	**1.84 J**	**104**	**10.3**	**10.4**	**1.18 J**	**12**
Barium	350	820	400	**170**	**12 J**	**3.04 J**	**91**	**27.8**	**77.3**	**40.2**	**49.6**	**44.3**	**132 J**
Beryllium	7.2	47	72	2.02 U	0.57 U	0.53 U	**0.48 J**	**0.23 J**	**0.78 J**	1.42 U	**0.38 J**	**0.49 J**	**0.51 J**
Cadmium	2.5	7.5	4.3	**2.84 J**	1.04 UJ	0.97 UJ	1.89 U	2.04 U	**1.37 J**	2.59 UJ	2.64 UJ	2.19 UJ	**0.95 J**
Calcium	NE	NE	NE	**800 J**	**146 J**	**957 J**	**7910**	**19700**	**8440**	**22700**	**18500**	**482**	**26200 J**
Chromium	30	NE	180	**125**	**1.94 J**	**0.93 J**	**18**	**9.79 J**	**10.8 J**	**3.66 J**	**3.85 J**	**19.1**	**19.2 J**
Cobalt	NE	NE	NE	**12.2 J**	**0.76 J**	**0.63 J**	**3.81 J**	**1.65 J**	**25.3**	**3.4 J**	**6.37 J**	**4.45 J**	**8.4 J**
Copper	50	1720	270	**187**	**2.17 J**	12.1 UJ	**146**	**9.1 J**	**88.3**	**35.2**	**34.2**	**17.6 J**	**90.3 J**
Iron	NE	NE	NE	**32800**	**2000 J**	**1830 J**	**11800**	**6420**	**28100**	**70000**	**55500**	**28600**	**21200 J**
Lead	63	450	400	**507**	**4.47 J**	24.3 U	**374**	**30.5 J**	**229**	**160**	**186**	**5.13 J**	**259 J**
Magnesium	NE	NE	NE	**4300 J**	**449 J**	**401 J**	**2190**	**3990**	**1810**	**3840**	**1960**	**2530**	**5450 J**
Manganese	1600	2000	2000	**367**	**25.7**	**38.4**	**217**	**116 J**	**128**	**948**	**669**	**117**	**287 J**
Mercury	0.18	0.73	0.81	**3.74**	**0.543**	**0.004 J**	**0.545**	**0.063**	**0.277**	**0.118**	**0.081**	**0.012 J**	**0.364 J**
Nickel	30	130	310	**38.9 J**	**1.31 J**	12.1 U	**15.4 J**	**8.71 J**	**46.1**	**9.36 J**	**13.5 J**	**11.3 J**	**22.7**
Potassium	NE	NE	NE	**4720 J**	**505 J**	1210 UJ	**849 J**	**907 J**	**739 J**	**408 J**	**526 J**	**2150 J**	**1300 J**
Selenium	3.9	4	180	4.58 U	1.3 UJ	1.21 UJ	2.36 U	2.55 U	**7.48 J**	**3.23 J**	**3.58 J**	**1.14 J**	**0.91 J**
Silver	2	8.3	180	3.67 U	1.04 U	0.97 U	1.89 U	2.04 U	2.34 UJ	2.59 UJ	2.64 UJ	2.19 UJ	1.72 U
Sodium	NE	NE	NE	**6950 J**	1300 U	1210 U	**458 J**	2550 U	**439 J**	**317 J**	**562 J**	**471 J**	**507 J**
Thallium	NE	NE	NE	4.58 U	1.3 U	1.21 U	2.36 U	2.55 U	2.92 U	3.24 U	3.31 U	2.74 U	2.15 U
Tin	NE	NE	NE	91.7 U	26.1 U	24.3 U	47.2 UJ	51 U	58.4 UJ	64.7 UJ	66.1 UJ	54.8 UJ	43.1 U
Vanadium	NE	NE	NE	**28.2**	**2.63 J**	**1.76 J**	**17.3**	**8.83 J**	**18**	**9.28 J**	**12.9 J**	**36.2**	**24.9 J**
Zinc	109	2480	10000	**455**	**7.89 J**	**5.5 J**	**150**	**34.5**	**357**	**87.3**	**75**	**45.7**	**287 J**
Cyanides (mg/kg)													
Free Cyanide	NE	NE	NE	0.367 U	0.251 U	0.25 U	0.212 U	0.21 U	0.241 U	0.288 U	0.282 U	0.243 U	0.223 U
Biomarkers (mg/kg)													
C23 Tricyclic Terpane (T4)	NE	NE	NE	**0.0821 J**	0.0717 U	NA	NA	NA	**0.137**	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0937**	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	**0.0938**	0.0717 U	NA	NA	NA	**0.0626**	NA	NA	NA	NA

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C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0243**	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0255**	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0332**	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0288**	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0257**	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0365**	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0288**	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0335**	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0453**	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	**0.0481 J**	**0.0392 J**	NA	NA	NA	**0.0693**	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.026**	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0411**	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	**0.087 J**	**0.0495 J**	NA	NA	NA	**0.033**	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0133**	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	**0.159**	**0.0466 J**	NA	NA	NA	**0.156**	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	**0.0642 J**	0.0717 U	NA	NA	NA	**0.0388**	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	**0.0631 J**	0.0717 U	NA	NA	NA	**0.0204**	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0338**	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0196**	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	**0.143**	0.0717 U	NA	NA	NA	**0.217**	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0221**	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0623**	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0477**	NA	NA	NA	NA
Gammacerane	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	0.00931 U	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0419**	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0374**	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0351**	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0279**	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0317**	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0262**	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0202**	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0216**	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.128**	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0482**	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0609**	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.2**	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.115**	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.106**	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	**0.144**	**0.129**	NA	NA	NA	**0.247**	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0338**	NA	NA	NA	NA

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Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St									
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-249B (10-25) 9/22/2022	WW-SB-249B (15-20) 9/26/2022	WW-SB-249B (30-35) 9/26/2022	WW-SB-250 (0-5) 7/28/2022	WW-SB-251 (0-5) 7/21/2022	WW-SB-251 (6-9) 7/25/2022	WW-SB-251 (13-14) 7/25/2022	Duplicate of WW-SB-251 (13-14) 7/25/2022	WW-SB-251 (23-25) 7/25/2022	WW-SB-252 (0-5) 8/2/2022
13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0342**	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.145**	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.144**	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.134**	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.16**	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.129**	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.14**	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.0996**	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	0.0899 U	0.0717 U	NA	NA	NA	**0.143**	NA	NA	NA	NA
Other (mg/kg)													
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	**2030 J**	935 UJ	NA	NA	NA	**1080**	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	**1090 J**	935 UJ	NA	NA	NA	**473**	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	**5860**	**2540**	NA	NA	NA	**1670**	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	**7260**	**4460**	NA	NA	NA	**1980**	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	**24400**	**6680**	NA	NA	NA	**6490**	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	**18200**	**7760**	NA	NA	NA	**6470**	NA	NA	NA	NA
C9-C40	NE	NE	NE	**22400**	**9410**	NA	NA	NA	**7890**	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10)	WW-SB-252 (10-15)	WW-SB-252 (25-30)	WW-SB-254 (0.6-5)	WW-SB-254 (16-18)	WW-SB-254 (43-45)
Sample Depth (feet bgs)				8/3/2022	8/3/2022	8/3/2022	7/14/2022	7/19/2022	7/19/2022
Sample Date									
BTEX (mg/kg)									
Benzene	0.06	0.06	4.8	**5.63**	**1.04**	0.0029 U	**0.0014 J**	**5.22**	**0.0214**
Toluene	0.7	0.7	100	**3.13**	**0.247**	0.0029 U	**0.0008 J**	**6.61**	0.0031 U
Ethylbenzene	1	1	41	**3.48**	**0.58**	0.0029 U	0.0023 U	**51 J**	0.0031 U
o-Xylene	0.26	1.6	100	**1.17**	**0.328**	0.0029 U	0.0023 U	**18**	0.0031 U
m/p-Xylene	0.26	1.6	100	**3.53**	**0.557**	0.0058 U	0.0046 U	**30**	0.0063 U
Total Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA
Total BTEX	NE	NE	NE	**16.94**	**2.752**	ND	**0.0022**	**110.83**	**0.0214**
Other VOCs (mg/kg)									
Acetone	0.05	0.05	100	4.76 U	3.15 U	0.0292 U	**0.026**	4.11 U	**0.0223 J**
n-Butylbenzene	12	12	100	**3.11**	**4.38**	0.0029 U	0.0023 U	**3.94**	0.0031 U
sec-Butylbenzene	11	11	100	**0.99**	**2.02**	0.0029 U	0.0023 U	**0.313**	0.0031 U
tert-Butylbenzene	5.9	5.9	100	**0.149 J**	**0.232**	0.0029 U	0.0023 U	0.165 U	0.0031 U
Carbon disulfide	NE	2.7*	NE	**0.0838 J**	**0.0302 J**	0.0029 U	0.0023 U	0.165 U	0.0031 U
Chlorobenzene	1.1	1.1	100	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
Chloroform (Trichloromethane)	0.37	0.37	49	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
Cyclohexane	NE	NE	NE	**0.842**	**1.21**	0.0029 U	0.0023 U	**0.306**	**0.0014 J**
p-Cymene (4-Isopropyltoluene)	NE	10*	NE	**0.926**	**0.184**	0.0029 U	0.0023 U	**3.17**	0.0031 U
1,2-Dibromo-3-chloropropane	NE	NE	NE	1.14 U	0.756 UJ	0.0029 U	0.0023 U	0.988 U	0.0031 U
1,2-Dichlorobenzene (o-DCB)	1.1	1.1	100	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
1,4-Dichlorobenzene (p-DCB)	1.8	1.8	13	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
1,1-Dichloroethane	0.27	0.27	26	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
1,1-Dichloroethene	0.33	0.33	100	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
cis-1,2-Dichloroethene	0.25	0.25	100	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	**0.0094**
trans-1,2-Dichloroethene	0.19	0.19	100	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
1,2-Dichloropropane	NE	NE	NE	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
Isopropylbenzene	NE	2.3*	NE	**3.84**	**3.8**	0.0029 U	0.0023 U	**4.76**	0.0031 U
Methyl acetate	NE	NE	NE	**0.903 J**	**0.711 J**	0.0029 U	**0.0154**	1.65 U	0.0031 U
Methyl ethyl ketone (2-Butanone)	0.12	0.12, 0.3*	100	4.76 U	3.15 U	0.0292 U	0.023 U	4.11 U	0.0313 U
Methyl tert-butyl ether (MTBE)	0.93	0.93	100	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
4-Methyl-2-pentanone (MIBK)	NE	1*	NE	1.9 U	1.26 U	0.0292 U	0.023 U	1.65 U	0.0313 U
Methylcyclohexane	NE	NE	NE	**3.42**	**6.68**	0.0029 U	0.0023 U	**0.79**	**0.0027 J**
Methylene chloride	0.05	0.05	100	0.952 U	0.63 U	0.0146 U	0.0115 U	**0.0724 J**	0.0156 U
Naphthalene	12	12	100	**14.3**	**3.42**	0.0029 U	**0.0008 J**	**781 J**	0.0031 U
n-Propylbenzene	3.9	3.9	100	**2.41**	**3.94**	0.0029 U	0.0023 U	**2.46**	0.0031 U
Styrene	NE	NE	NE	**0.229**	0.126 U	0.0029 U	0.0023 U	**2.29**	0.0031 U
1,1,2,2-Tetrachloroethane	NE	0.6*	NE	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
Tetrachloroethene (PCE)	1.3	1.3	19	0.19 U	0.126 U	0.0029 U	0.0023 UJ	0.165 U	0.0031 U
Tetrahydrofuran	NE	NE	NE	NA	NA	0.0029 U	0.0023 U	NA	0.0031 U
1,2,3-Trichlorobenzene	NE	NE	NE	0.19 U	0.126 U	0.0029 U	0.0023 U	0.165 U	0.0031 U
1,1,2-Trichloroethane	NE	NE	NE	0.19 U	**0.214**	0.0029 U	0.0023 U	0.165 U	0.0031 U
Trichloroethene (TCE)	0.47	0.47	21	0.19 U	0.126 U	0.0029 U	**0.0018 J**	0.165 U	0.0031 U

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
1,2,4-Trimethylbenzene	3.6	3.6	52	**2.49**	**0.197**	0.0029 U	0.0023 U	**36.5 J**	0.0031 U
1,3,5-Trimethylbenzene	8.4	8.4	52	**0.568**	**0.199**	0.0029 U	0.0023 U	**11.3**	0.0031 U
Vinyl chloride	0.02	0.02	0.9	0.19 U	0.126 U	0.0058 U	0.0046 U	0.165 U	0.0063 U
Total VOCs	NE	NE	NE	**51.2008**	**29.9692**	ND	**0.0462**	**957.7314**	**0.0572**
PAHs (mg/kg)									
Acenaphthene	20	98	100	**61.1**	**19.1**	0.298 U	**1.11**	**16.2**	0.418 U
Acenaphthylene	100	107	100	**12.5**	**2.08**	0.298 U	**1.21**	**18.3**	0.418 U
Anthracene	100	1000	100	**42.7**	**9.17**	0.298 U	**2.36**	**8.93**	0.418 U
Benzo(a)anthracene	1	1	1	**40.8**	**7.48**	0.298 U	**6.86**	**5.51**	0.418 U
Benzo(b)fluoranthene	1	1.7	1	**25**	**5.17**	0.298 U	**6.51**	**1.83**	0.418 U
Benzo(k)fluoranthene	0.8	1.7	3.9	**27.4**	**5.41**	0.298 U	**5.1**	**2.29**	0.418 U
Benzo(g,h,i)perylene	100	1000	100	**18.7**	**4.09**	0.298 U	**4.09**	**1.31**	0.418 U
Benzo(a)pyrene	1	22	1	**46.8**	**9.13**	0.298 U	**7.53**	**4.27**	0.21 U
Chrysene	1	1	3.9	**39.6**	**6.86**	0.298 U	**7.03**	**4.86**	0.21 U
Dibenz(a,h)anthracene	0.33	1000	0.33	**7.85**	**1.54**	0.298 U	**1.08**	**0.45**	0.21 U
Fluoranthene	100	1000	100	**53.1**	**8.66**	0.298 U	**13**	**9.91**	0.418 U
Fluorene	30	386	100	**35.4**	**10.1**	0.298 U	**1.08**	**12.9**	0.418 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**23.2**	**5.32**	0.298 U	**4.67**	**1.61**	0.418 U
2-Methylnaphthalene	NE	36.4*	NE	**13.3**	**4.73**	0.298 U	**0.733 J**	**79.6**	0.418 U
Naphthalene	12	12	100	**28.5**	**7.13**	0.298 U	**1.55**	**159**	0.418 U
Phenanthrene	100	1000	100	**123**	**32.2**	0.298 U	**11.9**	**34.8**	0.418 U
Pyrene	100	1000	100	**106**	**16.7**	0.298 U	**13.5**	**12.8**	0.418 U
Total PAHs	NE	NE	NE	**704.95**	**154.87**	ND	**89.313**	**374.57**	ND
MAEPH (mg/kg)									
C-10	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-11	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-12	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-13	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-14	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-15	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-16	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-17	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-18	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-19	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-20	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-21	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-22	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-23	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-24	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-25	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-26	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-27	NE	NE	NE	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
C-28	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-29	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-30	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-31	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-32	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-33	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-34	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-35	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-36	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-37	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-38	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-39	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-40	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-8	NE	NE	NE	NA	NA	NA	NA	NA	NA
C-9	NE	NE	NE	NA	NA	NA	NA	NA	NA
Other SVOCs (mg/kg)									
Acetophenone	NE	NE	NE	0.288 U	0.292 U	0.298 U	1.62 U	0.83 U	0.837 U
Biphenyl (1,1-Biphenyl)	NE	NE	NE	**5.98**	0.0292 U	0.0298 U	0.807 U	**4.63**	0.418 U
Bis(2-ethylhexyl)phthalate	NE	435*	NE	0.288 U	**0.149 J**	0.298 U	**0.326 J**	0.414 U	0.418 U
Butyl benzyl phthalate	NE	122*	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Caprolactam	NE	NE	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Carbazole	NE	NE	NE	**1.66**	**0.41**	0.298 U	**1.42**	**0.246 J**	0.418 U
2-Chloronaphthalene	NE	NE	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Dibenzofuran	7	210, 6.2*	59	**4.52**	**2.55**	0.298 U	**0.852**	**1.97**	0.418 U
Diethyl phthalate	NE	7.1*	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
2,4-Dimethylphenol	NE	NE	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Di-n-butyl phthalate	NE	8.1*	NE	0.288 U	0.292 U	0.298 U	**0.151 J**	0.414 U	0.418 U
2,6-Dinitrotoluene	NE	1*	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Di-n-octyl phthalate	NE	120*	NE	0.576 U	0.585 U	0.597 U	0.807 U	0.414 U	0.418 U
2-Methylnaphthalene	NE	36.4*	NE	**13.3**	**4.73**	0.298 U	**0.733 J**	**79.6**	0.418 U
2-Methylphenol (o-Cresol)	0.33	0.33	100	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
3,4-Methylphenol (m,p-Cresol)	NE	NE	NE	**0.375**	0.292 U	0.298 U	1.62 U	0.83 U	0.837 U
4-Methylphenol (p-Cresol)	0.33	0.33	100	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NE	NE	NE	0.576 U	0.585 U	0.597 U	0.807 U	0.414 U	0.418 U
N-Nitrosodiphenylamine (NDFA)	NE	NE	NE	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Phenol	0.33	0.33	100	0.288 U	0.292 U	0.298 U	0.807 U	0.414 U	0.418 U
Total SVOCs	NE	NE	NE	**717.485**	**157.979**	ND	**92.062**	**381.416**	ND
Alkylated PAHs (mg/kg)									
Acenaphthene	20	98	100	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	100	NA	NA	NA	NA	NA	NA
Anthracene	100	1000	100	NA	NA	NA	NA	NA	NA
Benzene	0.06	0.06	4.8	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
C1-Benzene	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C5-Benzenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	1	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	1	NA	NA	NA	NA	NA	NA
Benzo(j,k)fluoranthene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Benzo(b)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Benzo(c)fluorene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Naphthobenzothiophenes (Benzo(b)naphtho(2,1-d)thiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1000	100	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	NA	NA	NA	NA	NA	NA
Benzo(e)pyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Benzothiophene (1-Benzothiophene)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C1-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Benzo(b)thiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Biphenyl (1,1-Biphenyl)	NE	NE	NE	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	100	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	100	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	100	NA	NA	NA	NA	NA	NA
C1-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Chrysenes/benz(a)anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Chrysene/triphenylene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Coronene	NE	NE	NE	NA	NA	NA	NA	NA	NA
p-Cymene (4-Isopropyltoluene)	NE	NE	NE	NA	NA	NA	NA	NA	NA
cis-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA
trans-Decalin	NE	NE	NE	NA	NA	NA	NA	NA	NA
C1-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Decalins	NE	NE	NE	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.33	1000	0.33	NA	NA	NA	NA	NA	NA
Dibenzofuran	7	210, 6.2*	59	NA	NA	NA	NA	NA	NA
Dibenzothiophene	NE	NE	NE	NA	NA	NA	NA	NA	NA
C1-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
C3-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Dibenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	1	41	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1000	100	NA	NA	NA	NA	NA	NA
C1-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Fluoranthenes/pyrenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Fluorene	30	386	100	NA	NA	NA	NA	NA	NA
C1-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Fluorenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	NA	NA	NA	NA	NA	NA
Isopropylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Methylcyclohexane	NE	NE	NE	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36.4*	NE	NA	NA	NA	NA	NA	NA
1-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA
2-Methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	100	NA	NA	NA	NA	NA	NA
C1-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Naphthalenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C1-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Naphthobenzothiophenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
Perylene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1000	100	NA	NA	NA	NA	NA	NA
C1-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C2-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C3-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
C4-Phenanthrenes/anthracenes	NE	NE	NE	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	100	NA	NA	NA	NA	NA	NA
Pyrene	100	1000	100	NA	NA	NA	NA	NA	NA
Retene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Styrene	NE	NE	NE	NA	NA	NA	NA	NA	NA
Toluene	0.7	0.7	100	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	NE	NE	NE	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	52	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	52	NA	NA	NA	NA	NA	NA
o-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
m/p-Xylene	0.26	1.6	100	NA	NA	NA	NA	NA	NA
4-methylpyrene	NE	NE	NE	NA	NA	NA	NA	NA	NA
PFAS (mg/kg)									
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Perfluorononanoic Acid (PFNA)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Perfluorooctanesulfonic acid (PFOS)	0.00088	0.0037	0.044	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid (PFOA)	0.00066	0.0011	0.033	NA	NA	NA	NA	NA	NA
n-Alkanes and Isoprenoids (mg/kg)									
Phytane (C20)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pristane (C19)	NE	NE	NE	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyldodecane (C15)	NE	NE	NE	NA	NA	NA	NA	NA	NA
2,6,10-Trimethylpentadecane (C18)	NE	NE	NE	NA	NA	NA	NA	NA	NA
2,6,10-Trimethyltridecane (C16)	NE	NE	NE	NA	NA	NA	NA	NA	NA
PCB Aroclors (mg/kg)									
Aroclor 1242	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA
Aroclor 1248	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA
Aroclor 1254	NE	NE	NE	NA	NA	NA	**1.8**	NA	NA
Aroclor 1260	NE	NE	NE	NA	NA	NA	**0.8 J**	NA	NA
Aroclor 1268	NE	NE	NE	NA	NA	NA	0.06 U	NA	NA
Total PCB Aroclors	0.1	3.2	1	NA	NA	NA	**2.6**	NA	NA
Pesticides (mg/kg)									
Aldrin	0.005	0.19	0.097	NA	NA	NA	0.003 U	NA	NA
beta-BHC (beta-Hexachlorocyclohexane)	0.036	0.09	0.36	NA	NA	NA	0.003 U	NA	NA
gamma-BHC (gamma-Hexachlorocyclohexane) (Lindane)	0.1	0.1	1.3	NA	NA	NA	0.0018 U	NA	NA
delta-BHC (delta-Hexachlorocyclohexane)	0.04	0.25	100	NA	NA	NA	0.003 U	NA	NA
Chlordane (Technical)	NE	NE	NE	NA	NA	NA	**0.154 J**	NA	NA
Chlordane (Alpha & Gamma)	NE	NE	NE	NA	NA	NA	NA	NA	NA
alpha-chlordane	0.094	2.9	4.2	NA	NA	NA	**0.0254**	NA	NA
gamma-Chlordane	NE	14*	NE	NA	NA	NA	**0.026 J**	NA	NA
4,4'-DDT (p,p'-DDT)	0.0033	136	7.9	NA	NA	NA	0.003 U	NA	NA
4,4'-DDE (p,p'-DDE)	0.0033	17	8.9	NA	NA	NA	**0.0104 JN**	NA	NA
4,4'-DDD (p,p-DDD)	0.0033	14	13	NA	NA	NA	0.003 U	NA	NA
Dieldrin	0.005	0.1	0.2	NA	NA	NA	**0.0368 J**	NA	NA
alpha-Endosulfan (I)	2.4	102	24	NA	NA	NA	0.003 U	NA	NA
beta-Endosulfan (II)	2.4	102	24	NA	NA	NA	0.003 UJ	NA	NA
Endosulfan sulfate	2.4	1000	24	NA	NA	NA	0.003 U	NA	NA
Endrin	0.014	0.06	11	NA	NA	NA	0.003 U	NA	NA
Endrin aldehyde	NE	NE	NE	NA	NA	NA	0.003 U	NA	NA
Endrin ketone	NE	NE	NE	NA	NA	NA	0.003 U	NA	NA
Heptachlor	0.042	0.38	2.1	NA	NA	NA	0.003 U	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
Heptachlor epoxide	NE	0.02*	NE	NA	NA	NA	0.003 U	NA	NA
Hexachlorobenzene	0.33	3.2	1.2	NA	NA	NA	0.003 U	NA	NA
Methoxychlor	NE	900*	NE	NA	NA	NA	**0.0053 JN**	NA	NA
Herbicides (mg/kg)									
2,4-D (2,4-Dichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.22 U	NA	NA
Dicamba	NE	NE	NE	NA	NA	NA	0.011 U	NA	NA
Dichloroprop	NE	NE	NE	NA	NA	NA	0.22 U	NA	NA
Mecoprop (MCPP)	NE	NE	NE	NA	NA	NA	22 U	NA	NA
Methylchlorophenoxyacetic acid	NE	NE	NE	NA	NA	NA	21.7 U	NA	NA
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	NE	NE	NE	NA	NA	NA	0.011 U	NA	NA
2,4,5-TP (Silvex)	3.8	3.8	100	NA	NA	NA	0.011 U	NA	NA
Metals (mg/kg)									
Aluminum	NE	NE	NE	**6720**	**6070**	**4680**	**6470**	**6650**	**4930**
Antimony	NE	NE	NE	2.76 U	2.72 U	2.15 U	**3.75 J**	2.58 U	2.91 U
Arsenic	13	16	16	**8.72**	**3.47**	**1.64 J**	**11.5**	**1.85 J**	**2.2 J**
Barium	350	820	400	**118**	**50.2**	**227**	**431**	**31.2 J**	**28.5 J**
Beryllium	7.2	47	72	**0.65 J**	**0.42 J**	**0.32 J**	**0.34 J**	**0.4 J**	**0.4 J**
Cadmium	2.5	7.5	4.3	2.2 U	2.18 U	1.72 U	**6.17**	2.06 U	2.33 U
Calcium	NE	NE	NE	**2780 J**	**14500 J**	**695 J**	**18000**	**618 J**	**1910 J**
Chromium	30	NE	180	**12.9**	**12.7**	**12**	**45.8**	**15.9 J**	**11 J**
Cobalt	NE	NE	NE	**22.3**	**5.23 J**	**5.7 J**	**8.18 J**	**4.28 J**	**4.84 J**
Copper	50	1720	270	**44.1**	**29**	**7.18 J**	**370**	**11.1 J**	**6.34 J**
Iron	NE	NE	NE	**26500**	**16100**	**16300**	**29600**	**19000 J**	**14100 J**
Lead	63	450	400	**152**	**59.7**	**4.1 J**	**1030**	**6.44 J**	**3.17 J**
Magnesium	NE	NE	NE	**1600**	**4280**	**1930**	**3620**	**1810 J**	**2280 J**
Manganese	1600	2000	2000	**77.7**	**294**	**115**	**310**	**208**	**317**
Mercury	0.18	0.73	0.81	**0.39**	**0.058**	0.03 U	**2.19**	0.036 U	0.033 U
Nickel	30	130	310	**36.3**	**11.2 J**	**8.51 J**	**73.8**	**8.72 J**	**8.45 J**
Potassium	NE	NE	NE	**836 J**	**1180 J**	**1210 J**	**723 J**	**877 J**	**1100 J**
Selenium	3.9	4	180	2.76 U	2.72 U	2.15 U	**1.31 J**	**0.85 J**	**1 J**
Silver	2	8.3	180	2.2 U	2.18 U	1.72 U	**2.28**	2.06 U	2.33 U
Sodium	NE	NE	NE	**401 J**	**330 J**	**410 J**	**332 J**	**183 J**	**262 J**
Thallium	NE	NE	NE	2.76 U	2.72 U	2.15 U	2.3 U	2.58 U	2.91 U
Tin	NE	NE	NE	55.1 U	54.4 U	42.9 U	46.1 UJ	51.6 U	58.1 U
Vanadium	NE	NE	NE	**20.2**	**20.1**	**20.4**	**26.1**	**26.3**	**17.3**
Zinc	109	2480	10000	**347**	**49.9**	**25.5**	**1610**	**25.3 J**	**24.3 J**
Cyanides (mg/kg)									
Free Cyanide	NE	NE	NE	0.226 U	0.234 U	0.236 U	0.238 U	0.238 U	0.248 U
Biomarkers (mg/kg)									
C23 Tricyclic Terpane (T4)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C24 Tricyclic Terpane (T5)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C25 Tricyclic terpane-22S (T6d)	NE	NE	NE	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample Location				Adjacent to Parcel 6 N. 12th St					
Sample Name Sample Depth (feet bgs) Sample Date	Unrestricted SCO	Protection of Groundwater SCO	Restricted-Residential SCO	WW-SB-252 (5-10) 8/3/2022	WW-SB-252 (10-15) 8/3/2022	WW-SB-252 (25-30) 8/3/2022	WW-SB-254 (0.6-5) 7/14/2022	WW-SB-254 (16-18) 7/19/2022	WW-SB-254 (43-45) 7/19/2022
C25 Tricyclic terpane-22R (T6f)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C24 Tetracyclic Terpane (T6a)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22S (T6b)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C26 Tricyclic Terpane-22R (T6c)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22S (T7)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C28 Tricyclic Terpane-22R (T8)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22S (T9)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C29 Tricyclic Terpane-22R (T10)	NE	NE	NE	NA	NA	NA	NA	NA	NA
18a(H)-22,29,30-Trisnorneohopane-TS (T11)	NE	NE	NE	NA	NA	NA	NA	NA	NA
17a(H)-22,29,30-Trisnorhopane-TM (T12)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22S (T11b)	NE	NE	NE	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)/17b(H),21a(H)-28,30-Bisnorhopane (T14a)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C30 Tricyclic Terpane-22R	NE	NE	NE	NA	NA	NA	NA	NA	NA
17a(H)-21b(H)-25-Norhopane (T14b)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30-Norhopane (T15)	NE	NE	NE	NA	NA	NA	NA	NA	NA
18a(H)-30-Norneohopane -C29Ts (T16)	NE	NE	NE	NA	NA	NA	NA	NA	NA
17a(H)-Diahopane (X)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30-Normoretane (T17)	NE	NE	NE	NA	NA	NA	NA	NA	NA
18a(H)/18b(H)-Oleananes (TI8)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Hopane (T19)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Moretane (T20)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30-Homohopane-22S (T21)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30-Homohopane-22R (T22)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Gammacerane	NE	NE	NE	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22S (T26)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30,31-Bishomohopane-22R (T27)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22S (T30)	NE	NE	NE	NA	NA	NA	NA	NA	NA
30,31-Trishomohopane-22R (T31)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22S (T32)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Tetrakishomohopane-22R (T33)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22S (T34)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Pentakishomohopane-22R (T35)	NE	NE	NE	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Diacholestane (S4)	NE	NE	NE	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Diacholestane (S5)	NE	NE	NE	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20S-Methyldiacholestane (S8)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Cholestane (S12)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Cholestane (S14)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Cholestane (S15)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Cholestane (S17)	NE	NE	NE	NA	NA	NA	NA	NA	NA
13b(H),17a(H)-20R-Ethyldiacholestane (S18)	NE	NE	NE	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
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Portion of K - Williamsburg Works Site
Brooklyn, New York

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13a(H),17b(H)-20S-Ethyldiacholestane (S19)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Methylcholestane (S20)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Methylcholestane (S22)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14b,17b-20S-Methylcholestane (S23)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Methylcholestane (S24)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20S-Ethlylcholestane (S25)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20R-Ethylcholestane (S26)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14b(H),17b(H)-20S-Ethylcholestane (S27)	NE	NE	NE	NA	NA	NA	NA	NA	NA
14a(H),17a(H)-20R-Ethylcholestane (S28)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Other (mg/kg)									
Ammonia	NE	NE	NE	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	NE	NE	NE	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	NE	NE	NE	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (Unadjusted)	NE	NE	NE	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NE	NE	NE	NA	NA	NA	NA	NA	NA
TPH-Diesel Range Organics (C10-C28)	NE	NE	NE	NA	NA	NA	NA	NA	NA
C9-C40	NE	NE	NE	NA	NA	NA	NA	NA	NA

Table 3. Detected Subsurface Soil Analytical Results - Within and Adjacent to Parcels 2-6
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K - Williamsburg Works Site
Brooklyn, New York

Notes:

mg/kg = milligrams/kilogram or parts per million (ppm)

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
PAH = Polycyclic Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
PFAS = Per- and polyfluoroalkyl substances
SVOC = Semi-Volatile Organic Compound
VOC = Volatile Organic Compound

Total BTEX, Total VOCs, Total PAHs, Total SVOCs, and Total PCBs are calculated using detects only.

6 NYCRR = New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York
Comparison of detected results are performed against one or more of the following NYCRR, Chapter IV, Part 375-6 Soil Cleanup Objectives (SCO)s: Unrestricted Use, Residential, Restricted-Residential, Commercial, Industrial, Protection of Ecological Resources, or Protection of Groundwater

NA = Not Applicable
ND = Not Detected
NE = Not Established

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the NYSDOH guidance it was compared to

Validation Qualifiers:

J = The result is an estimated value.
JN = The analyte is presumptively present at an approximated quantity.
R = The result is rejected.
U = The result was not detected above the reporting limit.
UJ = The results was not detected at or above the reporting limit shown and the reporting limit is estimated.

Table 4. Sample Location Rationale
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K Williamsburg Works Site
Brooklyn, New York

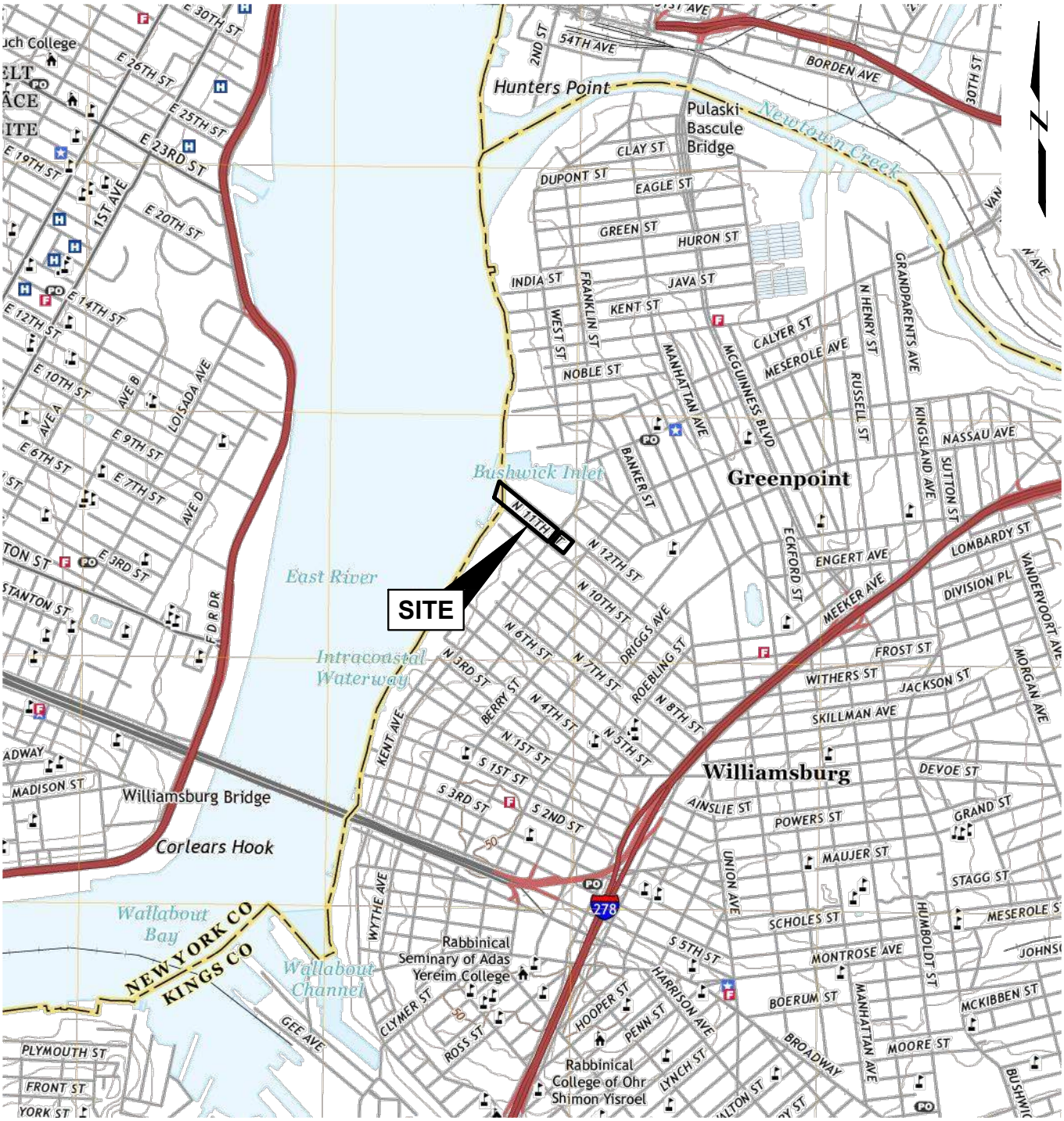
Proposed Sample Identification Number	Location	Rationale	Number of Samples		Target Boring Depth	Soil Sample Target Depths	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[1]
			Soil	GW						
Soil Borings and Monitoring Wells										
WW-MW-200D	Lot 16	Evaluate soil quality within the Site boundary. Evaluate groundwater flow and quality within the Site boundary.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X
WW-MW-201D	Lot 30	Evaluate soil quality within the Site boundary. Evaluate groundwater flow and quality within the Site boundary.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X
WW-MW-202D	Lot 30	Evaluate soil quality within the Site boundary. Evaluate groundwater flow and quality within the Site boundary.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X
WW-MW-203D	Lot 30	Evaluate soil quality within the Site boundary near an off-site NAPL plume. Evaluate groundwater flow and quality within the Site boundary and near an off-site NAPL plume.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X

Table 4. Sample Location Rationale
Supplemental Remedial Investigation Work Plan - Parcels 3 and 4
Portion of K Williamsburg Works Site
Brooklyn, New York

Proposed Sample Identification Number	Location	Rationale	Number of Samples		Target Boring Depth	Soil Sample Target Depths	VOCs (EPA 8260C)	SVOCs (EPA 8270D)	TAL Metals and Tin (6000/7000)	Cyanide (EPA 9014)[1]
			Soil	GW						
Soil Borings and Monitoring Wells										
WW-MW-204D	Lot 16	Evaluate soil quality within the footprint of the Site. Evaluate groundwater flow and quality within the Site boundary and near an off-site NAPL plume.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X
WW-MW-205D	Lot 30	Evaluate soil quality within the footprint of a former settling tank. Evaluate groundwater flow and quality within the Site boundary.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X
WW-MW-206D	Lot 16	Evaluate soil quality within the footprint of a former settling tank. Evaluate groundwater flow and quality within the Site boundary.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X
WW-MW-207D	Lot 30	Evaluate soil quality within the Site boundary. Evaluate groundwater flow and quality within the Site boundary.	Up to 3	2	Top of clay expected at 60 feet	1. Intermediate monitoring well screen interval. 2. Deep monitoring well screen interval. 3. Beneath impacts within the deep monitoring well screen interval, if any.	X	X	X	X

Notes:
Chemical analysis test methods specified are from U.S. EPA SW-846 test methods
EPA - Environmental Protection Agency
SVOC - semivolatile organic compounds
TAL - target analyte list
VOC - volatile organic compounds
1 - Soils will be analyzed by Free Cyanide, water will be analyzed by Total Cyanide

Figures



0 2000 4000

SCALE, FEET

QUADRANGLE LOCATION

SOURCE:

USGS TOPOGRAPHIC QUADRANGLE, 7.5 MINUTE SERIES: BROOKLYN, NY 2019
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
10-FOOT CONTOUR INTERVAL

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SITE LOCATION MAP

Project 093060 | May 2024 | Fig. 1

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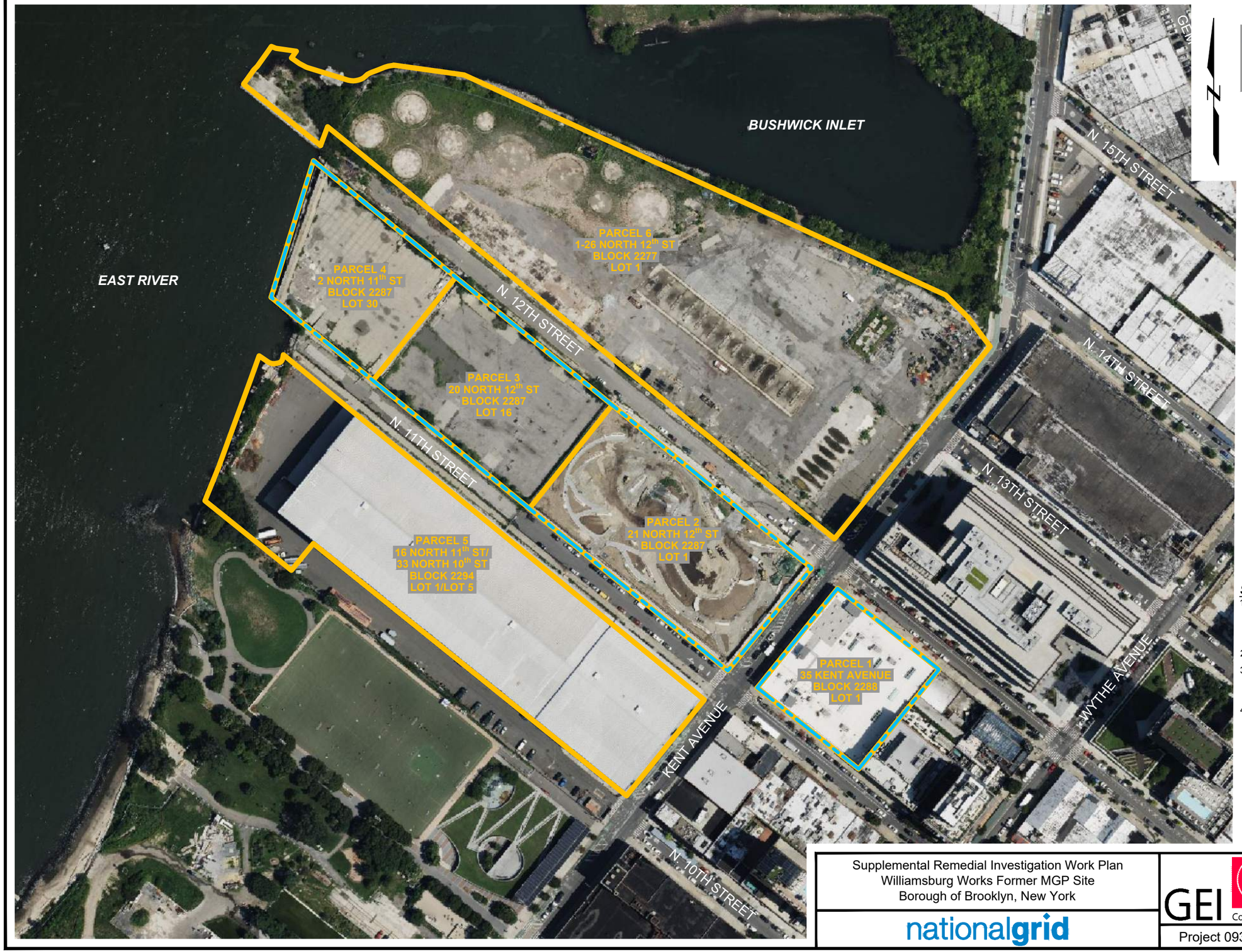

LEGEND:

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MGP PROPERTY

SOURCES:

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3. NEW YORK CITY OPEN ACCESSIBLE SPACE INFORMATION SYSTEM *HTTP://WWW.OASISNYC.NET* ACCESSED JANUARY 2008.
4. NEW YORK CITY DEPARTMENT OF CITY PLANNING, MAP PLUTO PARCELS.

0 150 300

SCALE, FEET

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REMEDIAL INVESTIGATION
PARCEL IDENTIFICATION MAP

Project 093060 | May 2024 | Fig. 2

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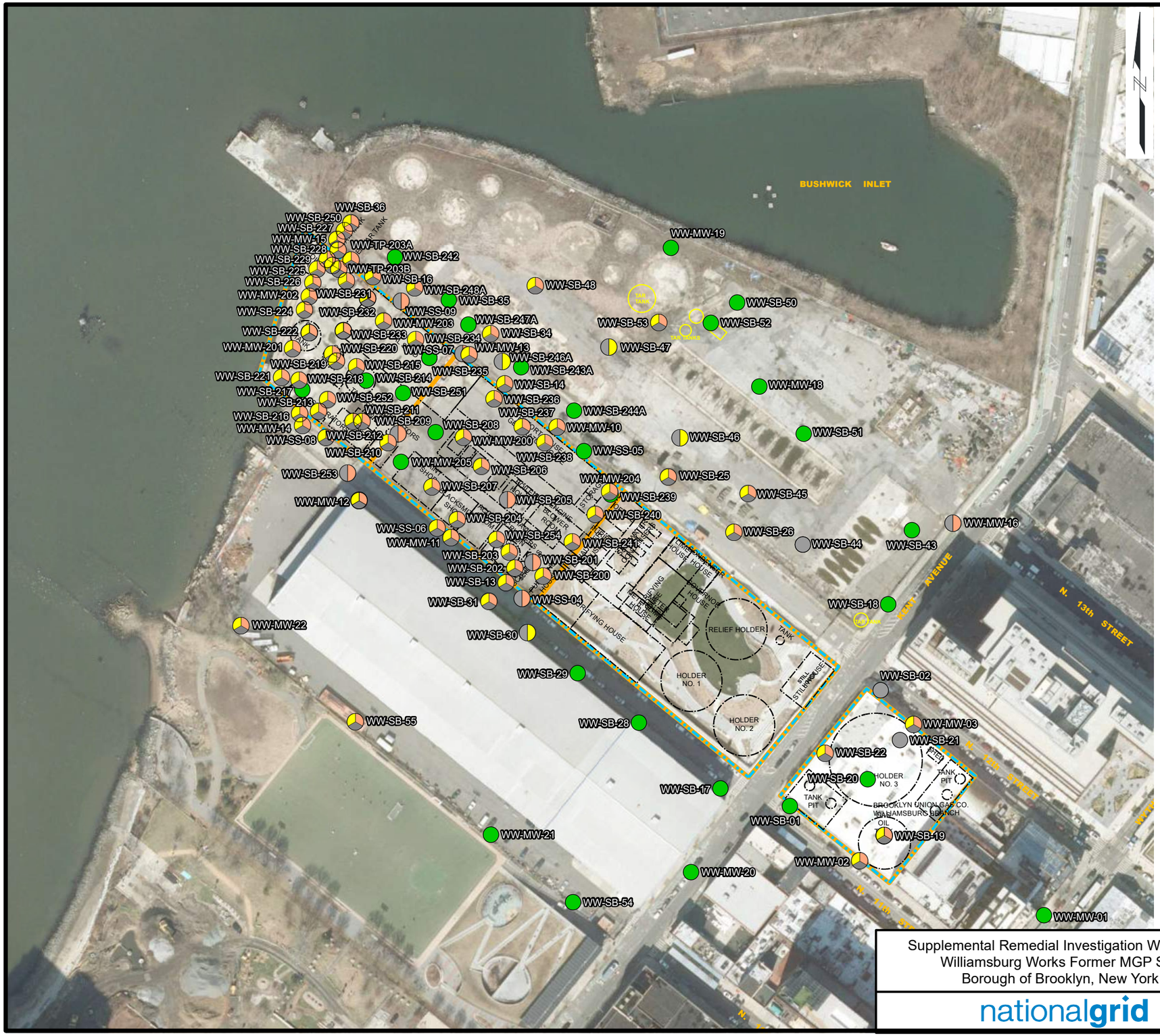

LEGEND

- APPROXIMATE CURRENT PROPERTY BOUNDARY
- APPROXIMATE BOUNDARY OF FORMER MGP PROPERTY
- HISTORIC MGP STRUCTURES
- HISTORIC NON-MGP STRUCTURES
- EXCEEDS UNRESTRICTED, PROTECTION OF GROUNDWATER AND RESTRICTED RESIDENTIAL OR INDUSTRIAL SCOs
- EXCEEDS UNRESTRICTED AND RESTRICTED RESIDENTIAL SCOs
- EXCEEDS UNRESTRICTED AND PROTECTION OF GROUNDWATER SCOs
- EXCEEDS UNRESTRICTED SCO
- NO EXCEEDANCE

NOTE:
IMPACTS SHOWN ON PARCEL 2, N.11TH STREET, AND N. 12TH STREET ARE BASED ON IMPACTS OBSERVED DURING INSTALLATION OF THE SOIL BORING, NOT FOLLOWING THE NAPL RECOVERY IRM.

SOURCE:

1. AERIAL PHOTOGRAPH 2024 ESRI WORLD IMAGERY AND ITS DATA SUPPLIERS ACCESSED VIA ARCGISONLINE.COM
2. SANBORN FIRE INSURANCE MAPS (1887 THROUGH 1996).
3. HISTORIC MAP OF BROOKLYN UNION GAS, DATED JULY 27, 1921.
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5. SURVEY OF WILLIAMSBURG WORKS BOUNDARIES, EXISTING CONDITIONS, AND SAMPLE LOCATIONS CONDUCTED BY GEI CONSULTANTS, INC. SURVEYED BY NEW YORK STATE-LICENSED LAND SURVEYOR No. 050146.
6. SITE INVESTIGATION REPORT BAYSIDE FUEL OIL COMPANY, PREPARED BY: METCALF AND EDDY OF NEW YORK, INC. NOVEMBER 2006.
7. SITE INVESTIGATION REPORT PROPERTY WEST OF KENT AVENUE BETWEEN AND INCLUDING NORTH 10TH AND NORTH 12TH STREETS, PREPARED BY: METCALF AND EDDY OF NEW YORK, INC., NOVEMBER 2006.
8. SITE INVESTIGATION REPORT 9TH STREET EQUITIES, LLC, PREPARED BY: METCALF AND EDDY OF NEW YORK, INC., AUGUST 2006.
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10. URS CORPORATION IRM DESIGN INVESTIGATION BORING LOGS AND LOCATION MAP PROVIDED TO GEI CONSULTANTS, INC. VIA EMAIL ON FEBRUARY 12, 2013.

0 150 300
SCALE, FEET

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Borough of Brooklyn, New York

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SUBSURFACE SOIL ANALYTICAL RESULT SCO EXCEEDANCES – UNSATURATED SOIL

Project 093060 | May 2024 | Fig. 3

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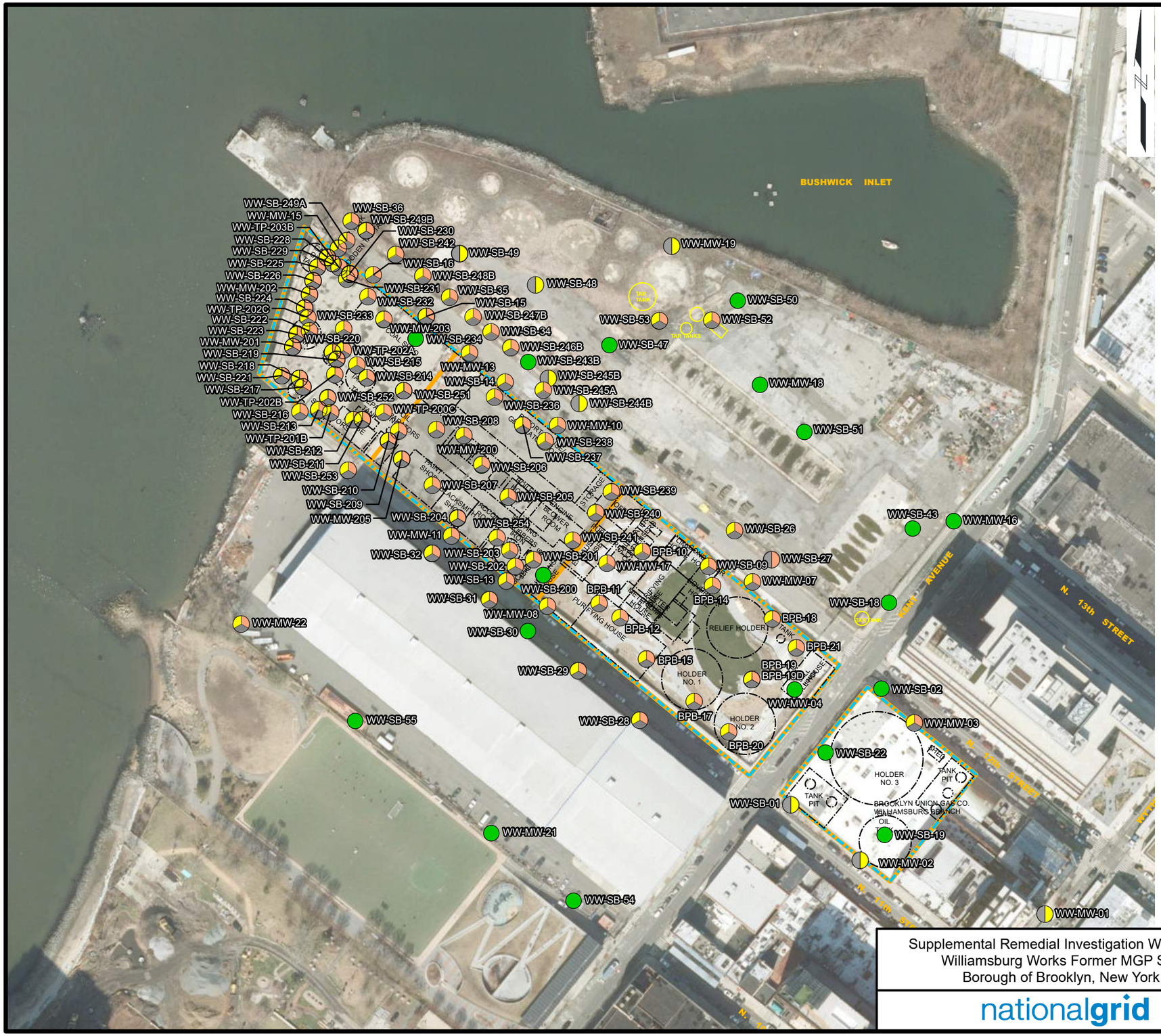

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SUBSURFACE SOIL ANALYTICAL RESULT SCO EXCEEDANCES – SATURATED SOIL ABOVE 30 FEET BGS

Project 093060 | May 2024 | Fig. 4

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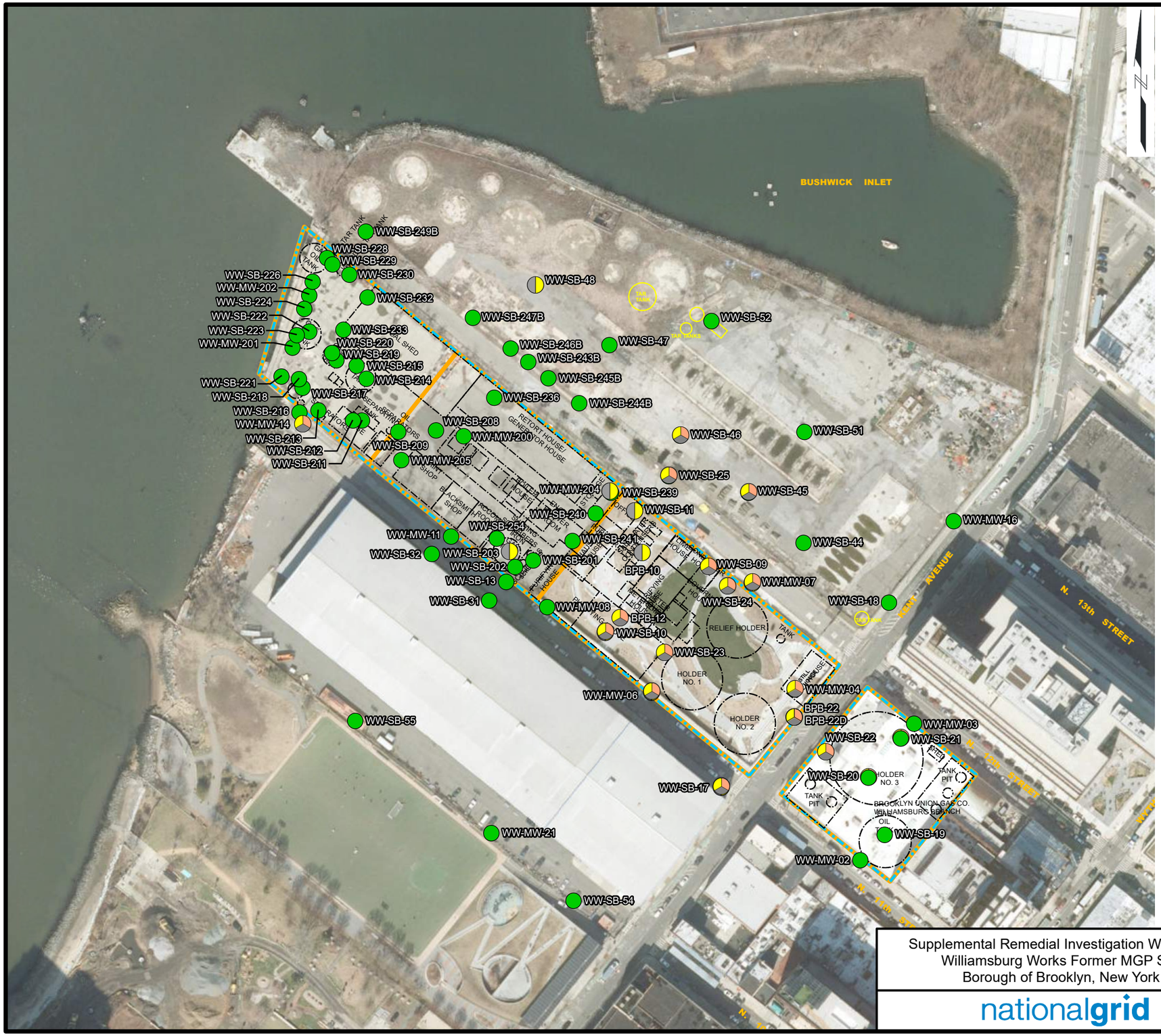

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SUBSURFACE SOIL ANALYTICAL RESULT SCO EXCEEDANCES – SATURATED SOIL BELOW 30 FEET BGS

Project 093060 | May 2024 | Fig. 5

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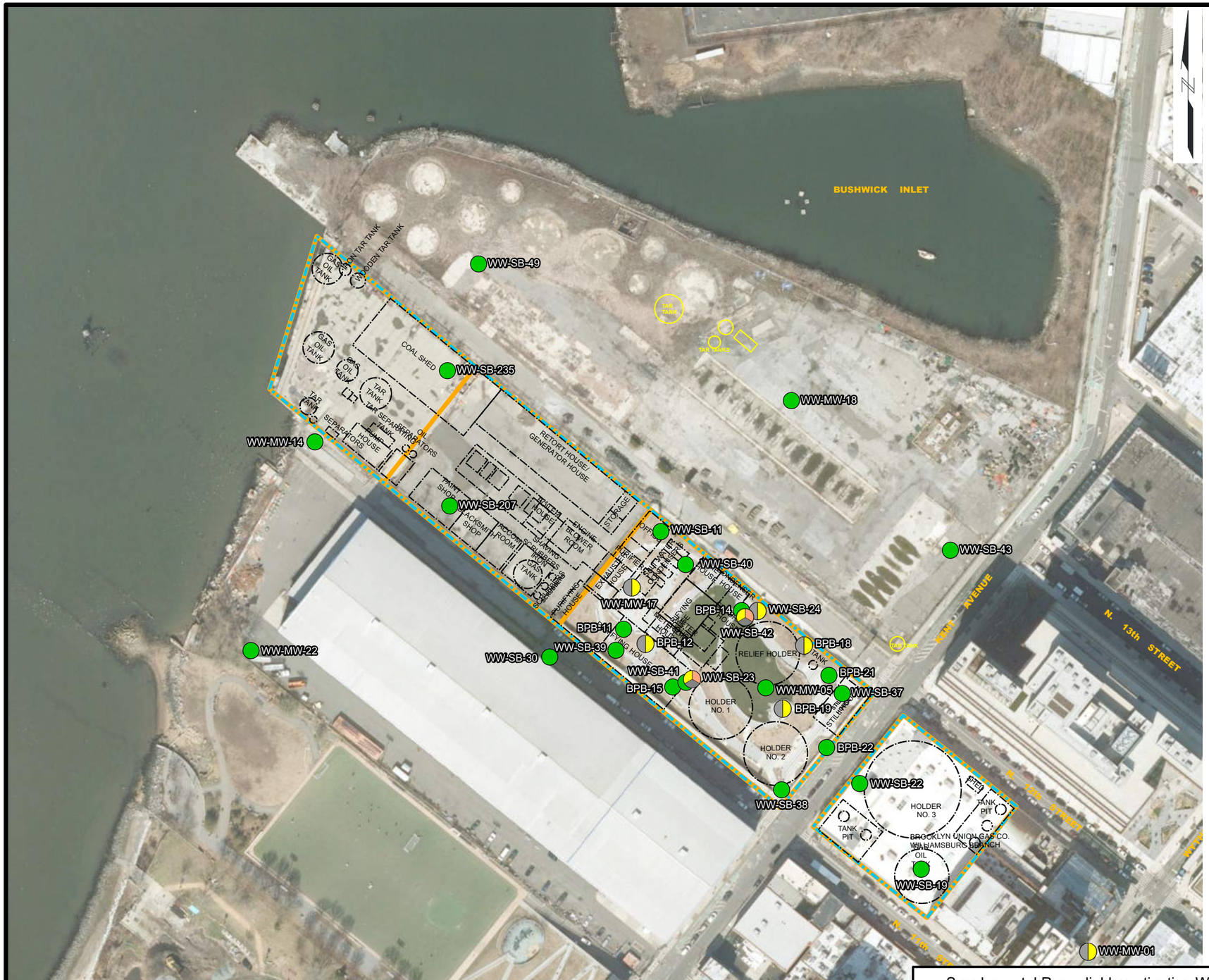

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SUBSURFACE SOIL ANALYTICAL RESULT SCO EXCEEDANCES – WITHIN CLAY

Project 093060 | May 2024 | Fig. 6

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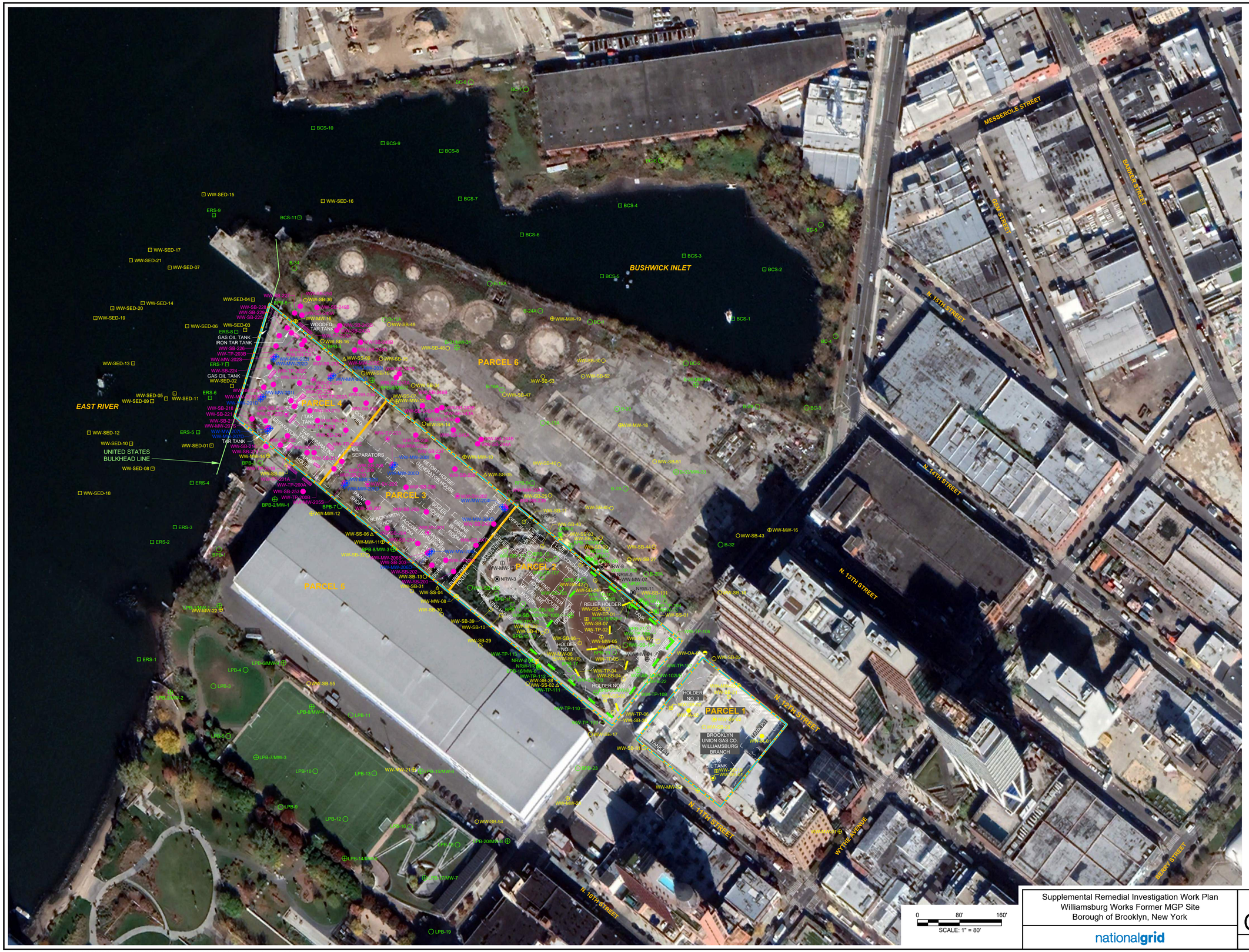
Plate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PARCEL 2
PARCEL 3
PARCEL 4
PARCEL 5
PARCEL 6
BUSHWICK INLET
EAST RIVER
MESSEROLE STREET
GEM STREET
BANNER STREET
N. 15TH STREET
N. 14TH STREET
N. 13TH STREET
N. 12TH STREET
N. 11TH STREET
N. 10TH STREET
WYTHE AVENUE
BERRY STREET
UNITED STATES BULKHEAD LINE
BROOKLYN UNION GAS CO. WILLIAMSBURG BRANCH
GAS OIL TANK
GAS OIL TANK
IRON TAR TANK
WOODED TAR TANK
TAR TANK
TAR TANK
OIL SEPARATORS
TAR SEPARATORS
RETORT HOUSE
GENERATOR HOUSE
SCALES
EXHAUST BLOWER HOUSE
BLACKSMITH SHOP
PAINT SHOP
STORAGE
OFFICE
LABORATORY
PURIFYING HOUSE
EXHAUSTER HOUSE
CONDENSER HOUSE
TAR & LIQUOR STORAGE
TAR & LIQUOR LOADING
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TAR & LIQUOR PUMPING HOUSE
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HOLDER NO. 2
HOLDER NO. 3
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WW-MW-40

Appendix A

Health and Safety Plan

Consulting
Engineers and
Scientists

Health and Safety Plan

Williamsburg Works Former MGP Site
Brooklyn, New York

National Grid
2 Hanson Place, 11th Floor
Brooklyn, NY 11201

Prepared by:
455 Winding Brook Drive
Glastonbury, CT 06033
860-368-5300

January 2024
Project No. 093060-3.4

Melissa J. Felter
Project Manager, LEP, P.G.

Lesley Gastwirth
Regional Safety Manager

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1. Emergency Contact Information

Table 1. Emergency Contact Information

Site Information	
Project Name:	Williamsburg Works Former MGP Site
Project Address:	35 and 50 Kent Avenue and 2 and 20 N. 12th Street, Brooklyn, NY
Project Number:	093060
Important Phone Numbers	
Local Police:	911
Fire Department:	911
Ambulance:	911
Hospital and Occupational Clinic Information *(See Attached Map and Directions in Appendix A)*	
Local Hospital: Woodhull Medical and Mental Health Center 760 Broadway Brooklyn, NY 11206 **Urgent Care/Occupational Health Clinic: Contact Medcor Triage** 73-01 Grand Avenue Maspeth, NY 11378	(718) 250-8075 Call Medcor Triage 1-800-775-5866 (718) 457-5900
Contacts	
Project Manager: Melissa Felter	(860) 368-5328 office (860) 608-9717 cell
Safety Director: Steve Hawkins	(860) 368-5348 office (860) 916-4167 cell
Regional Safety Manager: Lesley Gastwirth	(404) 592-0127 office (404) 667-7444 cell
Site Safety Manager: Alina Salaiz	(860) 368-5385 office (978) 413-4332 cell
Medcor Triage	1-800-775-5866

Client Contact: Jessica Phillips	 (516) 450-9425 office (516) 581-7313 cell
Donald Campbell (Project Manager)	(347) 436-9916 office (347) 452-5973 cell
Bill Ryan (SIR Regional Safety Lead)	(516) 545-2586 office (516) 790-1660 cell
Other Information	
Contractor Requesting/Performing Utility Clearance: ADT	Utility Clearance Ticket Number: TBD

2. GEI Safety Practices to Live By

Safety is what we do and how we do it every day. These Everyday Practices to Live Safe are simple yet concise reminders to our employees, clients, contractors, visitors of the steps that must be taken to avoid injury, illness, and incident so everyone can live safe every day. To maintain a safe work environment, GEI has established an organizational structure and a Corporate Health and Safety Program along with these safety practices.

1. Stop work if it is unsafe to continue, after any incident, injury, or near miss.

2. Prepare before starting work. Complete safety training and project-related safety requirements, such as preparation and review Health and Safety Plans (HASPs) as required by project or job-related duties.

3. Assess and control safety hazards/risks before starting any tasks and when previously unidentified safety hazards are observed.

4. Be attentive and aware of your environment. Constant focus and awareness will avoid complacency.

5. Properly use and maintain GEI-approved and required PPE in all appropriate circumstances.

6. Do not work or drive impaired, including under the influence of alcohol/drugs or while fatigued.

7. Follow all safety practices when operating a vehicle. Always wear your seatbelt while in any vehicle. Do not drive distracted, including using hand-held cell phones, when operating any vehicle.

8. Use tools, equipment, and safety devices in accordance with manufacturers recommendations and GEI expectations. Never modify or override safety devices.

9. When activities involve chemicals or hazardous substances, follow GEI's hazard communication requirements, including labeling, reviewing Safety Data Sheets (SDS), and keeping proper protections in place.

10. Be aware of and keep clear of equipment moving in all work areas, at all times.

11. Follow GEI's incident reporting procedure in the event of safety incidents, including injuries, illness, near misses, or observation of unsafe behaviors.

3. Site Background

This Health and Safety Plan (HASP) establishes policies and procedures to protect GEI Consultants, Inc. (GEI) personnel from the potential hazards posed by the activities at the Williamsburg Works Former Manufactured Gas Plant (MGP) Site, 35 and 50 Kent Avenue and 2 and 20 N. 12th Street, Brooklyn, New York (Figure 1). Reading, understanding, and compliance with the contents of the HASP is required for on-site GEI personnel and will be reviewed by GEI subcontractors. Subcontractors will prepare their own site-specific HASP but may use this HASP as a guide. This HASP identifies measures to minimize accidents and injuries which may result from site conditions or activities. A copy of this HASP will be maintained on site for the duration of the work.

Employees should review National Grid's Safety Procedure, Contractor Safety Requirements for reference (Appendix F). This document represents policies and safety-related work methods unique to National Grid and they may be more stringent than the Occupational Safety and Health administration (OSHA) regulations. Contractors must follow these requirements as well as their own rules or regulations that meet or exceed OSHA and other regulatory requirements.

3.1 Site Description

The Williamsburg Works Former MGP site is located in an industrial and commercial section of the Williamsburg neighborhood of Brooklyn, New York. The Site is also located in the 94th Precinct. The Site is bordered by North 12th Street to the northwest, industrial and commercial properties to the southeast, North 11th Street to the southwest, and the East River to the northeast.

The Site consists of four properties. The Parcel IDs, addresses, and tax map information for these properties are presented in the table below.

Parcel ID	Address	Block	Lot
Parcel 1	35 Kent Avenue Brooklyn, NY	2288	1
Parcel 2	21 North 12th Street (50 Kent Avenue) Brooklyn, NY	2287	1
Parcel 3	20 North 12th Street Brooklyn, NY	2287	16
Parcel 4	2 North 11th Street Brooklyn, NY	2287	30

The site history of the Williamsburg Works Former MGP and surrounding area was developed through the review of available Sanborn Fire Insurance (Sanborn) maps and other historic documents.

3.1.1 MGP History

The former Williamsburg Works MGP Site operated in a highly industrialized area that included dozens of historic, industrial, and manufacturing uses; large petroleum storage sites; and reported spills, all of which constitute sources of soil and groundwater contamination surrounding the Site. Historic property uses in the site vicinity included petroleum refining, fuel storage, a railroad terminal, iron works, varnishing works, chemical works, a brass foundry, laundry and dry-cleaning supply facilities, and other manufacturing facilities. Facilities that used or generated petroleum and tar-like substances include the former Pratt Works Refinery and former iron foundries. A more detailed Site history can be found in the Remedial Investigation Report (GEI, 2015) and the Construction Completion Report for 50 Kent Avenue (AECOM, 2018).

The Williamsburg Gas Light Company was incorporated in 1850 (Murphy, 1995) and was the first known operator of the Williamsburg Works MGP. The Williamsburg Works MGP was first shown on the 1887 Sanborn map. At that time, the gas production facilities consisted of coal carbonization facilities including a retort house, an engine room, a meter house, and a condenser house.

Gas storage and purification facilities included three gas holders, a governor house, a purifying house, two tar tanks, scrubbers and lime houses on the 1887 Sanborn map. Two of the gasholders were identified as relief holders built in 1863 and 1868 with two lifts each and had 315,000- and 306,000-cubic-foot capacities in a 2009 New York State Archives document. The third gasholder, built in 1884, was constructed with three lifts, and had a 460,000-cubic-foot capacity. All three holders were constructed with subsurface brick tanks and concrete foundations. The three holders are identified as Relief Holder, Holder No. 1, and Holder No. 2, respectively, on the 1921 Brooklyn Union Gas Company (BUG) drawing (2-G-130). In 1888, an additional holder with a capacity of 1,100,000 cubic feet and three lifts was built. The holder was constructed with subsurface brick and a concrete foundation (New York State Archives, 2009). It was identified as Holder No. 3 on the 1921 BUG drawing.

In the 1880s, H. H. Rogers, a Standard Oil trustee and vice president, and William A. Rockefeller, Jr., the president of the Standard Oil Company of New York, were on the board of the Williamsburg Gas Light Company, and by at least September 1893 the Williamsburg Works was operating a Loomis carbureted water gas process. In April, The Williamsburg Gas Light Company stopped buying naphtha from Standard Oil at above market prices.[1] In

[1] Progressive Age. Volume XI. 1893. p. 324.

1895, through the influence of H. H. Rogers and William A. Rockefeller, Jr., the Williamsburg Gas Light Company and several other Brooklyn gas manufacturing companies merged to form BUG. In 1896, H. H. Rogers and William A. Rockefeller, Jr. became board members of BUG (Murphy, 1995).

The 1905 Sanborn map indicated the former MGP was renamed the BUG Williamsburg Branch. According to the 1905 Sanborn map, the gas production facilities remained relatively unchanged, since construction, with the exception of the addition of iron tanks and a pump house. One circular gas tank, a generator house, a condenser house, exhauster houses, and purifying houses were added.

A 1912 map showing existing substructures prepared by the City of New York shows multiple 4 and 6-inch oil pipes along N. 12th Street and crossing into both Parcel 4 and the Pratt Works Refinery to the north of the MGP. On the 1912 map, the pipes are shown in two groups, one identified as '3-6" Oil Pipes' and the other identified variously as '9-4" Oil Pipes' and '11-4" Oil Pipes.' A 1908 BUG drawing shows an excavation plan for a pump house, settling tank, and oil separator to be built, and the generator house shown on the 1905 Sanborn is identified as the Old Loomis House. In the 1908 BUG drawing, two oil conduits are shown crossing the Site, within the area of Parcel 4. One of the conduits is identified as the "Pratt Oil Conduit" is shown to contain three pipes. The other conduit is labeled simply "Oil Conduit."

By 1916, the Sanborn map indicates the former Williamsburg Works MGP continued water gas production as evidenced by the addition of generators and conversion of the retort house to a generator house. A pump house and oil separator, similar to those shown in the 1908 BUG drawing, as well as two additional oil tanks and a tar slop tank are shown. An additional tank was added; the tank is identified as a gasometer on the Sanborn map and as a gas oil tank in a later 1921 BUG drawing.

The Williamsburg Works MGP ceased operation and the MGP structures were dismantled prior to 1941, as evidenced by the vacant lots shown in the 1941 Sanborn map. Subsequent to dismantlement, the former Williamsburg Works MGP property was subdivided and redeveloped for commercial, industrial and manufacturing uses.

3.1.2 Post-MGP History

Subsequent to dismantlement, the former Williamsburg Works MGP property was subdivided and redeveloped for commercial, industrial, and manufacturing uses. A brief history of the post-MGP use was developed from available BUG and Sanborn maps and is presented below by Site-specific Parcel IDs and tax lot. All of these properties are currently not owned by National Grid.

BUG drawing 1G122 dated June 23, 1909 and retraced October 5, 1939 includes hand written notes indicating Block 2287 (Parcels 2 through 4) was leased by the United States Navy beginning on July 1, 1945, with permission to stay until June 30, 1946 or six months after the end of the war. The same lease was noted for Block 2288 (Parcel 1), with a cancelation of the lease in June of 1946. Title searches for former MGP Parcels 1 through 4 did not indicate purchase of property by the United States Government between 1945 and 1946. The use and activity at the Site, if any, by the United States Navy is unknown. The Parcels were then under contract of sale in May 1946 with the condition that a railroad connection could be extended to the property. The connection was unable to be made and the contract was canceled as noted in the 1946 BUG drawing, which is included in Appendix A.

A July 1946 BUG drawing, 1G122, retraced July 16, 1946, which includes subsequent hand notes, indicates that modern-day Block 2287 Lot 1 (Parcel 2) was sold on January 30,1946, and that modern-day Block 2287 Lots Lot 16 and 30 (Parcels 3 and 4 respectively) were under contract for expected closing sale by February 1947. Block 2288 Lot 1 (Parcel 1) was sold on May 27, but the year is not legible.

- Parcel 1 [Block 2288 Lot 1]: The larger parcel within Parcel 1, still owned by BUG, was sold to Jerome Zirinsky in 1948. According to Sanborn maps, the property was developed as a beverage warehouse and garage in 1951 and had a gasoline storage tank. Subsequent Sanborn maps, 1965, 1978, and 1979 indicated the property use as a garage. Mr. Zirinsky was involved in property ownership until 1979 when the property was sold to NYC Industrial Development Agency. Colonial Mirror and Glass Corp. purchased the property on May 7, 1996. Colonial Mirror and Glass Corp. formerly operated a garage at the property. January 7, 2002 Colonial Mirror and Glass Corp. sold the property to George and Abe Weiner, aka, Abraham individually and as trustees of the Colonial trust. In August of 2013 Amazon opened a photography studio at the property.

- Parcel 2 [Block 2287 Lot 1]: Brooklyn Union Gas Company sold the property to Kent Industrial Corp. on July 22, 1946. A warehouse/industrial building was constructed by 1951 and was occupied by the Ferro-Co. Corp. for sheet metal product manufacturing. By 1965, the building was occupied by Commercial Corrugated Container Corp. On June 2, 1971 the property was owned by American Sandfill and Marine Corp. By 1978, the property was occupied by a New York City Department of Sanitation garage, which occupied the property until February 2009 when the building was demolished. The Parcel is currently a vacant, fenced lot used by the New York City Department of Parks and Recreation as a parking lot and an outdoor concert space during the summer.

- Parcel 3 [Block 2287 Lot 16]: The property was sold by the Brooklyn Union Gas Company to Havemeyer and Elder Inc. on January 31, 1947. Again, the property was purchased possibly to extend the Brooklyn Eastern District Terminal operations. Paragon Oil Co. Inc. purchased the property from the Brooklyn Eastern District Terminal on August 14, 1958. The 1965 Sanborn depicts two railroad spurs, a repair shop, office, scale, and scrap metal storage on the property. By 1978, the property and buildings were vacant except for the office. Texaco Inc. sold the property to Bridge Lumber Co. Inc. on May 24, 1982 which then sold the property to the New York City Industrial Development Agency on October 5, 1982. In 1983, the buildings were demolished and the property was used for parking. In March 26, 1987, the property was repurchased by the Bridge Lumber Co. Inc. which sold it to the R.A.R Realty Corp. on the same day. The current warehouse building was constructed in 1985 and used for lumber storage from 1988 until 1995 according to Sanborn maps. An underground storage tank, used as an oil/water separator for rainwater runoff from delivery trucks by the lumber company, was identified beneath the floor of the building in a 1998 Phase I ESA conducted by EEA. CitiStorage used the building for document storage until January 2015 when a fire destroyed the building. This parcel is currently vacant.

- Parcel 4 [Block 2287 Lot 30]: According to the title search, the property was sold from the Brooklyn Union Gas Company to Havemeyer and Elder Inc. on January 31, 1947. Havemeyer & Elder purchased multiple properties along the East River to expand their railroad terminal, the Brooklyn Eastern District Terminal. The 1965 Sanborn figure depicted three railroad spurs extending into the property from the west. Brooklyn Eastern District Terminal sold the property to Paragon Oil Company Inc. on August 14, 1958. The Sanborn maps depict oil truck parking operations occurred from approximately 1978 until 1982. Texaco Inc. sold the property to The Bridge Lumber Company Inc. on May 24, 1982. The current warehouse building was constructed in 1985 and used for lumber storage from 1988 until 1995 according to Sanborn maps. CitiStorage used the building for document storage until January 2015 when a fire destroyed the building. This parcel is currently vacant.

3.1.3 Current Site Conditions

The current site conditions of each property are summarized below.

Parcel ID	Address	Current Owner	Block	Lot	Land Use Description
1	35 Kent Avenue Brooklyn, NY 11211	North 12th Associates	2288	1	Industrial-factory building is used by Amazon as a photography studio.

Parcel ID	Address	Current Owner	Block	Lot	Land Use Description
2	21 North 12th Street (50 Kent Avenue) Brooklyn, NY 11211	Parks and Recreation	2287	1	Grassed fenced lot used by the New York City Department of Parks and Recreation as a pop-up park.
3	20 North 12th Street Brooklyn, NY 11211	10th Street, LLC.	2287	16	Vacant following the burning of former warehouse building.
4	2 North 11th Street Brooklyn, NY 11211	10th Street, LLC.	2287	30	Vacant following the burning of former warehouse building.

3.1.4 Investigation and Remedial History

On behalf of National Grid, GEI conducted a Remedial Investigation for the Williamsburg Works MGP site from June 2009 through December 2012. At their request, an interim data deliverable was submitted to NYSDEC in August 2010, and in September 2010 NYSDEC responded with a letter requesting that an excavation/stabilization-based IRM be performed at "the 50 Kent Ave. parcel (bounded by Citi Storage [Block 2278, Lot 16], N. 12th St., Kent Ave., and N. 11th St.)."

On August 2, 2011, NYSDEC approved, with modification, a GEI-prepared IRM Design Work Plan dated July 2011 and subsequently revised in August 2011. The IRM Design Work Plan was implemented by URS (URS has since become part of AECOM) between January 2012 and June 2015. URS submitted an IRM 100% Design Report (Design Report) to NYSDEC in June 2015. The Design Report was approved by NYSDEC on August 17, 2015. The IRM was conducted from December 2015 through June 2017.

During design of the IRM, GEI continued to implement RI field work. A RI Report, prepared by GEI, was submitted to NYSDEC on January 31, 2015.

3.2 Scope of Field Work

National Grid USA retained GEI to conduct a Remedial Investigation. Activities that GEI will be performing during the RI are listed below:

- Site Mobilization
- Soil Boring, Monitoring Well, Soil Vapor Point, and Test Pit Installation Observation
- Groundwater Sampling
- Non-Aqueous Phase Liquid (NAPL) Gauging and Recovery
- Site Survey

Table 2. GEI Employee Site Tasks and Descriptions

Task Number	Task Titles	Task Descriptions
1.	Site Mobilization	Mobilize equipment and contractors to Site, mark out sample locations, observe utility clearance activities.
2.	Soil Boring, Monitoring Well, Soil Vapor Point, and Test Pit Installation Observation	Observe contractor installing soil borings, monitoring wells, soil vapor points, and test pits and collect soil samples.
3.	Groundwater Sampling	Collect low flow groundwater samples.
4.	NAPL Gauging and Recovery	Gauge wells for NAPL and remove NAPL if necessary.
5.	Site Survey	Observe contractor surveying sample locations.

4. Potential Hazards

The potential hazards associated with site conditions and activity hazards related to GEI on-site activities have been identified in this section. Detailed information for these hazards and their control methods are discussed further in the Table 3 and the job hazard analysis (JHAs) included in Appendix B.

4.1 General Site Hazards

General hazards and control measures that are applicable to all site activities have been identified in Table 3.

Table 3. General Site Hazards

General Hazards These Hazards Apply to All Site Activities	Control Measure
Chemical / Contaminant Exposure – Skin and eye injury/irritation	• Wear protective coveralls (e.g. Tyvek®) with shoe covers, safety glasses, face shield, and Nitrile gloves (as needed). • Dispose of gloves after use and wash hands. • Avoid contact with pooled liquids and limit contact with contaminated soils/groundwater. • See SOP HS-009
Cold Stress – Hypothermia, Frostbite	• Take breaks in heated shelters when working in extremely cold temperatures. • Drink warm liquids to reduce the susceptibility to cold stress. • Wear protective clothing (recommended three layers: an outside layer to break the wind, a middle layer to provide insulation, and an inner layer of cotton of synthetic weave to allow ventilation). • Wear a hat and insulated boots. • Keep a change of dry clothing available in case clothes become wet. • Do heavy work during the warmer parts of the day and take breaks from the cold. • If possible, shield work areas from drafts of wind and use insulating material on equipment handles when temperatures are below 30°F • Watch for symptoms of cold stress and initiate first aid procedures (Section 4.3.2).

General Hazards These Hazards Apply to All Site Activities	Control Measure
Coronavirus-COVID-19	• Maintain a distance of 6 feet from others. • If tasks needed to be performed close to others, wear appropriate PPE including a face mask (surgical or cloth), gloves, and eye protection. • When travelling to project site, travel in separate vehicles. Carpooling is allowed if all passengers are vaccinated and are comfortable sharing a vehicle. • Frequent washing of hands with soap and warm water for 20 seconds. If soap is not available, use hand sanitizer with 60% alcohol. • Wipe down surfaces such as equipment surfaces, vehicle steering wheel, gear shifter, controls, and door handles with disinfectant routinely before and after use. • Wear Nitrile gloves as frequently as possible. • Wash hands after gloves removal. • Do not shake hands, hug, or engage in other personal contact.
Driving	• Employees must wear their safety belt while in a moving vehicle. • Vehicle accidents will be reported in accordance with GEI's accident reporting procedures. • Vehicles will be properly maintained and safely operated (refer to GEI's Fleet Maintenance Program). • Employees will follow safe driving behaviors, which include limiting distractions such as manipulating radios or other equipment that may cause a distraction. Employees should not exceed the posted speed limit and should maintain a safe distance between other vehicles. • Use defensive driving techniques. • Driving distance and time after a 12-hour shift should not exceed 30 miles or 30 minutes (whichever is greater). • See SOP HS-004
Dusty Conditions – Eye and respiratory irritation	• Avoid travel during times when dust causes hazardous driving conditions. • Wear protective gear – dust masks, safety glasses • • Use engineering methods to suppress dust if possible.
Heat stress – Fainting, Fatigue, Heat Stroke	• Increase water intake while working. • Increase number of rest breaks and/or rotate workers in shorter work shifts. Rest in cool, dry areas. • Watch for signs and symptoms of heat exhaustion and fatigue. • Plan work for early morning or evening during hot months. • Use ice vests when necessary. • In the event of heat stroke, bring the victim to a cool environment and initiate first aid procedures. • See Appendix C of the HASP

General Hazards These Hazards Apply to All Site Activities	Control Measure
Inclement Weather	• Listen to local forecasts for warnings about specific weather hazards such as tornados, thunderstorms, and flash floods. • If the storms produce thunder and/or lightning, leave the work area immediately and move to a safe area. • Discuss an action plan prior to the severe weather. • Wear appropriate PPE for the type of weather that could be encountered. • Stop work until conditions are suitable. Take cover in vehicles or shelter as appropriate. • See SOP HS-010
Insects – Bites, Stings, Allergic Reactions	• Apply insect repellent prior to performing field work and as often as needed throughout the work shift • Wear proper protective clothing (work boots, socks and light-colored clothing) • Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many insects are most active (between dawn and dusk). • When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible • Field personnel who may have insect allergies should have bee sting allergy medication on site and should provide this information to the SSM prior to commencing work. • Field personnel should perform a self-check at the end of the day for ticks. • See SOP HS-001
Physical Injury – Slips, Trips and Falls	• Wear PPE that properly fits, is in good condition and appropriate for the activities and hazards. • Maintain good visibility of the work area. • Avoid walking on uneven, steeply sloped or debris ridden ground surfaces. • Plan tasks prior to preforming them including an activity hazard analysis. • Keep trafficked areas free from slip/trip/fall hazards. • Maintain weed growth in sampling areas, especially on slopes. • Wear shoes with traction. • Avoid traversing steep areas in slippery conditions. • Do not carry heavy objects to sampling areas, on steeply sloped areas, or where steep areas must be traversed to arrive at sample points.
Repetitive Motion Injury – Standing, Squatting, and Bending Over	• Take regular breaks and do not work in unusual positions for long periods of time. • Walk and stretch between tasks. • See SOP HS-025

General Hazards These Hazards Apply to All Site Activities	Control Measure
Unsecured or High Crime Areas	• Be aware of your surroundings. • Use the buddy system. Do not remain on site alone. Accompany or be accompanied by others to vehicles. • Request police detail when appropriate. • Let the SSM know when you begin work in these areas and when you leave. • Call in regularly. • If you arrive in an area and it does not look safe to get out of your vehicle, lock the doors and drive off quickly but safely.
Utilities – Shock, Electrocution, Fire, Explosion	• A thorough underground utility survey must be conducted prior to intrusive activities. Coordination with utility locating services, property owner(s) or utility companies must be conducted. • Utilities are to be considered live or active until documented otherwise. • For overhead utilities within 50 feet, determine with the utility company the appropriate distance. Minimum distance for clearance is based on voltage of the line. • If exposing a utility, proper support and protection must be provided so that the utility will not be damaged. • If a gas line is contacted, the contractor must notify police, fire, and emergency personnel, and evacuate employees according to the site evacuation procedures. No attempt should be made to tamper with or correct the damaged utility. • See SOP HS-014
Vehicular Traffic – Struck by injury, crushing	• Increase visibility of the work area to others by using cones, flags, barricades, proper lighting and caution tape to define work area. • Use a "spotter" to locate oncoming vehicles. • Use vehicle to block work area. • Engage police detail for all work conducted in appropriate areas. • Wear high-visibility, reflective vest at all times. • Maintain minimum DOT defined distances to other traffic lanes. • See SOP HS-016.

4.1.1 Hazard Controls

On-site safety equipment to control the hazards listed above will include:

Site-Specific Safety Equipment *(check all that apply)*		
☒ Drinking water/electrolyte fluids	☒ Hand cleaner/sanitizer	☒ Tick removal kit
☒ Eye wash bottles	☒ Insect repellent	☒ Other: Tyvek clothing
☒ Fire extinguisher	☒ Phone charger	☐ Other:
☒ First aid kit	☐ Poison ivy/oak cleanser	☐ Other:
☐ Flashlight/head lamp	☒ Sunscreen	

GEI will ensure subcontractors are aware of pedestrian traffic safety for cyclers. GEI employees will ensure subcontractors are aware when a pedestrian is crossing the entrance and exit points to the Site on a bike.

Personal protective equipment (PPE) is discussed in further detail in Section 5.

4.1.2 Personal Safety

Field activities have the potential to take employees into areas which may pose a risk to personal safety. The following websites have been researched to identify potential crime activity in the area of the project:

- www.cityrating.com/crimestatistics.asp: New York crime statistics report an overall downward trend in crime based on data from 21 years with violent crime decreasing and property crime decreasing. Based on this trend, the crime rate in New York for 2023 is expected to be lower than in 2019.

  The city violent crime rate for New York City in 2019 was higher than the national violent crime rate average by 50.42% and the city property crime rate in New York City was lower than the national property crime rate average by 30.82%.

  In 2019 the city violent crime rate in New York City was higher than the violent crime rate in New York State by 59.14% and the city property crime rate in New York was higher than the property crime rate in New York State by 6.28%.

Brooklyn, New York is not listed on the Crime Mapping website; however, the New York City Police Department has a Crime Map showing crime statistics for the year to date. Prior to October 15, 2023, 988 incidents were listed in the 94th Precinct. This is a decrease of 8.94% from 2022 and an increase of 30.86% from 2021.

Employees must not knowingly enter into a situation where there is the potential for physical and violent behaviors to occur. If employees encounter hostile individuals or a confrontation develops in the work area, suspend work activities, immediately leave the area of concern, and contact local 911 for assistance. Notify the Site Safety Manager (SSM) and Safety Team (Safety Director and Regional Safety Managers – SafetyTeam@geiconsultants.com) of any incidents once you are out of potential danger.

In the event of an emergency, prompt communications with local emergency responders are essential. At least one charged and functioning cell phone to enable emergency communications will be on site. Confirmation of cellular phone operation will be confirmed at the start of each working day.

4.1.3 Communicable Diseases

Communicable diseases are illnesses caused by viruses or bacteria that people spread to one another through contact with contaminated surfaces, bodily fluids, blood products, insect bites, or through the air. Examples of communicable diseases include influenza, coronavirus 2019, hepatitis B, salmonella, measles, and blood-borne illnesses. Most common forms of spread include food, insect bites, droplets, or skin contact. Infections may range in severity from asymptomatic (without symptoms) to severe and fatal. Transmission of these biologic agents can occur in a variety of ways including airborne (inhalation), direct physical contact with an infectious person, consuming contaminated foods or beverages, contact with contaminated body fluids, contact with contaminated inanimate objects, or being bitten by an infected insect or tick. Below are ways to prevent the infection or spread of communicable diseases:

1. Distancing - Maintain a distance of at least 6 feet (2 meters) from others. Minimize the number of employees in one location to the extent possible. If tasks need to be performed close to others (within 6 feet) and that cannot be avoided, wear appropriate PPE including a face mask (surgical or cloth), gloves, and eye protection.
2. Wash Hands Often - Frequent hand washing with soap and warm water for 20 seconds. If soap and water are not readily available, use hand sanitizer (containing 60% alcohol) until soap and water can be used.
3. Clean and Disinfect Commonly Used Surfaces - Wipe down surfaces with disinfectant on a routine basis. This includes field equipment and other items that may have previously been used by others. This is especially important while working in construction trailers. When using company and personal vehicles, wipe surfaces including the steering wheel, gear shifter, controls, and door handles before and after use.
4. Use Good Hygiene Practices – These include washing hands frequently, avoid touching your eyes, nose, and mouth, and cover coughs and sneezes.
5. Get Vaccinated - Vaccines can prevent many infectious diseases. There are also vaccines that are recommended or required for travel to certain parts of the world.
6. Avoid Touching Wild Animals - Be cautious around wild animals as they can spread infectious diseases.
7. Stay home when you are sick.

4.2 Job Hazard Analysis

The site-specific tasks, potential hazards, and control measures established to reduce the risk of injury or illness are identified in step-by-step JHAs included in Appendix B. Prior to the start of work, project team members will determine what tasks are covered in the scope of

work (Table 2) and then develop a JHA for each of these tasks and have them reviewed by the Project Manager (PM) or their designee and approved by a member of the Safety Team. Indicated in each JHA are the specific PPE, training, equipment, health and safety SOPs and programs that apply to each task. Additional information on hazard controls can be found in GEI's SOPs and programs that apply to this project which are indicated in Appendix E.

4.2.1 Handling Drums and Containers

Regulations for handling drums and containers are specified by Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120(j). Potential hazards associated with handling drums include vapor generation, fire, explosions, and possible physical injury. Handling of drums/containers during the Site investigation and remediation activities may be necessary. If drum/container handling is necessary, it will be performed in accordance with applicable regulations.

4.2.2 Electrical Hazards

4.2.2.1 Utilities

The Site may have shallow, buried utilities and also overhead utilities in certain areas. It will be necessary for parties disturbing the existing ground surface and conducting operations with heavy equipment having high clearances to exercise caution in performing project-related work with respect to the presence of utilities. Utility companies with active, buried lines in the Site area will be asked by the Contractor performing intrusive activities to mark their facilities. Employees will use these data to choose work locations.

4.2.2.2 Underground Utilities

No excavating, drilling, boring, or other intrusive activities will be performed until an underground utility survey, conducted by knowledgeable persons or agencies, has been made. This survey will identify underground and in-workplace utilities such as the following:

- Electrical lines and appliances.
- Telephone lines.
- Cable television lines.
- Gas lines.
- Pipelines.
- Steam lines.
- Water lines.
- Sewer lines.
- Pressurized air lines.

The location of utilities will be discussed with GEI employees and subcontractors during a Site Safety Briefing. Identified utilities should be marked or access to them otherwise restricted to avoid chance of accidental contact. 811 must be called at least 3-days prior to work starting and valid 811 tickets will be maintained on-site.

Even when a utility search has been completed, drilling, boring, and excavation should commence with caution until advanced beyond the depth at which such utilities are usually located. Utilities will be considered "live" or active until reliable sources demonstrate otherwise.

4.2.2.3 Overhead Utilities

Overhead transmission and distribution lines will be carried on towers and poles which provide adequate safety clearance over roadways and structures. Clearances will be adequate for the safe movement of vehicles and for the operation of construction equipment.

Overhead or above-ground electric lines should be considered active until a reliable source has documented them to be otherwise. Elevated work platforms, ladders, scaffolding, man-lifts, and drill or vehicle superstructures will be erected a minimum of 20 feet (the actual distance is dependent upon the voltage of the line) from overhead electrical lines until the line is de-energized, grounded, or shielded so arcing cannot occur between the work location or superstructure.

4.2.3 Precautions for Working in Confined Spaces

Work in confined spaces will be performed in accordance with 29 CFR 1910.146 and the GEI Permit Required Confined Space Entry program. Confined space work will not be performed without first notifying and receiving approval from a member of the Safety Team. The PM will work with the Safety Director to address confined space hazards as applicable prior to the start of the project. The PM will contact local emergency responders to plan for potential rescue. This correspondence will be documented on the Confined Space Permit and communicated to the project team. A confined space entry number will be obtained from the Safety Director or the RSM before entering space.

A JHA will be developed that includes the site-specific tasks and hazard controls in will be reviewed by the PM and included in Appendix B. A link to GEI's Confined Space program is available in Appendix E which directs you to the Safety Resources page of GEI Connections. Excavations and Trenches (Including Drilling)

The safety requirements for excavations and trenches must be determined by a competent person who is capable of identifying existing and predictable hazards and work conditions that are unsanitary, hazardous, or dangerous to GEI employees. The competent person must

also have the authorization to take prompt corrective measures to eliminate unsatisfactory conditions. GEI employees will not enter trenches.

The following are general requirements for work activities in and around excavations:

- Prior to initiation of excavation activity (or ground intrusive activity, such as drilling), the location of underground installations will be determined. The One-Call/Dig-Safe center will be contacted by the Contractor/Subcontractor a minimum of 72 hours prior to excavation activities. It may also be necessary to temporarily support underground utilities during excavation. When excavations approach the estimated location of underground installations, the exact location of the underground installations will be determined by means that are safe for GEI employees, i.e., hand dig, test pits, etc.
- Excavations should be inspected daily by the excavating company's competent person prior to commencement of work activities. Evidence of cave-ins, slides, sloughing, or surface cracks or excavations will be cause for work to cease until necessary precautions are taken to safeguard employees.
- Excavated and other materials or equipment that could fall or roll into the excavation, and vehicular traffic and heavy equipment will be placed at least 5 feet from the edge of the excavation.
- Excavation operations will cease immediately during hazardous weather conditions such as high winds, heavy rain, lightning, and heavy snow.
- Atmospheres are to be tested with a properly calibrated Combustion Gas Indicator (CGI) or Gas Measurement Instrument (GMI) in accordance with National Grid excavation procedures as required.

Employees will refer to GEI's Excavation Safety SOP for further information.

4.2.4 Fire and Explosion

When conducting excavating activities, the opportunity for encountering fire and explosion hazards exists from contamination in soil and the possibility of free product in underground structures and pipelines. Additionally, the use of diesel-powered excavating equipment could present the possibility of encountering fire and explosion hazards.

4.2.5 Hand and Power Tools

In order to complete the various tasks for the project, personnel may use hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Work gloves, safety glasses, and hard hats will be worn by the operating personnel when using hand and power tools and Ground Fault Circuit Interrupter (GFCI)-equipped circuits will be used for power tools.

4.2.6 Slips, Trips, and Falls

Working in and around the Site may pose slip, trip, and fall hazards due to slippery and uneven surfaces. Excavation at the Site may cause uneven footing in trenches and around the soil piles. Steep slope and uneven terrain conditions at the Site are also a primary concern. GEI employees will wear proper foot gear and will employ good work practice and housekeeping procedures to minimize the potential for slips, trips, and falls.

4.2.7 Manual Lifting

Manual lifting of objects and equipment may be required. Failure to follow proper lifting technique can result in back injuries and strains. Employees should use a buddy system and/or power equipment to lift heavy loads whenever possible and should evaluate loads before trying to lift them (i.e., they should be able to easily tip the load and then return it to its original position). Carrying heavy loads with a buddy and proper lifting techniques include: 1) make sure footing is solid; 2) make back straight with no curving or slouching; 3) center body over feet; 4) grasp the object firmly and as close to your body as possible; 5) lift with legs; and 6) turn with your feet, don't twist.

4.2.8 Projectile Objects and Overhead Dangers

Overhead dangers, including but not limited to falling debris and equipment, can occur while operating drill rigs. GEI employees will maintain a minimum distance from large overhead operations and to maintain proper communication with heavy equipment operators and their handlers, should work necessitate their presence beyond the minimum safety distance. Proper PPE will be worn during these types of activities including steel-toed/shank boots, safety vests, and hard hats.

4.2.9 Cuts and Lacerations

The core sampling program may require employees or the contractor to use powered cutting tools (circular saw or shears) or a hooked knife to cut open the sample liner. Safety box cutters will be utilized for routine operations such as opening boxes of supplies or cutting rope or string. When using cutting tools, follow the safety precautions listed below:

- Keep free hand out of the way.
- Secure work if cutting through thick material.
- Use only sharp blades; dull blades require more force that results in less knife control.
- Pull the knife through the object and away from your body; pulling motions are easier to manage.
- Do not put the knife in your pocket.
- Wear leather or Kevlar® gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.

4.3 Heat and Cold Stress

4.3.1 Heat Stress

Employees may be exposed to the hazards associated with heat stress when ambient temperatures exceed 80ºF. To prevent heat-related illness, Project Managers (PMs) should plan for proper hydration (drinking plenty of water), acclimatization (getting used to weather conditions), and schedules that alternate work with rest. Employees should also be trained to recognize the symptoms of heat related illnesses and know how to administer first aid for heat-related illnesses and activate emergency medical services quickly when needed. Water and shade will be available to all project employees and located as close as practicable to the work areas when temperatures exceed 80°F.

CDC Heat Planning Tool
For the most recent details and tools for heat stress, use your smart phone to access the Centers for Disease Control for the latest information. Additional details can be found in GEI's Heat Stress Program located on the Safety Resources page of GEI Connections.

Prior to each workday, the forecasted temperature and humidity for the worksite will be reviewed and will be compared against the National Weather Service Heat Index to evaluate the risk level for heat illness. When the temperature equals or exceeds 95°F, or during a heat wave, high heat procedures will be used which include additional preventive measures including pre-shift meetings to encourage employees to drink plenty of water, working in the buddy system or regular communication so observations can be made for heat related illness, and to remind employees of their right to take a cool-down rest when necessary.

4.3.2 Cold Stress

Employees may be exposed to the hazards associated with cold stress when working in cold, wet, and/or windy conditions. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, and poor judgment.

CDC Cold Stress Info
For the most recent details and tools for cold stress, use your smart phone to access the Centers for Disease Control for the latest information. Additional details can be found in GEI's Cold Stress Program located on the Safety Resources page of GEI Connections.

4.4 Confined Spaces

Work in confined spaces will be performed in accordance with 29 CFR 1910.146 and the GEI Permit Required Confined Space Entry program. Confined space work will not be performed without first notifying and receiving approval from a member of the Safety Team. The PM will work with the Safety Director to address confined space hazards as applicable prior to the start of the project. The PM will contact local emergency responders to plan for potential rescue. This correspondence will be documented on the Confined Space Permit and communicated to the

project team. A confined space entry number will be obtained from the Safety Director or the RSM before entering space.

A JHA will be developed that includes the site-specific tasks and hazard controls in will be reviewed by the PM and included in Appendix B. A link to GEI's Confined Space program is available in Appendix E which directs you to the Safety Resources page of GEI Connections.

4.5 Noise

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps, and generators. Employees who will perform suspected or established high noise tasks and operations will wear hearing protection. If deemed necessary by the SSM, the Safety Director will be consulted on the need for additional hearing protection and the need to monitor sound levels for Site activities. Other employees who do not need to be in proximity of the noise should distance themselves from the equipment generating the noise.

4.6 Constituents of Concern

The characteristics of constituents of concern (COC) at the site are discussed below for safety information purposes. A COC is any substance classified or defined as hazardous, extremely hazardous, toxic, or dangerous. The COC included in this health and safety plan will be the primary constituents that have been detected on site or are anticipated to be detected. These COC will be used to determine the action levels and PPE necessary for site personnel. Adherence to the safety and health guidelines in this HASP should reduce the potential for exposure to the COC discussed below.

4.6.1 Site-Specific COC

4.6.1.1 Asbestos-Containing Materials

The Site potentially contains asbestos-containing materials (ACM) in the forms of demolition debris within or without holders, ACM pipe insulation, and asbestos cement pipe. Chronic exposure to asbestos may cause asbestosis and mesothelioma. The primary route of exposure for asbestos is inhalation during the disturbance and/or removal of asbestos from the pipe insulation and cement pipes.

Asbestos is strictly regulated under OSHA 29 CFR 1910.1001/1926.1101. Employees that may be potentially exposed to ACM must participate in a medical surveillance program, have specific training in the hazards and controls of exposure to asbestos, and wear respirators with high efficiency particulate air (HEPA) filters. Work must be conducted in demarcated regulated areas to minimize the amount of people within the exposure area. Employers must conduct air sampling and provide signs and labels regarding the presence of asbestos.

4.6.1.2 Chlorinated Hydrocarbons

Chlorinated hydrocarbons (organochlorides) are a very large and diverse group of hydrocarbon molecules that also have at least one covalently bound chlorine atom chemically bonded to them. Chlorinated hydrocarbons are used predominantly as solvents and have historically been used as industrial degreasers, dry cleaning solvents, anesthetic agents and as refrigerants. They are colorless, volatile liquids with a moderately sweet aroma and partially soluble in but denser than water. They are the most common dense non-aqueous phase liquid (DNAPL).

The more common forms of chlorinated solvent contamination of soils and ground waters include:

- Tetrachloroethene (PCE, Tetrachloroethylene)
- Carbon tetrachloride (Tetrachloromethane or carbon tet)
- Trichloroethylene (TCE, Trichloroethene)
- 1,1,1-TrichloroMethane (Chloroform)
- 1,1,1-Trichloroethane (TCA, methyl chloroform, chlorothene, Solvent 111)
- Dichloromethane (DCM or methylene chloride)

As a class, the chlorinated hydrocarbons are potent central nervous system depressants or stimulants. They also cause greater liver and kidney damage compared to other organic solvents. Many have been shown to cause cancer in laboratory animals; due to widespread industrial use, the issue of carcinogenic risk to humans is one of the most controversial issues in regulatory toxicology.

Exposure to chlorinated hydrocarbon compounds in the occupational setting is primarily through inhalation. Skin absorption is variable and usually insignificant, although dermal absorption following prolonged or extensive skin contact can cause systemic toxicity.

4.6.1.3 Coal Tar and Coal Tar Products

Coal tar products, which are semi-volatile organic compounds (SVOCs) consist of a mixture of acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluorethene, benz(a)pyrene, benzo(e)pyrene, benzo(g,h,i)peryline, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3cd)pyrene, 2-methyl naphthalene, naphththalene, phenanthrene, phenols, pyrene.

Coal tar products and other SVOCs are present at the Site within impacted soil and groundwater and as a DNAPL by-product of gas production within soils, former MGP structures, and abandoned pipelines.

Coal tar products such as those listed above may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. Coal tar is considered to be very toxic, if ingested. High levels of exposure to coal tar, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

4.6.1.4 Cyanide

Cyanide compounds are common by-products of manufactured gas production. Hydrogen cyanide is toxic because it is a chemical asphyxiate. It replaces the oxygen in the blood and thereby suffocates the cells. Ferro cyanides are not considered toxic because the hydrogen cyanide ion is bound too tightly to the iron and cannot therefore replace the oxygen. It takes a great amount of heat and/or acid to release cyanide gas from the ferro cyanide molecule; therefore, hydrogen cyanide is not a concern at this Site. However, it is National Grid's policy to monitor for hydrogen cyanide during earth-disturbing activities at sites where MGP-related contaminants have been found.

4.6.1.5 Heavy Metals

Exposure to high concentrations of arsenic can cause dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, and hyper pigmentation of skin. Chronic exposure to arsenic has resulted in lung cancer in humans.

Exposure to high concentrations of aluminum can cause irritation of the eyes, skin, and the respiratory system.

Exposure to high concentrations of antimony can cause irritation of eyes, skin, nose, throat, and mouth; coughing; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; and could be unable to smell properly. Chronic exposure to antimony can produce respiratory effects that include antimony pneumoconiosis (inflammation of the lungs due to irritation caused by the inhalation of dust), alterations in pulmonary function, chronic bronchitis, chronic emphysema, inactive tuberculosis, pleural adhesions, irritation; cardiovascular effects (increased blood pressure, altered EKG readings and heart muscle damage) and gastrointestinal disorders in humans.

Exposure to high concentrations of beryllium can result in "beryllium sensitization," which is an allergic response to beryllium. Symptoms of the disease include cough, shortness of breath, fatigue, fevers, skin rash, and night sweats. In the later stages, lung tissue becomes scarred. In severe cases, the right side of the heart may be strained due to increased pressure in the pulmonary artery from lung damage.

Exposure to high concentrations of cadmium can cause acute symptoms such as pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness and pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; loss of the sense of smell), mild anemia; and is considered a potential occupational carcinogen.

Exposure to chromium can cause acute symptoms such as irritation of the eyes, nose and throat as well as wheezing and coughing. Chronic effects include nosebleeds, nasal congestion, dermatitis, and loss of sight.

Exposure to high concentrations of copper through inhalation can cause irritation of the eyes, nose, pharynx, nasal septum. Ingestion may cause a metallic taste. Skin irritation may result from direct contact with skin. Damage to the liver and kidneys may occur.

No adverse health effects are associated with environmental exposure to iron. Target organs for iron via ingestion of iron (most often in supplement form) are the liver, cardiovascular system, and kidneys. Exposure to high concentrations of iron through ingestion can cause salivation nausea, vomiting, diarrhea, and abdominal pain.

Exposure to lead may cause acute symptoms such as eye irritation, weakness, weight loss, abdominal pain, and anemia. Chronic exposure to lead may result in kidney disease, effects to the reproductive system, blood forming organs, and Central Nervous System (CNS).

Lead and arsenic are regulated by specific OSHA standards. They are 29 CFR 1910.1025/1926.52 and 29 CFR 1910.1018/1926.1118, respectively. These standards include specific requirements for air monitoring, signs and labels, training and medical surveillance.

Exposure to high concentrations of manganese can cause manganism, metal fume fever, flu-like fever, and kidney damage.

Exposure to high concentrations of nickel may cause sensitization dermatitis, allergic asthma, and pneumonitis. Exposure to mercury can cause dizziness, salivation nausea, vomiting, diarrhea, constipation, emotional disturbance, and kidney injury. Chronic exposure to mercury can cause CNS damage.

Exposure to high concentrations of selenium can cause mucous membrane irritation, coughing, sneezing, shortness of breath, chills, headaches, hypotension, and CNS depression.

Chronic exposure to selenium could cause bronchial irritation, gastrointestinal distress, excessive fatigue, and skin discoloration.

Exposure to high concentrations of thallium can cause nausea, diarrhea, abdominal pain, vomiting; tremor; chest pain, pulmonary edema; convulsions, psychosis; liver, kidney damage; and alopecia.

Vanadium may cause greenish-black discoloration of the tongue and is a possibly carcinogenic to humans. Long-term or repeated exposure to vanadium may have effects on the respiratory tract, resulting in chronic rhinitis and chronic bronchitis.

Exposure to high concentrations of zinc through ingestion can cause abdominal pain, nausea, vomiting, and diarrhea. Chronic exposure can lead to low blood pressure, jaundice, and seizures.

These metals are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. As with SVOCs, the primary route of exposure is through inhalation of dust particles when soil is disturbed and becomes airborne.

4.6.1.6 Hydrogen Sulfide

Hydrogen sulfide is another common by-product of manufactured gas production. Exposure to lower concentrations can result in eye irritation, a sore throat and cough, shortness of breath, and fluid in the lungs. These symptoms usually go away in a few weeks. Long-term, low-level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness. Breathing very high levels (> 800 parts per million [ppm]) of hydrogen sulfide can cause death within just a few breaths. The primary route of exposure is through inhalation and, therefore, respiratory protection is the primary control against exposure to hydrogen sulfide.

4.6.1.7 Pesticides

Pesticide exposures, in general, affect the CNS, liver, kidneys, and skin. At high concentrations, pesticides can cause headache, dizziness, nausea, vomiting, malaise (vague feeling of discomfort), sweating, limb jerks, convulsions, and coma. The pesticides detected at the site are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur.

4.6.1.8 Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbons (PAHs) are a group of chemicals consisting of numerous carbon atoms joined together to form multiple rings. PAHs include acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluorethene, benz(a)pyrene, benzo(e)pyrene, benzo(g,h,i)peryline, chrysene, dibenz(a,h)anthracene,

fluoranthene, fluorene, indeno(1,2,3cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, phenols, and pyrene. Most are formed from the incomplete combustion of plant or animal matter, or carbon fuels, such as coal or petroleum. These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. PAHs may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. High levels of exposure to PAHs, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

4.6.1.9 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) have previously been encountered during MGP site investigations at other sites. PCBs have historically been used from a number of sources including, but not limited to; electrical systems, hydraulic oils, lubricants, cutting oils, printer's ink, and asphalt. Exposure to PCBs can occur through unbroken skin without immediate pain or irritation. PCBs detected at the site are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. Acute effects of exposure to high concentrations of PCB can include eye, skin, nose, and throat irritation. Chronic effects of PCB exposure can include skin swelling and redness, gastro-intestinal disturbances, and neurological effects such as headache, dizziness, nervousness, and numbness of extremities. PCBs are suspected human carcinogens that can cause liver cancer. PCBs can accumulate in fatty tissues and result in health effects after the initial exposure has occurred. The primary route of exposure for PCBs is inhalation, dermal contact, and ingestion. Analysis of soils from the Site did not indicate elevated PCB concentrations.

4.6.1.10 SVOCs

SVOCs are present at the Site within impacted soil and groundwater and as a dense DNAPL by-product of gas production within soils, former MGP structures, and abandoned pipelines.

These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. SVOCs such as those listed above may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching,

burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. Many SVOCs are considered to be very toxic, if ingested. High levels of exposure to SVOCs, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

4.6.1.11 Volatile Organic Compounds

Volatile organic chemicals (VOCs), such as benzene, toluene, ethyl benzene, and xylene (BTEX) are present as soil and groundwater contaminants, and in some cases chemical components in NAPL such as oil or tar within soils and abandoned pipelines. These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. These compounds generally have a depressant effect on the CNS, may cause chronic liver and kidney damage, and some are suspected human carcinogens. Benzene is a known human carcinogen. Acute exposure may include headache, dizziness, nausea, and skin and eye irritation. The primary route of exposure to VOCs is through inhalation and, therefore, respiratory protection is the primary control against exposure to VOCs.

4.6.1.12 Coal Ash

Coal ash, also referred to as coal combustion residuals or CCRs, is produced primarily from the burning of coal in coal-fired power plants. Coal ash includes a number of by-products produced from burning coal. Coal ash contains contaminants like mercury, cadmium and arsenic. Ash is a solid, grey/black or brown/tan, odorless powder which may contain solidified masses. It is not combustible or explosive. Airborne dust may cause immediate or delayed irritation or inflammation to the eyes, nose, throat, or lungs depending on the degree of exposure. Ash may contain trace amounts of ammonia or ammonia bisulfate. Contact with water or moisture can cause the ammonia to be released from the ash into the air. Inhalation of ammonia can cause coughing and irritation or burns to the nose throat and lungs. These effects depend on the concentration of ammonia inhaled. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne. For dust generated during site activities which exceed site specific limits, engineering controls such as water application will be used to control dust concentrations.

4.6.1.13 Evaluation of Organic Vapor Exposure

Air monitoring reduces the risk of overexposure by indicating when action levels have been exceeded and when PPE must be upgraded or changed. Action Levels for VOCs and associated contingency plans for the work zone are discussed within Section 9 of this HASP.

Exposure to organic vapors will be evaluated and/or controlled by:

- Monitoring air concentrations for organic vapors in the breathing zone with a photoionization detector (PID) or a flame ionization detector (FID).
- When possible, engineering control measures will be utilized to suppress the volatile organic vapors. Engineering methods can include utilizing a fan to promote air circulation, utilizing volatile suppressant foam, providing artificial ground cover, or covering up the impacted material with a tarp to mitigate volatile odors.
- When volatile suppression engineering controls are not effective and organic vapor meters indicate concentrations above the action levels, then appropriate respiratory protection (i.e., air purifying respirator with organic vapor cartridge) will be employed.

4.6.1.14 Evaluation of Skin Contact and Absorption

Skin contact by contaminants may be controlled by use of proper hygiene practices, PPE, and good housekeeping procedures. The proper PPE (e.g., Tyvek®, gloves, safety glasses) as described in Section 5 will be worn for activities where contact with potential contaminated media or materials are expected.

Table 4. Primary Constituents of Concern Data

Constituent	Exposure Limit(s)	Route of Exposure	Primary Hazard/ Symptoms of Exposure
Aluminum	TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)	Inhalation, skin and/or eye contact	Irritation eyes, skin, respiratory system
Antimony	TWA 0.5 mg/m^3	Inhalation, ingestion, skin contact, eyes	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly
Arsenic	0.01 mg/m^3 A.L. 0.005mg/m^3	Inhalation, skin absorption, ingestion, skin contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, potential carcinogen
Asbestos	0.1 f/cc over 8 hr. period or 1.0 f/cc over 30 min.	Inhalation, ingestion, skin contact	Asbestosis (chronic exposure); mesothelioma, breathing difficulty, interstitial fibrosis' restricted pulmonary function, finger clubbing; irritate eyes, potential carcinogen

Constituent	Exposure Limit(s)	Route of Exposure	Primary Hazard/ Symptoms of Exposure
Barium	TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)	Inhalation, skin and/or eye contact	Irritation eyes, nose, upper respiratory system; benign pneumoconiosis (baritosis)
Benzene	1 ppm TWA 5 ppm STEL	Inhalation, skin absorption, ingestion skin contact	Irritation of eyes, skin, nose, respiratory system, giddiness, headache, nausea; staggering gait, fatigue, anorexia, weakness, dermatitis, bone marrow depression, potential carcinogen
Beryllium	TWA 0.002 mg/m^3 C 0.005 mg/m^3 (30 minutes), with a maximum peak of 0.025 mg/m^3	Inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]
Cadmium	TWA 0.005 mg/m^3	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]
Carbon Disulfate	30 ppm C	Inhalation, ingestion, skin absorption, skin contact, eye contact	Dizziness, headache, poor sleep, lassitude, anxiety
Carbon Monoxide	50 ppm	Inhalation, skin and/or eye contact (liquid)	Headache, tachypnea, nausea, lassitude (weakness, exhaustion), dizziness, confusion, hallucinations; cyanosis; depressed S-T segment of electrocardiogram, angina, syncope
Carbon Tetrachloride	Ca ST 2 ppm (12.6 mg/m^3) [60-minute]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]
Chromium (Chromic Acid and Chromates)	0.1 mg/m^3	Inhalation, ingestion, skin contact	Irritates respiratory system, nasal, septum perforation, liver and kidney damage, leukocytosis (increased blood leucocytes), leukopenia (reduced blood leucocytes), moncytosis (increased monocytes), Eosinophilia, eye injury, conjunctivitis, skin ulcer, sensitivity dermatitis, potential carcinogen
Copper (as a fumes)	TWA 1 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, nose, pharynx; nasal septum perforation; metallic taste; dermatitis; In Animals: lung, liver, kidney damage; anemia

Constituent	Exposure Limit(s)	Route of Exposure	Primary Hazard/ Symptoms of Exposure
Cresol	TWA 5 ppm (22 mg/m^3) [skin]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; central nervous system effects: confusion, depression, respiratory failure; dyspnea (breathing difficulty), irregular rapid respiration, weak pulse; eye, skin burns; dermatitis; lung, liver, kidney, pancreas damage
Ethylbenzene	100 ppm	Inhalation, ingestion, skin contact	Eye, skin, mucous membrane irritation; headache; dermatitis, narcosis; coma
Hydrogen cyanide	10 ppm (11 mg/m^3) [skin]	Inhalation, ingestion, absorption, skin/eye contact	Asphyxia; weakness, headache, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow and gasping; thyroid, blood changes
Hydrogen sulfide (H2S)	20 ppm C 50 ppm [10-min. Maximum peak]	Inhalation, skin/eye contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, fatigue, irritability, insomnia; gastrointestinal disturbance; liquid: frostbite
Iron	Iron oxide dust and fume: 10 mg/m^3	Inhalation, ingestion, eye contact	Respiratory tract irritation, coughing, shortness of breath, overdose of iron may cause vomiting, abdominal pain, bloody diarrhea, vomiting blood, lethargy, and shock; acidity in the blood, bluish skin discoloration, fever, liver damage, and possibly death; eye and cornea irritation and discoloration
Lead	0.05 mg/m^3 A.L. 0.03 mg/m^3	Inhalation, ingestion, skin contact	Weakness, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis of wrist and ankles; irritates eyes, hypo tension
Manganese	C 5 mg/m^3	Inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage
Mercury	0.10 mg/m3	Inhalation, ingestion, skin contact, skin absorption	Irritates eyes and skin, chest pain, cough, difficulty breathing, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, Gastrointestinal disturbance, weight loss, proteinuria
Naphthalene	10 ppm (50 mg/m^3) TWA	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage

Constituent	Exposure Limit(s)	Route of Exposure	Primary Hazard/ Symptoms of Exposure
Nickel	TWA 1 mg/m^3 [*Note: The PEL does not apply to Nickel carbonyl.]	Inhalation, ingestion, skin and/or eye contact	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]
PCBs (polychlorinated biphenyls)	0.5 mg/m^3 (Skin)	Inhalation, skin absorption, ingestion, skin contact	Irritate eyes; chloracne; liver damage
Phenol	5 ppm (19 mg/m^3) [skin]	Inhalation, skin, absorption, ingestion, skin contact	Irritates eyes, nose, throat, anorexia, weight loss, weakness, muscle ache, pain, dark urine, cyanosis, liver and kidney damage, skin burns, dermatitis, tremors, convulsions, twitching,
Portland Cement	TWA 50 mppcf	Inhalation, ingestion, Skin and/or Eye Contact	Irritation eyes, skin, nose; cough, expectoration; exertional dyspnea (breathing difficulty), wheezing, chronic bronchitis; dermatitis
Selenium	0.2 mg/m^3	Inhalation, ingestion, skin contact	Irritant to eyes, skin, nose and throat, visual disturbance, headache, chills, fever, breathing difficulty, bronchitis, metallic taste, garlic breath, GI disturbance, dermatitis, eye, and skin burns,
Thallium	OSHA PEL: TWA 0.1 mg/m^3 [skin]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs
Toluene	200 ppm	Inhalation, skin absorption, ingestion, skin contact	Eye, nose irritation; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, tearing of eyes; nervousness, muscle fatigue, insomnia, tingling in limbs; dermatitis
1,2,4-Trimethyl-benzene	None	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)
1,3,5 – Trimethylbenzene	NA	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)
Vanadium	C 0.5 mg	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; green tongue, metallic taste, eczema; cough; fine rales, wheezing, bronchitis, dyspnea (breathing difficulty)

Constituent	Exposure Limit(s)	Route of Exposure	Primary Hazard/ Symptoms of Exposure
Xylene	100 ppm	Inhalation, skin absorption, ingestion, skin contact	Eye, skin, nose, throat irritation; dizziness, excitement, drowsiness; incoordination, staggering gait; corneal damage; appetite loss, nausea, vomiting, abdominal pain; dermatitis
Zinc	TWA 15 mg/m^3 (total dust) TWA 5 mg/m3 (resp dust)	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function

Notes:
A.L. - Action Level
C - ceiling limit, not to be exceeded
Ca – carcinogen
f/cc - fibers per cubic centimeter
mg/m^3 - micrograms per cubic meter
mppcf - millions of particulates per cubic foot of air
ppm - parts per million
STEL - Short-term exposure limit (15 minutes)
TWA - Time-weighted average (8 hours)

4.6.2 Chemicals Brought on Site

Potential hazards associated with chemicals brought on site (e.g., decontamination chemicals, sample preservatives, fuels, calibration fluids) for the work will be mitigated through training, administrative controls (e.g., proper labeling and storage), and proper use of PPE. Safety data sheets (SDSs) for all chemicals brought on site shall be maintained by the SSM and are included in Appendix C.

5. Personal Protective Equipment

The PPE required to be worn on the project site is listed in the table below. Additional PPE required for the tasks to be performed is listed on the JHAs in Appendix B.

Site Required PPE *(check all that apply)*		
☒ Hard Hat	☐ Respirator	☒ Tyvek clothing/boots
☒ Safety Glasses	☐ Flame Resistant Clothing	☐ Other:
☒ Safety Boots	☐ Personal Flotation Device	☐ Other:
☐ Long Sleeve Shirt	☐ Snake Chaps	☐ Other:
☒ High Visibility Safety Vest	☐ EH-Rated Boots	☐ Other:

If site conditions suggest the existence of a situation more hazardous than anticipated, the site personnel will evacuate the area to a safe distance. The hazard, the level of precautions, and the PPE will then be reevaluated with the assistance and approval of the Safety Director and the PM. If conditions indicating the need for Level A or Level B PPE are encountered, personnel will leave the site and notify the PM or a member of the Safety Team. GEI's PPE Program can be found on the Safety Resources page of GEI Connections.

5.1 Respiratory PPE

GEI personnel who have the potential to don a respirator must have a valid fit test certification and medical clearance. Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.134). Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency (less than 20.7%).
- Imminent Danger to Life and Health (IDLH) concentrations.
- If contaminant levels exceed designated use concentrations.

Upgrades to respiratory protection may be required based on the designated Action Levels found in Section 9.

6. Responsibilities and Lines of Authority

6.1 GEI Personnel Responsibilities

The implementation of health and safety at this project location will be the shared responsibility of the Safety Director, Regional Safety Director, PM, the Site Safety Manager (SSM), and each GEI personnel implementing the proposed scope of work.

6.1.1 GEI Safety Director

The Safety Director is responsible for the overall management of GEI's safety programs, policies, and procedures. Modifications to this HASP which may result in the reduction in the identification, evaluation, and control of safety and health hazards cannot be undertaken by the project team without the approval of the Safety Director.

6.1.2 GEI Project Manager

The PM is responsible for confirming that the requirements of this HASP are implemented. The PM's specific responsibilities include:

- Conducting and documenting the Project Safety Briefing.
- Verifying that the GEI staff and subcontractors selected to work on this program are sufficiently trained for site activities and have reviewed this HASP.
- Maintaining regular communications with the SSM and, if necessary, the Safety Director.

6.1.3 GEI Regional Safety Manager

The RSM is responsible for supporting the safety needs and requirements specified in this HASP. The RSM's specific responsibilities include:

- Reviewing and approving the HASP and applicable JHAs.
- Working with the PM and SSM to meet client safety requirements.
- Providing approval for fall protection plans and confined space entries (permit numbers), as applicable.
- Providing safety support regarding safety programs and procedures as applicable to the project.

6.1.4 GEI Site Safety Manager

The SSM is responsible for implementing and enforcing the safety requirements specified in this HASP and will be on-site during activities covered in the HASP. The SSM's specific responsibilities include:

- Enforcing the requirements of this HASP and notify the PM of noncompliance.
- Conduct daily Safety Tailgate meetings for site-related work.
- Maintaining a high level of health and safety consciousness among employees implementing the proposed activities.
- Procuring the air monitoring instrumentation, PPE, and safety equipment needed for GEI project employees and verifying that each is in good working order.
- Verifying that GEI subcontractors are utilizing the correct PPE and safety equipment.

6.1.5 All GEI Field Personnel

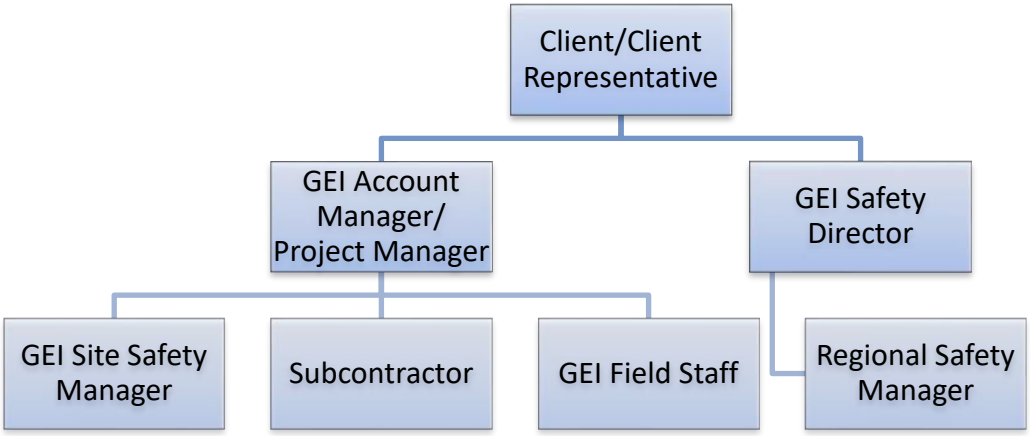
All GEI field personnel (including the PM and SSM) covered by this HASP are responsible for following the health and safety procedures in this HASP and for performing their work in a safe and responsible manner. The specific responsibilities that apply to all field personnel include:

- Reading and signing the HASP prior to the start of on-site work.
- Bringing forth any questions or concerns regarding the content of the HASP to the PM or the SSM.
- Attending and actively participating in the required Project Safety Briefing prior to beginning on-site work and any subsequent safety meetings.
- Complying with the requirements of this HASP and the requests of the SSM.
- Stopping work in the event that an immediate danger situation is perceived.
- Reporting accidents, injuries, and illnesses, regardless of their severity by following GEI's incident reporting procedures.

6.2 Lines of Authority

GEI will have responsibility for safety of its employees during the work performed at the site. GEI's SSM will have a cell phone available to contact the appropriate local authorities, in the event of an emergency. GEI's SSM will be available for communication with the GEI PM and with National Grid's representative.

Project Lines of Authority



6.2.1 Stop Work Authority

GEI employees have the authority to stop work activities if an unanticipated hazard is encountered or a potential unsafe condition is observed. The GEI employee should contact the Safety Director and the Project Manager to discuss the stop work conditions and potential control methods that can be implemented.

6.3 Subcontractors

GEI has subcontracted the following firms to assist in performing work on this project:

Subcontractor Information	
Aquifer Drilling & Testing 75 E 2nd St Mineola, NY 11501	
Contact Name: Joe McGill	Cell: (631) 889-2927
Scope of Work: Preclearing, test pit excavation, drilling, well construction, well development.	

GEI requires its subcontractors to work in a responsible and safe manner. Subcontractors hired by GEI are required to submit documentation of their safety practices as part of GEI's Subcontractor Safety Prequalification for evaluation and approval before the start of work. Subcontractors for this project will be required to develop their own HASP for protection of their employees, but, at a minimum, must adhere to applicable requirements set forth in this HASP. The PM will obtain applicable safety certifications and training records from the subcontractor's site supervisor prior to the initiation of work.

7. Training Requirements

Prior to commencement of field activities, the PM or their designee will verify GEI field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the site operations. This training will be documented on the applicable JHAs (Appendix B). Personnel that have not received project-specific training will not be allowed on site.

Applicable Site-Specific Training Requirements *(check all that apply)*		
☒ HAZWOPER (8Hr Refresher)	☐ Railroad	☐ Other:
☒ HAZWOPER (Site Supervisor)	☐ Transportation Worker Identification Credential (TWIC)	☐ Other:
☒ First Aid/CPR	☐ MSHA (Mine Safety and Health Administration)	☐ Other:

7.1 On-Site Safety Briefings

GEI personnel will be given health and safety briefings daily (or as frequently as needed) by the SSM or their designee to plan for conducting work activities safely. The briefing will include GEI subcontractors and others as appropriate. The briefings can include information on:

- Applicable JHAs.
- Changes in work practices.
- Changes in environmental conditions.
- Anticipated weather.
- Evacuation/emergency procedures.
- Air monitoring results.
- Safety inspection results.
- Pedestrian Cycling Awareness.

Documentation of these briefings will be recorded in the GEI field book or the Tailgate Safety Briefing Form (Appendix D). For long-term projects, the Tailgate Safety Briefing Form is preferred.

8. Medical Surveillance Program

GEI maintains a medical surveillance program under the supervision of the Safety Director that includes a plan designed specifically for field personnel engaged in work at sites where hazardous materials may be present. Field personnel undergo an initial physical examination, including a detailed medical and occupational history before they are able to engage in work at hazardous waste sites. Upon successful completion of the examination, personnel are provided a medical clearance from an occupational health physician stating their fitness to perform the specified work activities. Employees who are part of this program will schedule and attend annual exams 12 months from the date of their previous exam.

If a GEI employee or other project worker shows symptoms of exposure to a hazardous substance and wishes to be seen by a doctor, GEI will consult with their third-party medical administrator and provide access to the nearest area hospital or medical facility.

GEI subcontractor personnel that will enter any hazardous waste sites must certify that they are participating in a medical surveillance program that complies with OSHA regulations for hazardous waste operations (i.e., 29 CFR 1910.120 and 29 CFR 1926.65). A copy of their medical clearance will be submitted to the GEI PM or SSM prior to the start of field activities.

9. Atmospheric Monitoring

Air Monitoring Required?	
☒ Yes	☐ No*

Air monitoring will be performed to identify and quantify airborne levels of hazardous substances and atmospheric hazards to determine the appropriate level of worker protection needed on-site. Work on this project requiring air monitoring includes:

Air Monitoring Tasks *(check all that apply)*		
☒ Excavation	☐ Confined Space Entry	☐ Other:
☒ Soil Sampling	☐ Indoor Drilling	☐ Other:
☐ GW Monitoring Well Headspace	☒ Product Sampling	☐ Other:

The following air monitoring equipment will be on site:

Air Monitoring Equipment *(check all that apply)*	
☒ PID with 10.6 eV lamp or equivalent	☒ Particulate Meter (PM-10 capable)
☐ Drager Chip Measurement System (CMS) with appropriate gas detection chips	☒ Multi-gas meter: lower explosive limit (LEL) / oxygen (O_2) / hydrogen sulfide (H_2S) / hydrogen cyanide (HCN) or carbon monoxide (CO) meter
☐ Sensodyne Gas Detection Pump with appropriate gas detector tubes	☐ Other:

GEI will conduct and document on-site work zone monitoring and will inform GEI employees of the results. ***If Action Levels are exceeded, immediately implement site action(s) according to Action Table below and notify the PM***.

9.1 Calibration

Air monitoring equipment will be calibrated and maintained in accordance with manufacturer's requirements. Calibrations will be recorded in the project notes daily or on a daily calibration form.

9.2 Action Levels

The tables below provide a summary of real time air monitoring Action Levels and contingency plans for work zone activities. The below Action Levels are determined by halving the Permissible Exposure Limits (PELs) or Threshold Limit Values (TLVs) as set forth by OSHA and the American Conference of Government Industrial Hygienists (ACGIH).

9.2.1 VOC Monitoring and Control

Air monitoring reduces the risk of overexposure by indicating when action levels have been exceeded and when PPE must be upgraded or changed. Based on the volatile organic compounds (VOCs) listed in Table 4, determine which constituent has the lowest permissible exposure limit (PEL). This data is used to determine the action levels needed including respiratory protection at the project site. GEI's action level is half of the PEL listed in Table 4.

Exposure to organic COC can be evaluated and/or controlled by:

- Monitoring worker breathing zone atmospheric concentrations for organic COC in the breathing zone with a photoionization detector (PID) or a flame ionization detector (FID).
- When possible, engineering control measures will be utilized to suppress the volatile organic vapors. Engineering methods can include utilizing a fan to promote air circulation, utilizing volatile suppressant foam, providing artificial ground cover, or covering up the impacted material with a tarp to mitigate volatile odors.
- When volatile suppression engineering controls are not effective and organic vapor meters indicate concentrations above the action levels, then appropriate respiratory protection (i.e., air purifying respirator with organic vapor cartridge) will be employed.

Air Monitoring Instrument	Action Level (above background)	Site Action
Action Levels for the following parameters are 15-minute time weighted averages (TWA), not a single exceedance.		
PID (Monitoring for VOCs)	0.0 – 50 ppm	No respiratory protection is required if VOCs are not present.
	50 – 100 ppm	Stop work, withdrawal from work area, institute engineering controls, if levels persist, upgrade to Level C.
	> 100 ppm	Stop work, withdraw from work area, notify PM and Safety Team.
PID (Monitoring for benzene)	1.0 ppm	Use detector tube for benzene to verify if concentration is benzene. No respiratory protection is required if benzene is not present.
	1.0 – 50 ppm	No respiratory protection is required if benzene is not present. If benzene is present, stop work and contact your PM. If work continues, upgrade to Level C.
	50 – 100 ppm	Stop work, withdrawal from work area, institute engineering controls, if levels persist, stop work, contact PM and upgrade to Level C.
	> 100 ppm	Stop work, withdraw from work area, notify PM and Safety Team.

Air Monitoring Instrument	Action Level (above background)	Site Action
PID (Monitoring for naphthalene)	0.0 - 10 ppm	Use Sensodyne detector tube for naphthalene to verify if concentration is naphthalene. No respiratory protection is required if naphthalene is not present. If naphthalene is present, stop work and contact your PM. If work continues, upgrade to Level C.
	10 – 50 ppm	No respiratory protection is required if naphthalene is not present.
	50 – 100 ppm	Stop work, withdrawal from work area, institute engineering controls, if levels persist, stop work, contact PM and upgrade to Level C.
	> 100 ppm	Stop work, withdraw from work area, notify PM and Safety Team.

9.2.2 Dust Monitoring and Control

Some COC hazards may become hazardous when they are associated with dust/particles and become airborne. For worker safety, dust levels must be managed to eliminate this hazard. Dust generated during activities can cause irritation to the respiratory system and eyes. Contaminants can also be carried in airborne dust causing potential exposure to workers through skin contact and inhalation. Constituent concentrations on site are expected to be low therefore the exposure hazard through inhalation should be minimal; however, contaminant contact through skin and clothing can introduce additional exposures.

For dust generated during site activities which exceed site-specific limits, engineering controls such as water application will be used to control dust concentrations. However, if excessive dust concentrations cannot to be handled through engineering controls, then respirators will be required to be worn.

Air Monitoring Instrument	Action Level (above background)	Site Action
Action Levels for the following parameters are 15-minute time weighted averages (TWA), not a single exceedance.		
Particulate Meter	150 µg/m^3	Implement work practices to reduce/minimize airborne dust generation, e.g., spray/misting of soil with water. Don respirator with particulate filters if action levels remain in exceedance.

9.2.3 H_2S, CO, and Explosive Atmosphere Monitoring and Control

The SSM monitor operational areas for hydrogen sulfide (H_2S) and/or carbon monoxide (CO) prior to the start of work each day. Periodic readings will be taken throughout the day

and prior to any confined space entry. Oxygen (O_2) values are based on the maximum use limits of a full-face respirator if oxygen were being displaced by a chemical. Results will be compared to the published exposure limits/action levels listed below.

Air Monitoring Instrument	Action Level (above background)	Site Action
Action Levels for the following parameters are real time and should not be exceeded at any point.		
O_2 Meter	< 20.7%	Stop work, withdraw from work area, ventilate area, notify PM and Safety Team.
	> 21.1%	Stop work, withdraw from work area, notify PM and Safety Team.
H_2S Meter	< 5.0 ppm	No respiratory protection is required.
	> 5.0 ppm	Stop work, cover excavation, withdraw from work area, institute engineering controls, notify PM and Safety Team.
HCN Meter	< 1.0 ppm	Run CMS Drager tube. Continue monitoring with real-time meter and continue work if CMS Drager tube reading is less than 2.0 ppm.
	> 1.0 ppm HCN Concentrations < 2.0 ppm	Run CMS Drager tube and confirm concentration is less than 2.0 ppm, notify PM and Safety Team. Run CMS tube for sulfur dioxide, hydrogen sulfide, and phosphine chip potential interferences. Continue to monitor with real-time meter.
	> 2.0 ppm	Stop work and move (with continuous HCN monitoring meter) at lease 25 ppm upwind of the excavation until continuous meter reads less than 1 ppm, notify PM and Safety Team. Run CMS Drager hydrogen cyanide chip and re-evaluate activity, continue monitoring with a real-time meter, resume work if concentrations read less than 1.0 ppm.
Lower Explosive Limit	< 10% LEL	Investigate possible causes, allow excavation to ventilate, use caution during procedures.
	> 10% LEL	Stop work, allow excavation/borehole to ventilate to < 10% LEL, if ventilation does not result in a decrease to < 10% LEL, withdraw from work area, notify PM and Safety Team.
Carbon Monoxide	> 35 ppm	Stop work, withdraw from work area, ventilate area, notify PM and Safety Team.

10. Site Control

10.1 Site Zones

Site zones are intended to control the potential spread of contamination and to assure that only authorized individuals are permitted into potentially hazardous areas. This project is being conducted under the requirements of 29 CFR 1910.120, and any personnel working in an area where the potential for exposure to site contaminants exists, will only be allowed access after proper training and medical documentation.

10.2 Buddy System

GEI personnel should be in line-of-site or communication contact with another on-site person. The other on-site person should be aware of his or her role as a "buddy" and be able to help in the event of an emergency. Some projects may not support the need for the buddy system to be implemented. If this is the case, the PM is required to conduct regular check-ins with the employee on site.

10.3 Sanitation for Temporary Work Sites

Sanitation requirements identified in the OSHA Standard 29 CFR 1926.51 "Sanitation" specifies that employees working at temporary project sites have at least one sanitary facility available to them. Public restrooms are available in Bushwick Inlet Park, near the intersection of Kent Avenue and N. 9th Street.

Illumination requirements identified by OSHA are directed to work efforts inside buildings and/or during non-daylight hours. Activities planned for the site are anticipated to occur outside during daylight hours. However, if work areas do not meet illumination requirements, they will be equipped with appropriate illumination that meets or exceeds requirements specified in OSHA Standard 29 CFR 1926.56. Employees will not work on sites that are not properly lighted.

10.4 Smoking

Smoking is prohibited at or in the vicinity of hazardous operations or materials. Where smoking is permitted, safe receptacles will be provided for smoking materials.

10.5 Alcohol and Drug Abuse Prevention

Alcohol and drugs will not be allowed on the site. Project personnel under the influence of alcohol or drugs will not be allowed to enter the site. All GEI employees must comply with

GEI's Controlled Substance Use & Alcohol Misuse Policy found on the Safety Resources page of GEI Connections. Employees may be subject to random drug and/or alcohol testing if required by a client at a project site.

11. Incident Reporting

GEI will report incidents involving GEI personnel or subcontractor personnel, such as: lost time injuries, injuries requiring medical attention, near miss incidents, fires, fatalities, accidents involving the public, chemical spills, vehicle accidents, and property damage. The following steps must be followed when an incident occurs:

1. For incidents involving life-threatening situations or serious injury that require emergency response personnel (Police, Fire, EMS), call 9-1-1 from a safe area.
2. Stop work activity to address any injury, illness, property damage, spill or other emergency.
3. Call Medcor Triage at 1-800-775-5866 to speak with a medical professional following any injury or illness.
4. Notify the Project Manager of the incident or injury.
5. The Project Manager will immediately inform the Safety Director, GEI National Grid Client Manager, and the Project-Specific National Grid Representative of any accident, incident, injury or near miss.
6. Complete an incident report using the GEI Incident Report Form located on the GEI Safety Smartphone App, GEI Connections intranet page, or in the project HASP.
7. Resume work activity if all steps above have been completed and it is safe to do so.
8. A DRAFT Incident Report Form including root cause/corrective actions will be completed by a member of the Safety Team and submitted to the Project-Specific National Grid Representative within 4 hours.
9. A FINAL Incident Report will be submitted within 24 hours via e-mail to the Project-Specific National Grid PM, National Grid Regional Safety Lead, and/or the person to whom the verbal notification was initially provided.

All work will be suspended until contact is made with the Project-Specific PM so that National Grid can assess if continued work suspension or if a stand down is necessary. If the National Grid PM cannot be reached, contact the National Grid SIR Regional Safety Lead as noted on the following table.

Name	Region	Phone Numbers	E-Mail
William Ryan	Downstate NY	W- (516) 545-2586 C - (516) 790-1660	William.Ryan@nationalgrid.com
Brian Stearns	Upstate NY	W- (315) 428-5731 C - (315) 461-7892	Brian.Stearns@nationalgrid.com
Elizabeth Greene	MA/RI	W- (781) 907-3656 C- (781) 248-6469	Elizabeth.Greene@nationalgrid.com

For vehicle accidents involving another vehicle or damage to property, the employee will take pictures of each vehicle or property involved in the incident and obtain a police report. In some municipalities police will not be dispatched to a non-injury accident, but every effort needs to be made to try and obtain the report.

The Incident Report Form and the Near Miss Reporting Form can be found in Appendix D, on the GEI Health and Safety smartphone app, or on the Safety Resources page of GEI Connections. To report subcontractor injuries or incidents, follow the same verbal reporting procedures and submit an email describing the event to the PM and the Safety Team. A representative with knowledge of the incident should be available to provide incident information until the investigation is completed by National Grid.

11.1 Injury Triage Service

If a GEI employee experiences a work-related injury that is not life-threatening, the employee will initiate a call to Medcor Triage at 1-800-775-5866. The injured employee will detail any medical symptoms or complaints which will be evaluated by a Registered Nurse (RN) specially trained to perform telephonic triage. The RN will recommend first aid self-treatment or refer the injured employee for an off-site medical evaluation by a health professional at a clinic within GEI's workers compensation provider network. GEI employees are still required to follow our Accident Reporting procedures as listed above.

11.2 Flow Chart for Accident Reporting

Employee	**Stop work** activity to address any injury, illness, property damage, spill or other emergency. For incidents involving life-threatening situations or serious injury that require emergency response personnel (Police, Fire, EMS), call 9-1-1.
Employee	If your injury or illness is not life-threatening, call Medcor Triage at 1-800-775-5866 to speak with a medical professional.
Employee	Once the incident is under control, **immediately** contact the GEI PM verbally.
PM	The GEI PM **immediately,** notifies the GEI Safety Director, Project-Specific National Grid Representative, and GEI National Grid Client Manager.
Safety Director	For potential recordable incidents, The Safety Director will inform the Executive Operations Team and Regional Managers of the incident.
Employee	The GEI Incident Report form is completed once the incident is under control by the employee (or their designee) and submitted to the Safety Team **immediately**.
PM with assist from Safety Director or Regional Safety Manager	A ***DRAFT*** Incident Report Form found in the appendix of the HASP is completed and submitted to the Project-Specific National Grid Representative **within 4 hours** of the incident.
PM with assist from Safety Director or Regional Safety Manager	A ***FINAL*** written Incident Report is submitted to the Project-Specific National Grid PM **within 24 hours** of the incident.
Regional Safety Manager	The GEI Regional Safety Manager initiates an accident investigation within 24 hours of the receipt of the accident report.
Regional Safety Manager	The accident investigation report is submitted to the Safety Director for approval.
Safety Director	Incidents are reported to the Operations Committee each month in the H&S report.

12. Decontamination Procedures

Site decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may come in contact with personnel or equipment. These procedures minimize contact with contaminants and protect against the transfer of contaminants to clean areas. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces. This project is being conducted under the requirements of 29 CFR 1910.120(k), and any personnel or equipment that are exposed to site contaminants will follow applicable decontamination procedures.

12.1 Personnel and PPE Decontamination

A decontamination station where employees can drop equipment and remove PPE will be set up to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities. It will be equipped with basins for water and detergent, and trash bag(s), or cans for containing disposable PPE and discarded materials. Once personnel have decontaminated at this station and taken off their PPE, they will wash themselves wherever they have potentially been exposed to any contaminants (e.g., hands, face, etc.)

The following specific decontamination procedure will be used as necessary by GEI personnel or subcontractor personnel wearing PPE from Level D through Level C.

- ***Step 1*** **–** Equipment drop (respirator, tools, monitoring equipment, etc.) Decontaminate as appropriate (per GEI's field representative's instructions).
- ***Step 2*** **–** Boot wash/rinse (wash with non-foaming detergent, rinse with fresh water spray). Remove boots. If inner and outer gloves are worn, wash outer gloves, remove and save for later use, or remove and discard outer gloves and place in trash bag/can provided in the decontamination area.
- ***Step 3*** **–** Hard hat removal; wash if visibly contaminated (use same wash as in Step 2).
- ***Step 4*** **–** If Tyvek® (or equivalent) suit was worn and is visibly contaminated, remove and place in trash bag/can provided in the decontamination area or decontaminate (wash) and store for reuse. Contaminated washable coveralls should be removed and bagged for washing.
- ***Step 5*** **–** Respirator and/or eye protection removal (as applicable). Wash (per Step 2) to remove visible contamination.
- ***Step 6*** **–** Remove outer gloves.
- ***Step 7*** **–** Wash potentially exposed skin (use water and soap at indoor sink).
- ***Step 8*** **–** Disinfect respirator per manufacturer's recommendations.

Decontamination wastewater and used cleaning fluids will be collected and disposed of in accordance with applicable state and federal regulations.

Contaminated PPE (gloves, suits, etc.) will be decontaminated and stored for reuse or placed in plastic bags (or other appropriate containers) and disposed of in an approved facility. Decontamination wastewater and used cleaning fluids will be collected and disposed of in accordance with applicable state and federal regulations.

12.2 Heavy Equipment Decontamination

Heavy equipment decontamination will be performed by the Contractor within the limits of the on-site decontamination pad in accordance with the contract specifications. A steam generator and brushes will be used to clean demolition equipment and other tools. No heavy equipment will be permitted to leave the Site unless it has been thoroughly decontaminated.

Wastewater from the heavy equipment and personnel decontamination areas will be collected and disposed of in accordance with applicable state and federal regulations. The Contractor will be responsible for ultimate disposal of investigation-derived wastes.

12.3 Decontamination Equipment Requirements

The following equipment, if required, should be in sufficient supply to implement decontamination procedures for GEI's equipment.

- Buckets
- Alconox™ detergent concentrate
- Hand pump sprayers
- Long handled soft bristle brushes
- Large sponges
- Cleaning wipes for respirators
- Bench or stool(s)
- Methanol and/or Nitric Acid
- Liquid detergent and paper towels
- Plastic trash bags

The Contractor performing decontamination procedures is responsible for verifying that the above materials, as required for their operation, are in sufficient supply.

13. Emergency Response

13.1 Evacuation

Prior to the start of work, emergency procedures must be identified and communicated to workers on site. This includes evacuation routes, safe areas, and/or muster points. Also communicate how employees will be notified that an emergency or evacuation of the site is occurring (audio alarms, visible (light) alarms, radios, sirens, etc.) Upon discovering an emergency situation, personnel will notify the SSM, who will initiate an appropriate response. Once the scene is safe, use the incident report procedures to report the evacuation to the PM and Safety Team.

13.2 Fire

In the event of a fire personnel will evacuate the area to the muster point located on Figure 1. GEI's SSM will contact the local fire department with jurisdiction and report the fire. The SSM will account for GEI personnel and subcontractor personnel and report their status to the PM. Incident reporting procedures will be followed once the scene is safe.

13.3 Spills or Material Release

If a hazardous waste spill or material release occurs, if safe, the SSM or their representative will immediately assess the magnitude and potential seriousness of the spill or release based on the following:

- SDS for the material spilled or released.
- Source of the release or spillage of hazardous material.
- An estimate of the quantity released and the rate at which it is being released.
- The direction in which the spill or air release is moving.
- Personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result.
- Potential for fire and/or explosion resulting from the situation; and
- Estimates of area under influence of release.

If the spill or release is determined to be within the on-site emergency response capabilities, the SSM will verify implementation of the necessary remedial action. If the release is beyond the capabilities of the site personnel, personnel will be evacuated from the immediate area and the fire department will be contacted. The SSM will notify the PM and follow the incident reporting procedures.

13.4 Medical Support

In case of minor injuries, on-site care will be administered with the site first aid kit. A GEI employee certified by the American Red Cross or other American Health & Safety Institute (ASHI) will be on-site at all times. For serious injuries, call 911 and request emergency medical assistance. Seriously injured persons should not be moved unless they are in immediate danger. Notify the PM of the emergency and follow incident reporting procedures.

In the event of an emergency, prompt communications with local emergency responders are essential. At least one charged and functioning cell phone to enable emergency communications will be on site. Confirmation of cellular phone operation will be confirmed at the start of each working day.

Table 1 of this HASP contains detailed emergency information, including directions to the nearest hospital, and a list of emergency services and their telephone numbers. In addition, Appendix A includes a map to the local hospital/emergency room and Figure 1 indicates the muster point.

13.5 Severe Weather

The contingency plan for severe weather includes reviewing the expected weather to determine if severe weather is in the forecast. Severe weather includes high winds over 40 miles per hour (mph), heavy rains or snow squalls, thunderstorms, tornados, and lightning storms. If severe weather is approaching, the decision to evacuate GEI personnel and subcontractor personnel from the site will be the responsibility of GEI's SSM. Notification of evacuation will be made to the PM. The SSM will account for GEI personnel and subcontractor personnel and report their status to the PM. If safe, work can resume 30 minutes after the last clap of thunder or flash of lightning.

13.6 Hazard Communication Plan

GEI personnel have received hazard communication (HAZCOM) training as part of their annual safety training and new employee safety orientation training. Hazardous materials brought on site will be properly labeled, stored, and handled. SDSs for each chemical will be included in this HASP in Appendix C. GEI's HAZCOM program can be found on the Safety Resources page of GEI Connections (Appendix E).

14. Health and Safety Plan Sign-Off

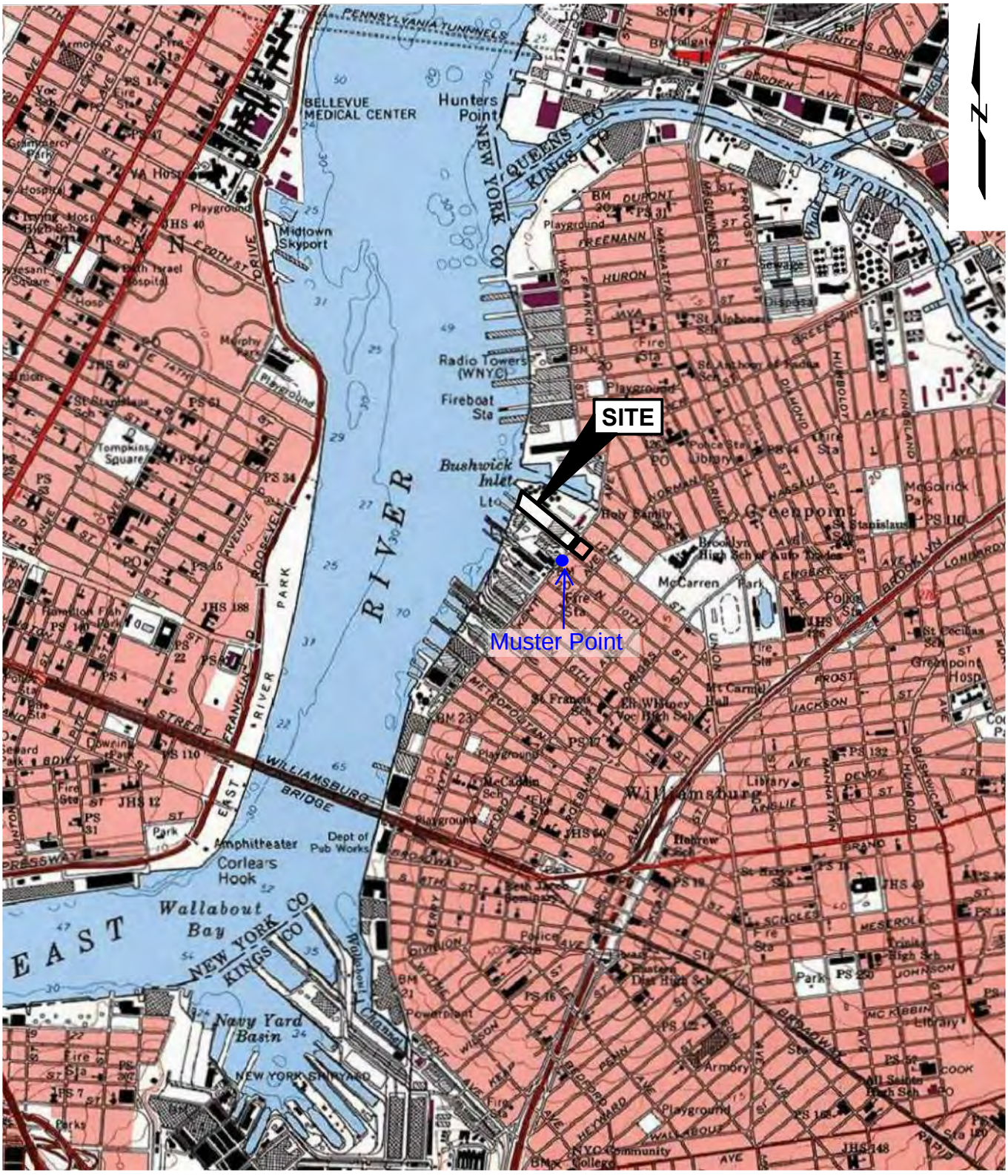
GEI personnel conducting site activities will be familiar with the information in this HASP. After reviewing this plan, please sign the copy in the project files, and bring a copy of the plan with you to the site. By signing this site-specific HASP, you are agreeing that you have read, understand, and will adhere to the provisions described in this plan while working on the site below.

Site Name: Williamsburg Works MGP Site

GEI Project No: 093060

Print Name	Signature
Project Manager: Melissa Felter	

Figure



SOURCE:

Map created with TOPO! ® ©2001 National Geographic (www.nationalgeographic.com/topo)

0 2000' 4000'

SCALE: 1" = 2000'

Williamsburg Works Former MGP Site
Borough of Brooklyn, New York

nationalgrid

GEI Consultants

SITE LOCATION MAP

Project 093060

January 2024 Fig. 1

\\Gtb-pzcc-1\ I:\Project\National Grid\Williamsburg\00_CAD\Figures\RIWPA_L1630\093060_RIWPA_SLM.dwg - 6/30/2021

Appendix A

Map to Hospital

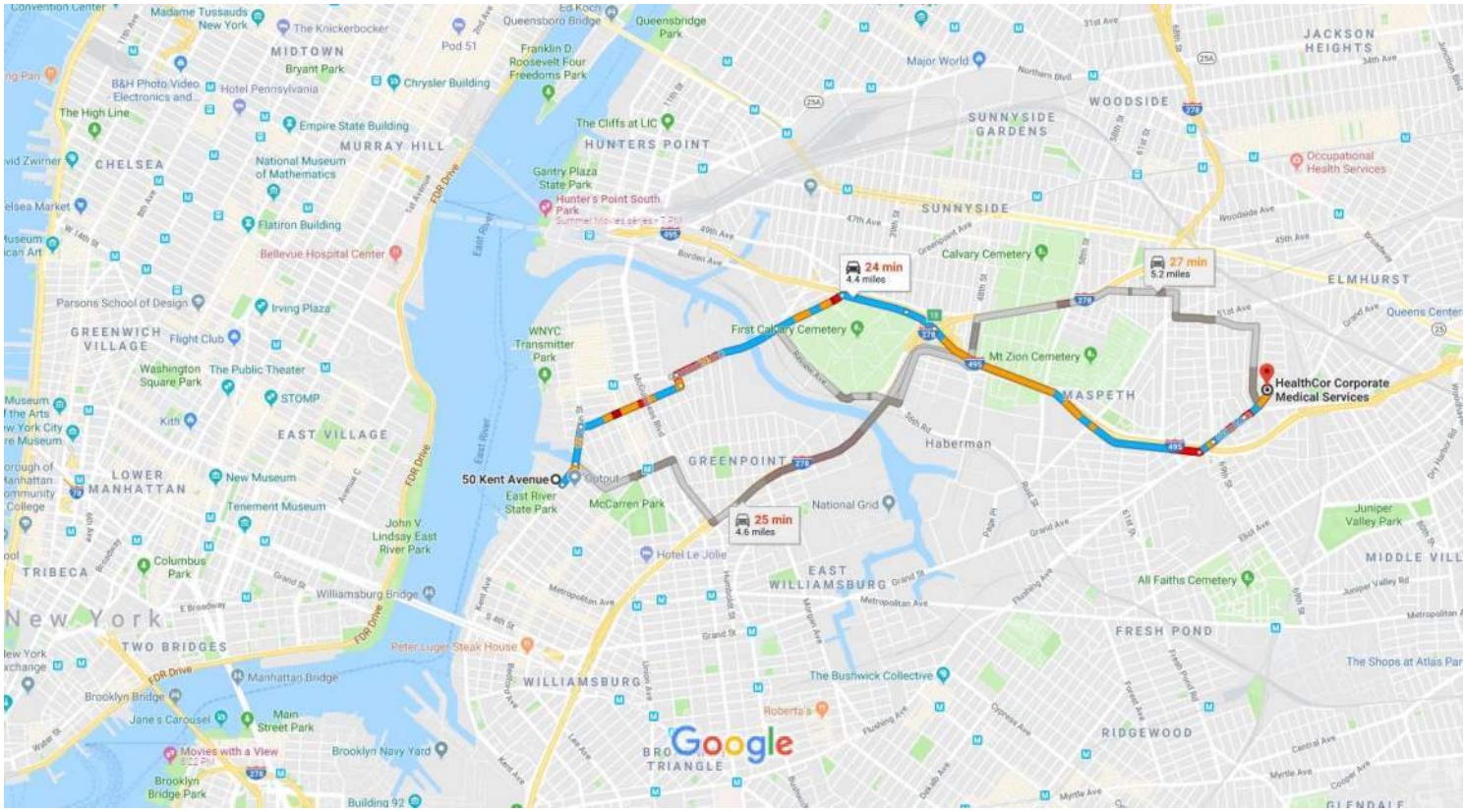
(Included if cell phone service is not reliable at or around project site)

Scan this QR code or click the link for access to Google Maps.

Google Maps

50 Kent Avenue, Brooklyn, NY to HealthCor Corporate Medical Services

Drive 4.4 miles, 24 min



Map data ©2018 Google 2000 ft

50 Kent Ave
Brooklyn, NY 11249

Take Franklin St to Calyer St

2 min (0.3 mi)

1. Head northeast on Kent Ave toward N 12th St

0.1 mi

2. Continue onto Franklin St

0.2 mi

Follow Calyer St to Greenpoint Ave

4 min (0.6 mi)

3. Turn right onto Calyer St

0.6 mi

4. Turn left onto Moultrie St

322 ft

Continue on Greenpoint Ave. Take Exit 18 and Borden Ave to Grand Ave in Queens

14 min (3.5 mi)

5. Turn right onto Greenpoint Ave

0.6 mi

6. Slight right to stay on Greenpoint Ave

0.4 mi

7. Turn right onto the Interstate 495 E ramp to Long Island Expressway/Eastern Long Island

0.3 mi

8. Use the 2nd from the left lane to follow signs for I-278 E/La Guardia/Airport/Bronx/I-495 Alt/Maurice Ave

0.2 mi

9. Keep left at the fork to continue on Exit 18, follow signs for Maurice Ave and merge onto Borden Ave
   Pass by McDonald's (on the right in 1.0 mi)

1.5 mi

10. Turn left onto Grand Ave

463 ft

11. Continue straight to stay on Grand Ave
    Pass by Iavarone Bros. (on the right)

0.2 mi

12. Continue straight to stay on Grand Ave
    Destination will be on the left

0.2 mi

HealthCor Corporate Medical Services

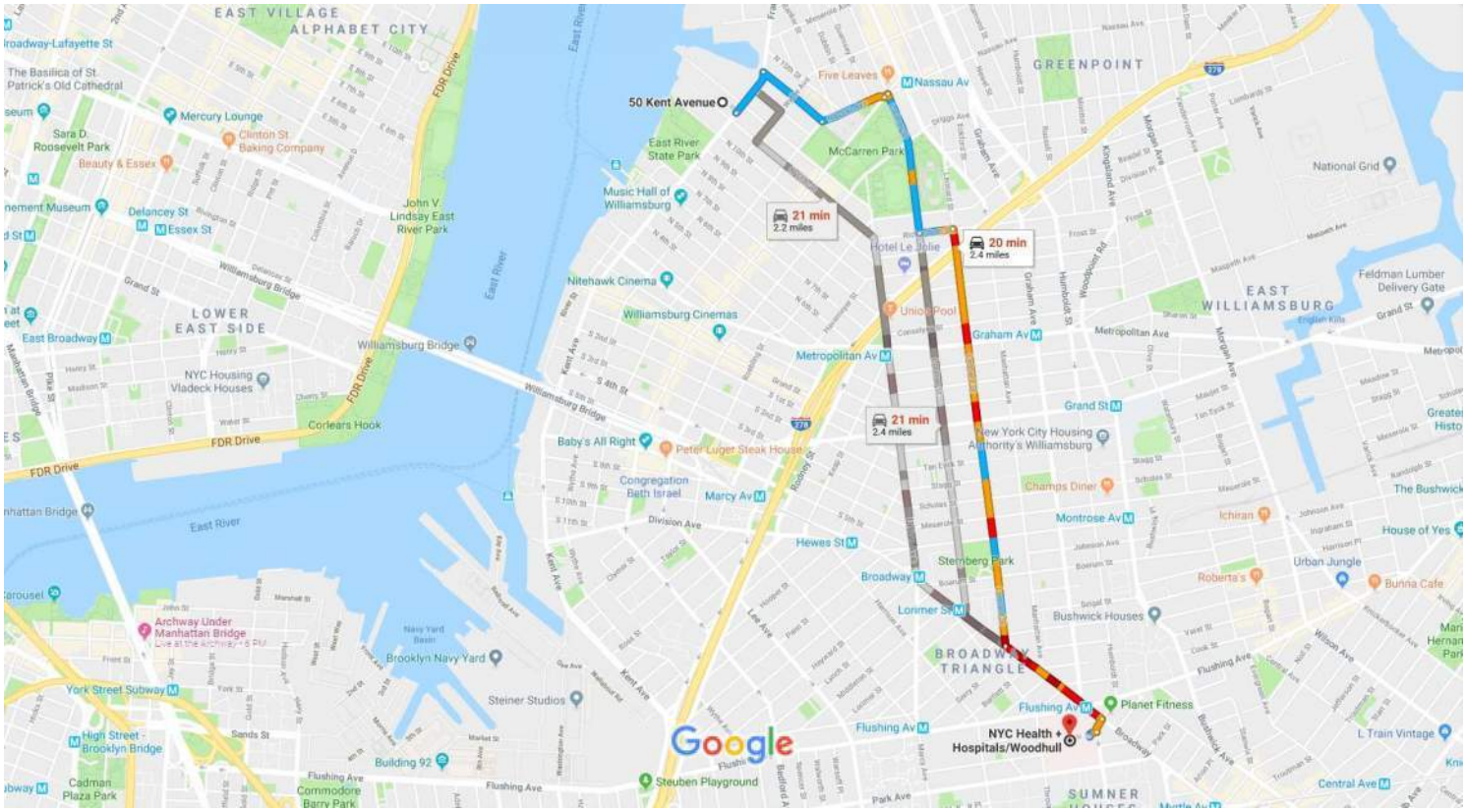
73-01 Grand Ave, Maspeth, NY 11378

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Google Maps

50 Kent Avenue, Brooklyn, NY to NYC Health + Hospitals/Woodhull

Drive 2.4 miles, 20 min



Map data ©2018 Google 1000 ft

50 Kent Ave

Brooklyn, NY 11249

1. Head northeast on Kent Ave toward N 12th St — 32 s (0.1 mi)

Take Lorimer St and Leonard St to Broadway

13 min (1.9 mi)

2. Turn right onto N 14th St — 0.2 mi
3. N 14th St turns left and becomes Nassau Ave — 0.2 mi
4. Turn left onto Bedford Ave — 59 ft
5. Turn right onto Lorimer St — 0.4 mi
6. Turn left onto Richardson St — 459 ft
7. Turn right at the 1st cross street onto Leonard St — 1.1 mi

Drive

3 min (0.3 mi)

8. Turn left onto Broadway
   Pass by McDonald's (on the right)

0.3 mi

9. Turn right onto Marcus Garvey Blvd/Sumner Ave

197 ft

10. Turn right
    Destination will be on the right

27 s (135 ft)

NYC Health + Hospitals/Woodhull

760 Broadway, Brooklyn, NY 11206

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Appendix B

Job Hazard Analyses

Job Hazard Analysis

Task	**Drilling Oversight**		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	Hand tools, camera		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☒ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☒Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☒ Gloves Nitrile ☐Respirator ☐Other		
JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Mobilize on site	Slips/trips/falls, stuck by, crushing hazards	Hazard Identification HS-026	• Wear PPE that properly fits, is in good condition, and is appropriate for the activities and hazards. • Maintain good visibility of the work area. • Avoid walking on uneven, steeply sloped, or debris ridden ground surfaces. • Plan tasks prior to preforming them including an activity hazard analysis. • Keep trafficked areas free from slip/trip/fall hazards. • Wear shoes with traction. • Avoid traversing steep areas in slippery conditions. • Do not carry heavy objects to work areas, on steeply sloped areas, or where steep areas must be traversed to reach work areas.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Job Hazard Analysis
Task: Drilling Oversight
Project: Williamsburg MGP Site
Date: 6/27/22

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
2. Utility survey	Shock, Explosion, Fire	Utility Markout HS-014	• Ensure that all utilities have been properly marked prior to beginning work. • If a utility strike occurs, call the appropriate authorities immediately. Clear the area and do not delay.
3. Observe contractor activities	Struck by/crushing hazards	Working Around Heavy Equipment HS-018	• Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Coordinate hand signals with operators. • Confirm equipment inspection has been completed. • Stay Alert! Pay attention to equipment backup alarms and swing radii. • Position yourself in a safe location. • Confirm adequate clearance from overhead utilities. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspended loads or near any pressurized equipment lines. • Do not operate cellular telephones in the vicinity of heavy equipment operation.
4. Waste characterization	Contaminant contact	Hazardous Substance Management HS-009	• Wear proper PPE during sampling including nitrile gloves and safety glasses. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Keep trafficked areas free from slip/trip/fall hazards.
5. Demobilize from site	Personal/material security, slips/trips/falls	Hazard Identification HS-026	• Confirm all materials are secured/labeled, including drums and any equipment left on site. • Confirm that any open trenches/pits are properly marked or barricaded. • Clean all equipment/tools prior to leaving. • Secure any gates/locks. • Notify project manager (or designee) you are leaving the site.

Job Hazard Analysis

Task	Driving – Site Mobilization		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	None		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☐ Hard Hat ☐Safety Glasses ☐Safety-Toed Boots ☐ Reflective Vest ☐Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☐ Gloves Nitrile ☐Respirator ☐Other		
JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Inspect Vehicle	Slips/trips/falls	Hazard Identification HS-026, Driver Safety HS-004	• Walk around vehicle to inspect for any vehicle safety issues or hazards that could be within the travel path. • Adjust mirrors and seats prior to driving. • Becoming familiar with dashboard, center console, and steering controls. • Locate the turn signals, windshield wipers, lights, emergency flashers, and the heating, air conditioning, and defrost controls. • Use a spotter if needed when backing up.
2. Driving	Struck by/crushing hazards	Driver Safety SOP HS-004	• Employees must wear their safety belt while in a moving vehicle. • Employees will follow safe driving behaviors, which include limiting distractions such as manipulating radios or other equipment that may cause a distraction. Employees will not exceed the posted speed limit and will maintain a safe distance between other vehicles. • Use defensive driving techniques.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
			• Avoid driving during hazardous weather conditions. • Driving distance and time after a 12-hour shift will not exceed 30 miles or 30 minutes (whichever is greater). • Vehicle accidents will be reported in accordance with GEI's accident reporting procedures.
3. Parking Vehicle	Struck by, crushing hazards, security	Driver Safety SOP HS-004	• Be aware of surrounding conditions. Park in designated areas or a safe area away from heavy equipment. • Position the vehicle in a manner which reduces or eliminates the need to operate the vehicle in reverse. Choose an easy-exit parking space, like pull-through or where no one else is parked. • Don't crowd neighboring vehicles; be sure to park your vehicle in the middle of your space. • Secure equipment and supplies in the trunk or where they cannot be seen. Or take items with you if they cannot be hidden. • If at night, park in well lit areas.
4. Site Entry	Slips/trips/falls, struck by, crushing	Working Around Heavy Equipment HS-018, Hazard Identification HS-026	• Don appropriate PPE prior to walking on site. • Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Stay Alert! Pay attention to equipment backup alarms and swing radii. • Avoid distractions like using cell phones while traversing the site.
5. Backing Up Vehicle	Struck by, crushing	Driver Safety HS-004	• Before entering your vehicle do a walk-around. Check for fences, poles, drop-offs, buildings, etc. • Know your clearances. While performing your walk-around also check for obstructions, low hanging eaves and tree limbs, wires, and any other potential clearance-related obstacles. • Use a spotter. Do not allow the spotter to be positioned directly behind your vehicle or walk backwards behind you while giving instructions. They should be off to the driver's side where you can see them in your side mirror.

Job Hazard Analysis

Task	Excavation Oversight		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	Field book, phone camera		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☒ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Refective Vest ☒Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☐ Gloves ☐Respirator ☐Other		

JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Mobilize on site	Heavy lifting, strains/sprains, slip/trips/falls, pinch points, struck by, crushing hazards	Working Around Heavy Equipment HS-018, Manual Lifting HS-025, Hazard Identification HS-026 GEI Ergonomic Program, GEI Personal Protective Equipment Program	• Don appropriate PPE that properly fits, is in good condition, and is suitable for the activities and hazards. • Check in with appropriate heavy equipment operator personnel as applicable. • Maintain good visibility of the work area. • Avoid walking on uneven, steeply sloped, or debris ridden ground surfaces. • Plan tasks prior to preforming them including an activity hazard analysis. • Keep trafficked areas free from slip/trip/fall hazards. • Avoid traversing steep areas in slippery conditions. • Do not carry heavy objects to work areas, on steeply sloped areas, or where steep areas must be traversed to reach work areas. • Use the buddy system when necessary

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Job Hazard Analysis
Task Name: Excavation Observation
Project: Williamsburg MGP Site
Date: 6/27/22

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
2.Conducting project activities around/near heavy equipment operations	Slip/trips/falls, pinch points, struck by, crushing hazards, unstable or non-secured load, noise exposure	Noise Exposure HS-012, Traffic Hazards HS-016, Working Around Heavy Equipment HS-018, Hazard Identification HS-026 GEI Ergonomic Program, GEI Personal Protective Equipment Program,	• Wear hardhat, high visibility safety vest, steel-toed, steel-shank boots or EH-rated safety boots with coposie toe and shank, safety glasses, nitrile/neoprene gloves, and earplugs. • Identify yourself and your work location to heavy equipment operators so they may incorporate you into their operations. • Coordinate hand signals with operators and field staff. • Approach heavy equipment from the front so operator can see you • Stay alert! Pay attention to equipment backup alarms and swing radii. • Wear high visibility safety reflective vest when working near equipment and/or motor vehicle traffic. • Position yourself in a safe location when filling out logs or talking with contractor or other field staff. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspeneded loads or near any pressurized equipment lines. • Do not sit and stand near heavy equipment that is when materials are being unloaded, loaded, etc. • If a task requires inspection of materials, this should be done after they are securely stored. • Do not operate cellular telephones in the vicinity of heavy equipment operation.
3. Demobilize from site	Personal/material security, slips/trips/falls	Hazard Identification HS-026	• Confirm all materials are secured/labeled, including drums and any equipment left on site. • Confirm that any open trenches/pits are properly marked or barricaded. • Clean all equipment/tools prior to leaving. • Secure any gates/locks. • Notify project manager (or designee) you are leaving the site.

Job Hazard Analysis

Task	**Groundwater Monitoring Well Gauging**		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	Hand tools, water interface meter		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☐ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☐Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☒ Gloves Nitrile/Cut resistant ☐Respirator ☐Other		
JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Carry Equipment and Set-up	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary
2. Open Monitoring Well	Cuts/Scrapes, Insect Bites	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Use proper tools to open monitoring wells

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
			• Open casings slowly in case insects inhabit the area. • If insect nest is inside casing, open protective casing and see if insects will leave the nest. Once free of insects, proceed with work. If not, contact project manager if problem persists. • If severely allergic to insects, have appropriate epinephrine on hand. • Remain calm and still if a single stinging insect is flying around. (Swatting at an insect may cause it to sting.) • If you are attacked by several stinging insects at once, run to get away from them. (Bees release a chemical when they sting, which may attract other bees.) • Follow incident reporting procedures if first aid is needed.
3. Deploy Interface Meter	Awkward position, contaminant exposure	Hazard Identification HS– 026 Ergonomic Program	• Wear Nitrile/neoprene gloves and dispose of gloves after use and wash hands. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep control of the reel when deploying the probe. Avoid letting the probe drop quickly into the well. • Reel the probe up slowly to avoid splashes from contaminated groundwater or sediment. • Keep trafficked areas free from slip/trip/fall hazards.
4. Equipment Decontamination	Contaminant Contact, Cuts or Abrasions, Slips/Trips/Falls	Hazard Identification HS–026 Ergonomic Program	• Wear nitrile gloves and glasses to provide eye protection from splashing. • Wash hands immediately after use. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
5. Equipment De-Mob	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary

Job Hazard Analysis

Task	**Groundwater Sampling – (Low Flow)**		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	Hand tools, interface meter, pump, water quality meter		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☐ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☐Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☒ Gloves Nitrile/Cut resistant ☐Respirator ☐Other		

JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Carry Equipment and Set-up	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary
2. Cut Tubing/String	Cuts/Scrapes, pinch points	Non-Powered Hand Tools HS-008a	• Keep free hand out of the way. • Secure work if cutting through thick material. • Use only sharp blades; dull blades require more force that results in less knife control.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
			• Pull the knife through the object and away from your body; pulling motions are easier to manage. • Do not put the knife in your pocket. • Wear leather or Kevlar gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.
3. Collect GW Reading/Samples	Awkward position, contaminant exposure	Hazard Identification HS– 026 Benzene Awareness Program Ergonomic Program	• Wear Nitrile/neoprene gloves and dispose of gloves after use and wash hands. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
4. Drum Purge Water	Contaminant Contact, Cuts or Abrasions Heavy Lifting , Slips/Trips/Falls	Container Management HS–003 Manual Lifting HS–025 Ergonomic Program	• Wear proper PPE during sampling including nitrile gloves and safety glasses and face shield as appropriate. • Use proper dollies or drum moving tools. • Use applicable tools to open/close drum lids. • Do not handle drums with bulging sides. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Use proper lifting techniques. • Ask fellow worker for help. • Keep trafficked areas free from slip/trip/fall hazards.
5. Equipment Decontamination	Contaminant Contact, Cuts or Abrasions, Slips/Trips/Falls	Hazard Identification HS–026 Benzene Awareness Program Ergonomic Program	• Wear nitrile gloves and glasses to provide eye protection from splashing. • Wash hands immediately after use. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
6. Equipment De-Mob	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary

Job Hazard Analysis

Task	**NAPL Gauging and Recovery**		
Revision Date	October 5, 2022	**Client Name**	National Grid
Project Name	Williamsburg Works MGP Site	**Project Number**	093060
Tools/Equipment Used	Pump, generator, compressor, interface probe, tubing cutter, bailer, string, scissors		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☐ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☒Hearing Protection ☐ Personal Flotation Device (PFD) ☒ Face Shield ☐ Chaps ☒ Tyvek clothing/boots ☐ Flame Resistant Clothing ☒ Gloves Nitrile/Cut resistant ☐Respirator ☐Other		
JHA Prepared By: Melissa Felter	**Date: 10/5/2022**	**Approved by: Lesley Gastwirth**	**Date: 10/6/2022**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Carry Equipment and Set-up	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary
2. Cut Tubing/String	Cuts/Scrapes, pinch points	Non-Powered Hand Tools HS-008a	• Keep free hand out of the way. • Secure work if cutting through thick material. • Use only sharp blades; dull blades require more force that results in less knife control.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
			• Pull the knife through the object and away from your body; pulling motions are easier to manage. • Do not put the knife in your pocket. • Wear leather or Kevlar gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.
3. Set up pump, generator and compressor, if needed.	Heavy Lifting, Slips/Trips/Falls	Manual Lifting HS–025 Ergonomic Program	• Check air compressor hoses before use. • Position the generator downwind of the work area. • Keep trafficked areas free from slip/trip/fall hazards.
4. Fuel generator	Heavy Lifting, Slips/Trips/Falls	Manual Lifting HS–025 Ergonomic Program	• Turn off the generator and allow to cool at least 15-minutes before refueling. • Gasoline used to refill the generator will be stored in an OSHA-approved portable fuel container (safety can).
5. Secure string to bailer and lower bailer down well to collect NAPL	Contaminant Contact, Awkward position, Slips/Trips/Falls, Heavy lifting	Benzene Awareness Program Ergonomic Program	• Wear proper PPE during sampling including nitrile gloves, Tyvek or Tyvek apron with sleeves, and safety glasses and face shield as appropriate. • Keep trafficked areas free from slip/trip/fall hazards. • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary
6. Drum Purged NAPL	Contaminant Contact, Cuts or Abrasions Heavy Lifting , Slips/Trips/Falls	Container Management HS–003 Manual Lifting HS–025 Ergonomic Program Benzene Awareness Program	• Wear proper PPE during sampling including nitrile gloves, Tyvek or Tyvek apron with sleeves , and safety glasses and face shield as appropriate. • Use proper dollies or drum moving tools. • Use applicable tools to open/close drum lids. • Do not handle drums with bulging sides. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Use proper lifting techniques. • Ask fellow worker for help. • Keep trafficked areas free from slip/trip/fall hazards.
7. Equipment Decontamination	Contaminant Contact, Cuts or Abrasions, Slips/Trips/Falls	Hazard Identification HS–026 Benzene Awareness Program Ergonomic Program	• Wear nitrile gloves and glasses to provide eye protection from splashing. • Wash hands immediately after use. • Take regular breaks and do not work in unusual positions for long

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
			periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
8. Equipment De-Mob	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary

Job Hazard Analysis

Task	**Site Surveying**		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	None		
Task Specific Training	Annual Safety Training (Hazwoper), First Aid/CPR		
Minimum PPE Required	☐ Hard Hat ☐Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☐Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☐ Gloves Enter Type(s) - e.g., Nitrile, Cut Resistant, Latex ☐Respirator Enter Type/Cartridges - (e.g., Half-face, P-100) ☐Other		

JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1.Clothing Treatment - Permethrin	Chemical Exposure	Biological Hazards HS-001 (Permethrin Guidance)	• Read application instructions thoroughly and apply according to the directions. Do not over-treat products. • Permethrin treatments are for meant only for fabrics, do not apply directly to the skin. • Apply product to clothing and gear outdoors in a well-ventilated area protected from wind. • Hang treated clothing outdoors and allow for them to dry completely before wearing. • Do not spray directly on clothing that you are wearing. • Do not wear clothing or use gear that is not completely dry. • Wash treated clothing separate from other garments. • Retreat clothing and gear after six washings or six weeks of exposure to sun and air.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
2.Carrying Equipment/Site Setup	Heavy lifting, strains/sprains, slip/trips/falls, pinch points	Non-Powered Hand Tools HAS-008a, Manual Lifting HS-025, GEI Ergonomic Program	• Use proper lifting techniques • Check route for clearance of trip hazards • Wear appropriate footwear and gloves to protect hands against sharp edges and soft tissue injuries • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items • Use the buddy system when necessary
3. Site Walk/Survey	Slip/trips/falls, repetition, heat stress, cold stress, biological hazards	Biological Hazards HS-001, Inclement Weather HS-010, Manual Lifting HS-025, Hazard Identification HS-026, GEI Cold Stress Program, GEI Heat Stress Program, GEI Ergonomic Program	• Wear steel-toed boots and high visibility reflective vest when traversing work areas • Avoid walking on uneven, steeply sloped or debris ridden ground surfaces • Discuss action plan prior to severe weather • Apply insect repellent and poisonous plant barrier cream prior to the start of any field work and as needed throughout the workday • Use the buddy system and have a check in plan with project team and/or project manager • Bring adequate hydration for the workday (water, fluids with electrolytes) • Apply sunscreen regularly or wear a hat and long sleeve to reduce sun exposure • Plan an area to take breaks with natural shade or provided by pop up structure • Bring backpack to carry your fluids, snacks, first aid kits, etc. for larger project sites
4.Demobilize from Site	Personal/material security, slips/trips/falls	Hazard Identification HS-026	• Confirm all materials are secured/labeled, including drums and any equipment left on site. • Confirm that any open trenches/pits are properly marked or barricaded. • Clean all equipment/tools prior to leaving. • Secure any gates/locks. • Notify project manager (or designee) you are leaving the site.

Job Hazard Analysis

Task	**Soil Sampling – Drill Rig**		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	Hand tools, CAMP equipment, PID, camera		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☒ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☒Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☒ Gloves Nitrile ☐Respirator ☐Other		

JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Mobilize On Site/Equipment Setup	Slips/trips/falls, stuck by, crushing hazards	Hazard Identification HS-026	• Wear PPE that properly fits, is in good condition, and is appropriate for the activities and hazards. • Maintain good visibility of the work area. • Avoid walking on uneven, steeply sloped, or debris ridden ground surfaces. • Plan tasks prior to preforming them including an activity hazard analysis. • Keep trafficked areas free from slip/trip/fall hazards. • Wear shoes with traction. • Avoid traversing steep areas in slippery conditions. • Do not carry heavy objects to work areas, on steeply sloped areas, or where steep areas must be traversed to reach work areas.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
2. Utility survey	Shock, Explosion, Fire	Utility Markout HS-014	• Ensure that all utilities have been properly marked prior to beginning work. • If a utility strike occurs, call the appropriate authorities immediately. Clear the area and do not delay.
3. Observe contractor activities	Struck by/crushing hazards	Working Around Heavy Equipment HS-018	• Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Coordinate hand signals with operators. • Confirm equipment inspection has been completed. • Stay Alert! Pay attention to equipment backup alarms and swing radii. • Position yourself in a safe location. • Confirm adequate clearance from overhead utilities. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspended loads or near any pressurized equipment lines. • Do not operate cellular telephones in the vicinity of heavy equipment operation.
4. Sample Soil	Contaminant Exposure, Cuts/Scrapes, Repetition, Slips/Trips/Falls	Hazard Identification HS-026/Container Management HS-003	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or composite toe and shank; safety glasses; Nitrile/neoprene gloves; and earplugs as necessary. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Excavation entry will be allowed only with proper sloping or shoring. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
5. Drum Soil Cuttings	Contaminant Contact, Cuts or Abrasions Heavy Lifting , Slips/Trips/Falls	Container Management HS–003 Manual Lifting HS–025 Ergonomic Program	• Wear proper PPE during sampling including nitrile gloves and safety glasses and face shield as appropriate. • Use proper dollies or drum moving tools. • Use applicable tools to open/close drum lids. • Do not handle drums with bulging sides. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Use proper lifting techniques. • Ask fellow worker for help. • Keep trafficked areas free from slip/trip/fall hazards.

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
6. Equipment Decontamination	Contaminant Contact, Cuts or Abrasions, Slips/Trips/Falls	Hazard Identification HS–026 Benzene Awareness Program Ergonomic Program	• Wear nitrile gloves and glasses to provide eye protection from splashing. • Wash hands immediately after use. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
7. Demobilize from site	Personal/material security, slips/trips/falls	Hazard Identification HS-026	• Confirm all materials are secured/labeled, including drums and any equipment left on site. • Confirm that any open trenches/pits are properly marked or barricaded. • Clean all equipment/tools prior to leaving. • Secure any gates/locks. • Notify project manager (or designee) you are leaving the site.

Job Hazard Analysis

Task	**Soil Vapor Sampling**		
Revision Date	6/27/22	**Client Name**	National Grid
Project Name	Williamsburg MGP Site	**Project Number**	093060
Tools/Equipment Used	Hand tools, pump		
Task Specific Training	GEI Annual Safety Training (HAZWOPER), First Aid/CPR		
Minimum PPE Required	☐ Hard Hat ☒Safety Glasses ☒Safety-Toed Boots ☒ Reflective Vest ☐Hearing Protection ☐ Personal Flotation Device (PFD) ☐ Face Shield ☐ Chaps ☐ Tyvek clothing/boots ☐ Flame Resistant Clothing ☒ Gloves Nitrile/Cut resistant ☐Respirator ☐Other		
JHA Prepared By: Melissa Felter	**Date: 6/27/22**	**Approved by: Lesley Gastwirth**	**Date: 6.29.22**

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
1. Carry Equipment and Set-up	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary
2. Cut Tubing	Cuts/Scrapes, pinch points	Non-Powered Hand Tools HS-008a	• Keep free hand out of the way. • Secure work if cutting through thick material. • Use only sharp blades; dull blades require more force that results in less knife control.

[1] Use the hierarchy of controls to determine applicable hazard controls for the task in order of most effective to least effective: Elimination (physically remove the hazard), Substitution (replace the hazard), Engineering Controls (Isolate the team from the hazard), Administrative Controls (change the way people work), PPE (personal protective equipment).

Task Steps	Potential Hazards	GEI SOP or Program	Hazard Controls[1]
			• Pull the knife through the object and away from your body; pulling motions are easier to manage. • Do not put the knife in your pocket. • Wear leather or Kevlar gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.
3. Collect Samples	Awkward position	Hazard Identification HS– 026 Ergonomic Program	• Wear Nitrile/neoprene gloves and dispose of gloves after use and wash hands. • Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.
4. Equipment De-Mob	Heavy lifting, Cuts/Scrapes, Slips/Trips/Falls, Pinch points	Non-Powered Hand Tools HS-008a Manual Lifting HS-025 Ergonomic Program	• User proper lifting techniques. • Keep trafficked areas free from slip/trip/fall hazards. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries • Wear appropriate footwear • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions • Take breaks when carrying items frequently and/or for long distances • Do not overreach when picking up or placing items. • Use the buddy system when necessary

Appendix C

Safety Data Sheets

HOVENSA

NFPA 704 (Section 16)

MATERIAL SAFETY DATA SHEET

Benzene **MSDS No. 0166**

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-99)

HOVENSA L.L.C.
1 Estate Hope
Christiansted, VI 00820-5652

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): **Safety Department (340) 692-3000**

SYNONYMS: Benzol; Coal Naphtha; coal tar naphtha; Cyclohexatriene; Phenyl hydride
See Section 16 for Abbreviations and Acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS (rev. Apr-98)

INGREDIENT NAME	EXPOSURE LIMITS		CONCENTRATION PERCENT BY WEIGHT
Benzene CAS NUMBER: 71-43-2	OSHA PEL-TWA/STEL: ACGIH TLV-TWA: US Coast Guard:	1 / 5 ppm 0.5 / 2.5 ppm, A1, skin same as OSHA	100

3. HAZARDS IDENTIFICATION (rev. Apr-98; Tox-98)

EMERGENCY OVERVIEW
DANGER!
FLAMMABLE - BLOOD TOXIN AND CARCINOGEN - ABSORBED THROUGH THE SKIN - CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause blood disease, including anemia and leukemia.

EYES
Moderate to severe irritant. Contact with liquid or vapor may cause irritation.

SKIN
Moderate to severe irritant. May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritation to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

Effects to the blood (including decreased platelet and white blood cell counts), cardiovascular system, nervous system, retina, lungs, gastrointestinal system, spleen, and kidneys have been reported from large, acute (short) and repeated or prolonged exposures.

CHRONIC EFFECTS and CARCINOGENICITY
Benzene is a regulated human carcinogen. Benzene has the potential to cause bone marrow depression, aplastic anemia (low red blood cell count) and other blood diseases, including leukemia, after repeated and prolonged exposure. Benzene can cause liver and kidney toxicity.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Pre-existing chronic respiratory disease, liver or kidney dysfunction, or blood, cardiovascular and central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Apr-98)

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

NOTE TO PHYSICIAN
OSHA and US Coast Guard require that a person exposed to benzene in an emergency have a urine sample taken at the end of the shift and have a urine phenol test performed within 72 hours. For results equal to or greater than 75 ml/L of urine, employees must have a complete blood count every month for three months after the emergency exposure. See OSHA 29 CFR 1910.1028 or USCG 49 CFR 193.

5. FIRE FIGHTING MEASURES (rev. Jan-99)

FLAMMABLE PROPERTIES:

FLASH POINT:	12 ^{o}F (-11^{o}C)
AUTOIGNITION TEMPERATURE:	928 ^{o}F (498 ^{o}C)
OSHA/NFPA FLAMMABILITY CLASS:	1B (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.3%
UPPER EXPLOSIVE LIMIT (%):	7.9%

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Apr-98)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Apr-98)

HANDLING PRECAUTIONS

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Apr-98)

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of Viton are recommended for heavy exposure; Viton, nitrile, PVC, or neoprene for intermittent exposure. Chemical protective clothing such as DuPont Barricade ® or equivalent recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Mar-95)

APPEARANCE

A clear, water-like liquid

ODOR

A sweet, aromatic odor.

ODOR THRESHOLD

4.7 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	176 ^{o}F (80 ^{o}C)
VAPOR PRESSURE:	74.6 mm Hg @ 68 ^{o}F (20 ^{o}C)
VAPOR DENSITY (air = 1):	2.8
SPECIFIC GRAVITY (H_2O = 1):	0.87
EVAPORATION RATE:	High
PERCENT VOLATILES:	100 %
SOLUBILITY (H_2O):	Insoluble to slightly soluble

10. STABILITY and REACTIVITY (rev. Mar-95)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Apr-98; Tox-98)

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 9.4 ml/kg Acute Oral LD50 (mouse): 4.7 g/kg
Acute inhalation LC50: 10,000 ppm (rat; 7 hours) Eye irritation (rabbit): mild to moderate
Primary dermal irritation (rabbits): mild to moderate

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: YES IARC: (1) NTP: YES ACGIH: (A1)

Numerous epidemiological (human) and animal studies have reported an increased incidence or a causal relationship between leukemia and benzene exposure.

Mutagenicity: positive

12. ECOLOGICAL INFORMATION (rev. Apr-98)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS (rev. Apr-98)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Apr-98)

DOT PROPER SHIPPING NAME:	Benzene
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1114
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

15. REGULATORY INFORMATION (rev. Apr-98)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

Benzene is a CERCLA Section 103 "hazardous substance" subject to CERCLA and SARA Section 304 reporting requirements.

Reportable Quantity: 10 pounds

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	100

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Apr-98)

NFPA® HAZARD RATING	HEALTH:	2	Moderate
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	3 *	Serious
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
			* Chronic

SUPERSEDES MSDS DATED: 04/23/98

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than

N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212) 642-4900
API	American Petroleum Institute (202) 682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General Info: (800) 467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617) 770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Material Safety Data Sheet

HYDROGEN SULFIDE

August 31, 1995

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. Product Identification

Synonyms: Sulfuretted Hydrogen; Hepatic Gas; Hydrosulfuric Acid
Chemical Name: Hydrogen Sulfide
Chemical Family: Inorganic Acid
Chemical Formula: H2S
CAS Reg. No.: 7783-06-4
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. Hazardous Components

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Hydrogen Sulfide	7783-06-4	100	10 ppm	10 ppm@

@ Short term exposure limit is 15 ppm.

C. Personal Protection Information

Ventilation: Use adequate ventilation to control exposure below recommended levels.

Respiratory Protection: For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator. If conditions immediately dangerous to life or health (IDLH) exist, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA) equipment.

Eye Protection: For splash protection use chemical goggles and face shield.

Skin Protection: Gloves and coveralls of rubber or neoprene construction if liquid contact could occur. Avoid

unnecessary skin contamination with material.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. Handling and Storage Precautions

Proper personal protective equipment must be used when handling this chemical.

Do not get liquefied gas into eyes, on skin, or on clothing. May cause freeze burns upon direct contact. Do not breathe vapor, mist, fume or dust. May be harmful. Launder contaminated clothing before reuse. Use only with adequate ventilation. Wash thoroughly after handling.

Keep away from heat, sparks, and flames. Secure container to prevent damage. Store in a well-ventilated area. Store in tightly closed container. Bond and ground during transfer. Do not puncture or incinerate container.

Handle cylinders with care. Protect cylinders from physical damage. Containers should not be subjected to temperatures above 125F. Do not heat cylinders by any means to increase the product discharge rate. Use a check valve or trap in the discharge line to prevent backflows into the cylinders. All electrical equipment should be non-sparking or explosion proof. Test atmosphere periodically for H2S. Do not rely on sense of smell for H2S release. Use product in a closed system.

E. Reactivity Data

Stability:	Stable
Conditions to Avoid:	Heat, flame, or other sources of ignition.
Incompatibility (Materials to Avoid):	Concentrated nitric acid, sulfuric acid, and other strong oxidizers. Vapors will combust spontaneously when mixed with chlorine, nitrogen trifluoride, or oxygen trifluoride vapors. Distinct hydrogen sulfide odor can be masked by high concentrations of vapors or gas of other chemicals.
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Sulfur Oxides formed when burned.

F. Health Hazard Data

Recommended Exposure Limits:

See Section B.

Acute Effects of Overexposure:

Eye: May be irritating to eyes at levels near the permissible exposure limit. Liquid may cause freeze burns.

Skin: Gas not expected to be irritating to skin. Liquid may cause freeze burns, irritation, reddening or swelling.

Inhalation: Toxic by inhalation. Release of liquefied product may create atmospheres which can rapidly exceed lethal levels. Acute low level exposure that exceeds the permissible exposure limit will result in irritation of the nose and throat, headache, dizziness, nausea, and nervousness.

Ingestion: Liquid may cause freeze burns and death.

Subchronic and Chronic Effects of Overexposure:

Humans breathing up to 8 ppm of hydrogen sulfide over a two month period experienced nausea, headache, shortness of breath, sleep disturbance, eye and throat irritation.

Other Health Effects:

The odor of hydrogen sulfide may not be recognized after prolonged inhalation due to paralysis of the sense of smell. Effects from inhaling the fumes may lead to chronic bronchitis, respiratory irritation, increased loss of pulmonary function, and tearing of the eyes.

Health Hazard Categories:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	_X_	_X_
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___	Specify - Skin & Eye Hazard - Freeze burns;		
Highly Toxic	___	___	Lung Hazard-Irritant; Nerve Toxin		

First Aid and Emergency Procedures:

NOTE: For freeze burns, immediately flush effected area with tap water for at least fifteen minutes, seek immediate medical attention.

Eye: Flush eyes with running water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Immediately remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.

Ingestion: If illness or adverse symptoms develop, seek medical attention.

Prompt medical attention is mandatory in all cases of overexposure to hydrogen sulfide. Rescue personnel should be equipped with NIOSH/MSHA approved self-contained breathing apparatus (SCBA). Rescue personnel should recognize the hazards of overexposure due to olfactory fatigue. The use of rescue equipment which might contain ignition sources or cause static discharges should be avoided.

Nitrite treatment as medical therapy has been used in persons overexposed to hydrogen sulfide, but the benefits of this treatment are still considered by some to be of questionable usefulness.

Therapy can only be undertaken by qualified emergency medical personnel.

Treatment should be initiated with inhalation of amyl nitrite for fifteen to thirty seconds of each minute until 10 ml of a 3% solution of sodium nitrite can be injected intravenously at a rate of 2.5 to 5 ml per minute. Sodium nitrite injections may be repeated if necessary.

G. Physical Data

Appearance:	Colorless Gas or Liquefied Gas
Odor:	Repulsive (rotten egg) Odor
Boiling Point:	-75F (-60C)
Vapor Pressure:	394.0 psia @ 100F (37.8C)
Vapor Density (Air = 1):	1.176 @ 60F (15.6C)(Calculated)
Solubility in Water:	Slight
Specific Gravity (H2O = 1):	0.79 @ 60F (15.6C) Saturation Pressure
Percent Volatile by Volume:	100
Evaporation Rate (Ethyl Ether = 1):	>1
Viscosity:	Not Applicable

H. Fire and Explosion Data

Flash Point (Method Used):	Flammable Gas
Flammable Limits (% by Volume in Air):	LEL - 4 UEL - 44
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Shut off source, if possible. Water for or spray may be used to cool exposed containers and equipment. Use NIOSH/MSHA approved self-contained breathing apparatus. Wear protective equipment and/or garments described in Section C.
Fire and Explosion Hazards:	Sulfur oxides formed when burned. Vapors are heavier than air and may travel to an ignition source and flashback. Autoignition temperature is 500F (260C).

I. Spill, Leak and Disposal Procedures

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source. Ventilate confined area.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or place in permitted waste management facility.

J. DOT Transportation

Shipping Name:	Hydrogen sulfide, liquefied
Hazard Class:	2.3 (Poisonous gas)
ID Number:	UN 1053

```
         Packing Group: Not applicable
               Marking: Hydrogen Sulfide, liquefied, UN1053, RQ* Inhalation
                        hazard
                 Label: Poison gas and Flammable gas
               Placard: Poisonous gas/1053
Hazardous Substance/RQ: Hydrogen sulfide/100#
  Shipping Description: Hydrogen sulfide, liquefied, 2.3 (Poisonous gas),
                        UN 1053, RQ*, Poison - Inhalation Hazard Zone B
  Packaging References: 49 CFR 173.304, 173.314, 173.315
```

* Enter the letters "RQ" as shown only if the hazardous substance is present in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) shown for the hazardous substance.

K. RCRA Classification - Unadulterated Product as a Waste

Ignitable (D001); Hydrogen Sulfide (U135)

Prior to disposal, consult your environmental contact to determine if the TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. Protection Required for Work on Contaminated Equipment

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. If repair of user's equipment is required, purge equipment with an inert gas prior to repairing.

M. Hazard Classification

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
_X_ Compressed Gas	___ Explosive	___ Pyrophoric
_X_ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. Additional Comments

As of the preparation date, this product did not contain a chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

```
NFPA 704 Hazard Codes - - - - - - - - Signals

                                      Least - 0
   Health      : 3                    Slight - 1
   Flammability: 4                    Moderate - 2
```

Reactivity : 0	High - 3
Special Haz.: -	Extreme - 4

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Material Safety Data Sheet
Phenol Liquid

Section 1 - Chemical Product and Company Identification

MSDS Name: Phenol Liquid
Catalog Numbers: A88I-500, A931I-1, A931I-200, A931I-4, A931I-500, S801181, S801181MF
Synonyms: Phenylic acid
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-95-2	Phenol	89	203-632-7
7732-18-5	Water	11	231-791-2

Hazard Symbols: T
Risk Phrases: 34 24/25

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 175 deg F. **Danger!** Corrosive. **Combustible liquid and vapor.** Toxic. Harmful if swallowed, inhaled, or absorbed through the skin. May cause severe respiratory and digestive tract irritation with possible burns. Causes severe eye and skin burns. May cause liver and kidney damage. May cause reproductive and fetal effects. Eye contact may result in permanent eye damage. May cause central nervous system effects.
Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye: Contact with liquid or vapor causes severe burns and possible irreversible eye damage.
Skin: Causes severe skin irritation. Harmful if absorbed through the skin. Direct skin contact results in white, wrinkled discoloration, followed by severe burns. Phenol solutions may be absorbed through the skin ra pidly to cause systemic poisoning and possible death.
Ingestion: Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Causes digestive tract burns with immediate pain, swelling of the throat, convulsions, and possible coma.
Inhalation: Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. May be fatal if exposed to high concentrations. May also cause pallor, loss of appetite, nausea, vomiting, diarrhea, weakness, darkened urine, headache, sweating, convulsions, cyanosis (bluish skin due to deficient oxygenation of the blood), unconsciousness, fatigue, pulmonary edema & coma.
Chronic: Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause liver and kidney damage. May cause fetal effects. Repeated skin contact may cause dermatitis with dark pigmentation of the skin.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes

while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure. SPEEDY ACTION IS CRITICAL! Destroy contaminated shoes.
Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
Flash Point: 175e deg F (79.44 deg C)
Autoignition Temperature: 1319 deg F (715.00 deg C)
Explosion Limits, Lower:1.8
Upper: 8.6
NFPA Rating: (estimated) Health: 4; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not ingest or inhale. Use only in a chemical fume hood. Wash clothing before reuse. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat and flame. Keep away from sources of ignition. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Phenol	5 ppm TWA; skin - potential for cutaneous absorption	5 ppm TWA; 19 mg/m3 TWA 250 ppm IDLH	5 ppm TWA; 19 mg/m3 TWA
Water	none listed	none listed	none listed

OSHA Vacated PELs: Phenol: 5 ppm TWA; 19 mg/m3 TWA Water: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear neoprene gloves, apron, and/or clothing. Selection of specific glove materials should be based on your conditions of use in your application in consultation with your Safety Officer and manufacturer's glove recommendations.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless

Odor: sweetish odor
pH: 6 aqueous solution.
Vapor Pressure: .35 mm Hg @25C
Vapor Density: 3.2
Evaporation Rate:<0.01 (butyl acetate=1)
Viscosity: 1.51 cp@80C
Boiling Point: 360 deg F
Freezing/Melting Point:109 deg F
Decomposition Temperature: Not available.
Solubility: 6.75% in water
Specific Gravity/Density:1.0576
Molecular Formula:H6H6O
Molecular Weight:28.0834

Section 10 - Stability and Reactivity

Chemical Stability: Stable.
Conditions to Avoid: Temperatures above recommended temperatures.
Incompatibilities with Other Materials: Incompatible with strong oxidizing agents, alkalies, nitric acid, calcium hypochlorite, and halogens, Mixture with nitrobenzene and aluminum chloride may violently explode. Coagulates colodion and proteins. Hot liquid phenol will attack aluminum, magnesium, lead, and zinc metals. Mixtures with nitrobenzene and aluminum chloride may violently explode.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 108-95-2: SJ3325000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 108-95-2:
Draize test, rabbit, eye: 5 mg Severe;
Draize test, rabbit, skin: 500 mg/24H Severe;
Draize test, rabbit, skin: 100 mg Mild;
Inhalation, mouse: LC50 = 177 mg/m3;
Inhalation, rat: LC50 = 316 mg/m3;
Oral, mouse: LD50 = 270 mg/kg;
Oral, rat: LD50 = 317 mg/kg;
Skin, rabbit: LD50 = 630 mg/kg;
Skin, rat: LD50 = 669 mg/kg;
CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg;
Carcinogenicity:
CAS# 108-95-2:
ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: IARC Group 3 - not classifiable CAS# 7732-18-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: The IARC has determined that there is inadequate evidence fo r carcinogenicity of phenol in humans and experiment aal animals.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Other Studies: Rabbit skin irritation: severe. Rabbit eye irritation: sever e.

Section 12 - Ecological Information

Ecotoxicity: Daphnia: EC50=4.0mg/l; 96hour; ia: EC50=12.0mg/l; 48 hour; No data
Environmental: Will not be expected to significantly bioconcentrate in aquatic organisms.
Physical: In water, phenol will not be expected to significantly hydrolyze.
Other: 96-hour LC50=11 mg/l in Gammarus fasciatus. 48-hour LC=11.2 mg/l in Leuciscus idus.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: CAS# 108-95-2: waste number U188.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	PHENOL SOLUTIONS				PHENOL SOLUTION
Hazard Class:	6.1				6.1(9.2)
UN Number:	UN2821				UN2821
Packing Group:	II				II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 108-95-2 is listed on the TSCA inventory.

CAS# 7732-18-5 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-95-2: Effective Date: 6/1/87; Sunset Date: 6/1/97

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs

CAS# 108-95-2: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 108-95-2: 500 lb TPQ (lower threshold); 10,000 lb TPQ (upper thre shold)

SARA Codes

CAS # 108-95-2: acute, chronic, flammable.

Section 313

This material contains Phenol (CAS# 108-95-2, 89%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 108-95-2 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 108-95-2 is listed as a Hazardous Substance under the CWA. CAS# 108-95-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 108-95-2 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 108-95-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 34 Causes burns.

R 24/25 Toxic in contact with skin and if swallowed.

Safety Phrases:

S 28 After contact with skin, wash immediately with...
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 108-95-2: 2
CAS# 7732-18-5: No information available.

Canada - DSL/NDSL

CAS# 108-95-2 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D1A, E.

Canadian Ingredient Disclosure List

CAS# 108-95-2 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits

CAS# 108-95-2: OEL-ARAB Republic of Egypt:TWA 5 ppm (19 mg/m3);Skin OEL-AUSTRALIA:TWA 5 ppm (19 mg/m3);Skin OEL-BELGIUM:TWA 5 ppm (19 mg /m3);Skin OEL-CZECHOSLOVAKIA:TWA 20 mg/m3;STEL 40 mg/m3 OEL-DENMARK: TWA 5 ppm (19 mg/m3);Skin OEL-FINLAND:TWA 5 ppm (19 mg/m3);STEL 10 pp m (38 mg/m3);Skin OEL-FRANCE:TWA 5 ppm (19 mg/m3);Skin OEL-GERMANY:T WA 5 ppm (19 mg/m3);Skin OEL-HUNGARY:TWA 4 mg/m3;STEL 8 mg/m3;Skin O EL-JAPAN:TWA 5 ppm (19 mg/m3);Skin OEL-THE NETHERLANDS:TWA 5 ppm (19 mg/m3);Skin OEL-THE PHILIPPINES:TWA 5 ppm (10 mg/m3);Skin OEL-POLAND :TWA 10 ppm OEL-RUSSIA:TWA 5 ppm;STEL 0.3 mg/m3;Skin OEL-SWEDEN:TWA 1 ppm (4 mg/m3);STEL 2 ppm (8 mg/m3);Skin OEL-SWITZERLAND:TWA 5 ppm (19 mg/m3);STEL 10 ppm (38 mg/m3);Skin OEL-THAILAND:TWA 5 ppm (19 mg/m 3) OEL-TURKEY:TWA 5 ppm (19 mg/m3);Skin OEL-UNITED KINGDOM:TWA 5 ppm (19 mg/m3);STEL 10 ppm;Skin OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TL V

Section 16 - Additional Information

MSDS Creation Date: 6/01/1999
Revision #5 Date: 10/08/2003

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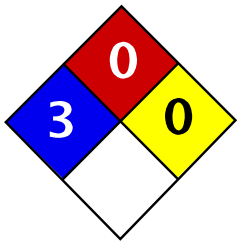

Health	3
Fire	1
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
Sodium Cyanide MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium Cyanide

Catalog Codes: SLS2314, SLS3736

CAS#: 143-33-9

RTECS: VZ7525000

TSCA: TSCA 8(b) inventory: Sodium Cyanide

CI#: Not available.

Synonym:

Chemical Name: Sodium Cyanide

Chemical Formula: NaCN

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium Cyanide	143-33-9	100

Toxicological Data on Ingredients: Sodium Cyanide: ORAL (LD50): Acute: 6.44 mg/kg [Rat]. DERMAL (LD50): Acute: 10.4 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to skin, eyes, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of acids, of moisture.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Dangerous on contact with acids, acid fumes, water or stream. It will produce toxic and flammable vapors of CN-H and sodium oxide.
Contact with acids and acid salts causes immediate formation of toxic and flammable hydrogen cyanide gas.
When heated to decomposition it emits toxic fumes hydgrogen cyanide and oxides of nitrogen

Special Remarks on Explosion Hazards: Fusion mixtures of metal cyanides with metal chlorates, perchlorated or nitrates causes a violent explosion

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Corrosive solid. Poisonous solid.
Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 24°C (75.2°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
STEL: 5 (mg/m3) from ACGIH (TLV) [United States] SKIN
CEIL: 4.7 from NIOSH
CEIL: 5 (mg/m3) from NIOSHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Granular solid. Flakes solid.)

Odor:
Faint almond-like odor.
Odorless when perfectly dry. Emits odor of hydrogen cyanide when damp.

Taste: Not available.

Molecular Weight: 49.01 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 1496°C (2724.8°F)

Melting Point: 563°C (1045.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.595 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Vapor Density of Hydrogen Cyanide gas: 0.941

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:
Soluble in cold water.
Slightly soluble in Ethanol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, moisture, incompatibles.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity:
Corrosive in presence of aluminum.
Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Violent reaction with fluorine gas, magnesium, nitrates, nitric acid.
Dangerous on contact with acids, acid fumes, water or stream. It wil produce toxic and flammable vapors of CN-H and sodium oxide.
Cyanide may react with CO2 in ordinary air to form toxic hydrogen cyanide gas.
Strong oxidizers such as acids, acid salts, chlorates, and nitrates.
Contact with acids and acid salts causes immediate formation of toxic and flammable hydrogen cyanide gas.

Special Remarks on Corrosivity: Corrosive to aluminum

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 6.44 mg/kg [Rat].
Acute dermal toxicity (LD50): 10.4 mg/kg [Rabbit].

Chronic Effects on Humans: May cause damage to the following organs: skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects (maternal and paternal fertility) based on animal data.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health effects:
Skin: May cause itching and irritation. May be fatal if absorbed through injured skin with symtpoms similar to those noted for inhalation and ingestion.
Eyes: May cause eye irritation and eye damage.
Inhalation: May cause respiratory tract irritation. May be fatal if inhaled. The substance inhibits cellular respiration causing metabolic asphyxiation. May cause headache, weakness, dizziness, labored breathing, nausea, vomiting. May be followed by cardiovascular effects, unconciousness, convulsions, coma, and death
Ingestion: May be fatal if swallowed. May cause gastrointestinal tract irritation with nausea, vomiting. May affect behavior and nervous systems(seizures, convulsions, change in motor activity, headache, dizziness, confusion, weakness stupor, aniexity, agitation, tremors), cardiovascular system, respiration (hyperventilation, pulmonary edema, breathing difficulty, respiratory failure), cardiovascular system (palpitations, rapid heart beat, hypertension, hypotension). Massive doses by produce sudden loss of conciousness and prompt death from respiratory arrest. Smaller but still lethal doses
on the breath or vomitus.
Chronic Potential Health Effects:
Central Nervous system effects (headaches, vertigo, insomnia, memory loss, tremors, fatigue), fatigue, metabolic effects (poor appetite), cardiovascular effects (chest discomfort, palpitations), nerve damage to the eyes, or dermatitis, respiratory tract irritation, eye irritation, or death can occur.
may prolong the illness for 1 or more hours. A bitter almond odor may be noted

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Sodium cyanide UNNA: 1689 PG: I

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut carcinogen reporting list.: Sodium Cyanide
Illinois chemical safety act: Sodium Cyanide
New York release reporting list: Sodium Cyanide
Rhode Island RTK hazardous substances: Sodium Cyanide
Pennsylvania RTK: Sodium Cyanide
Minnesota: Sodium Cyanide
Massachusetts RTK: Sodium Cyanide
Massachusetts spill list: Sodium Cyanide
New Jersey: Sodium Cyanide
New Jersey spill list: Sodium Cyanide
Louisiana RTK reporting list: Sodium Cyanide
Louisiana spill reporting: Sodium Cyanide
California Director's List of Hazardous Substances: Sodium Cyanide
TSCA 8(b) inventory: Sodium Cyanide
TSCA 4(a) final test rules: Sodium Cyanide
TSCA 8(a) PAIR: Sodium Cyanide
TSCA 8(d) H and S data reporting: Sodium Cyanide
TSCA 12(b) one time export: Sodium Cyanide
SARA 302/304/311/312 extremely hazardous substances: Sodium Cyanide
CERCLA: Hazardous substances.: Sodium Cyanide: 10 lbs. (4.536 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-6: Reactive and very flammable material.
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS E: Corrosive solid.

DSCL (EEC):
R27/28- Very toxic in contact with skin and if swallowed.
R41- Risk of serious damage to eyes.
S1/2- Keep locked up and out of the reach of children.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28- After contact with skin, wash immediately

with plenty of water
S36/37- Wear suitable protective clothing and gloves.
S39- Wear eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Synthetic apron.
Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 01:58 PM

Last Updated: 11/06/2008 12:00 PM

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SPI Supplies Division
Structure Probe, Inc.
P.O. Box 656 West Chester, PA 19381-0656 USA
Phone: 1-(610)-436-5400 Fax: 1-(610)-436-5755
E-mail: spi3spi@2spi.com
WWW: http://www.2spi.com
Manufacturer's CAGE: 1P573

Material Safety Data Sheet

SPI #02701-AB, 02701A-AB Chrysotile "B" and SPI#02740-AB, 02740A-AB Chrysolile "B" Asbestos Standards

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Section 1: Identification

```
Date Effective.......... May 30, 2007
                         (most recent revision)

Chemical family..... Hydrous silicates of magnesia

Emergencies
Contacting CHEMTREC:

24 Hour Emergency Use Only #'s......
Worldwide phone: 1-(703)-527-3887
Worldwide FAX:   1-(703)-741-6090
Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name....  Chrysotile asbestos fiber

Emergency Overview:
Chrysotile asbestos is a known human carcinogen.
```

Section 2: Composition

Name	CAS #	EC#	Approximate Weight %
Chrysotile	12001-29-5	650-013-006	>99.99%

Confirmed carcinogen by ACGIH, IARC, OSHA AND NTP.

Section 3: Hazard Identification

Potential Health Effects:
Acute: Overexposure to breathing asbestos may cause asbestosis, pulmonary fibrosis, mesothelioma, other lung disorders or cancer. Handling of materials and smoking or eating prior to washing could be hazardous. Medical examination and x-rays are required to determine signs & symptoms of exposure.

Routes of exposure: Inhalation, Skin contact, Ingestion

Medical Conditions Aggravated by Exposure:
Pulmonary disease

Occupational Exposure Limits:

TLV: 0.1 fiber/cc (as TWA)
A1 (ACGIH 1998. For fibers longer than 5Âµm with an aspect ratio equal to or greater than 3:1 as determined at 400-450X magnification by the membrane filter method).

Incompatibilies:
Strong oxidizers, strong acids, and bases

Route of entry: Inhalation, Skin contact, Ingestion
Target organs: Lungs

Symptoms:
There are not acute signs or symptoms associated with asbestos. Diseases associated with over exposure are chronic, generally taking from 10 to 40 years to become apparent.

Section 4: First Aid Measures

Eyes: In case of contact, immediately flush eyes with copious amounts of flowing water for at least 15 minutes, retracting eye lids often. Get medical attention immediately. Contact lenses should not be worn when working with this product.

Skin: Wash skin thoroughly with mild soap and water. Flush with copious amounts of water for 15 minutes.

Inhalation: Move the exposed person to fresh air at once. Support breathing. If symptoms persist contact physician.

Ingestion: Get medical aid immediately.

Section 5: Fire Fighting Measures

Flammability classification: Not classified.
Heat resistant up to 500°C; is completely decomposed at a temperature of 1000°C.

Flash Point/Method: Not known

Auto-Ignition Temperature: Not determined

Flammable Limits: Lower: Not applicable
Upper: Not applicable

Extinguishing Media: Water, Foam, Dry Chemical

Unusual Fire Hazards: Toxic gases and asbestos particulate may be Released in a fire.

Firefighting procedures/instructions:
Use NIOSH approved self-contained breathing apparatus and full protective equipment.
Properties that could increase fire or explosion hazard:
Combustibility of this material results from paraffin lubrication.

Section 6: Accidental Release Measures

Use HEPA vacuum wet methods when feasible. Use appropriate personal protection for clean-up personnel.

Section 7: Handling and Storage

Storage and handling:
Store in well-sealed container in cool, dry area.

Section 8: Exposure Controls and Personal Protection

ANSI approved eye wash and deluge shower should be available in the work area.

Personal Protective Equipment (PPE):

Eye/Face Protection: ANSI 87.1 approved chemical safety glasses with side shield.

Protective gloves: Rubber gloves
Protective clothing: Wear protective clothing to prevent skin contact. Do NOT take working clothes home.

Respiratory Protection:
Wear NIOSH approved respirator in accordance with 29CFR1910.1001.

Other: Wash prior to eating, drinking, or smoking. Avoid ingestion or breathing of dust.

Section 9: Physical and Chemical Properties

Appearance: white or gray fibrous solid
Color: white or gray
pH: Not applicable
Odor: None
Vapor Pressure: Not applicable
Vapor Density (Air=1): Not available
Boiling Point/Range: Not available
Melting Point/Range: Decomposes above 500°C
Specific Gravity: 2.2 to 2.6 g/cc
Solubility in water: None
Softening Point: Not determined
Molecular Formula: $Mg_3Si_2H_4O_6/Mg_3(Si_2O_5)(OH)4$
Molecular Weight: 277
%Volatile by Volume: Not determined
Evaporation Rate (n-butyl acetate = 1): Not available
Viscosity: Not available

Section 10: Stability and Reactivity

Chemical Stability: The product is stable under normal use conditions.

Conditions to Avoid:
Prevent dispersion of dust. Avoid all contact. Avoid airborne concentrations at or above OSHA PEL.

Incompatibility (materials to avoid):
Strong oxidizers, strong acids, and bases.

Hazardous Products of Decomposition:
None known

Reactions with Air and Water:
Avoid airborne concentrations at or above OSHA PEL.

Section 11: Toxicological Information

RTECS# CI3478500

Section 12: Ecological Information

None available

Section 13: Disposal Considerations

Bury waste is solid landfill as required in 29CFR1910.1001. Comply with applicable OSHA, Federal, State and Local regulations.

Section 14: Transport Information

Proper Shipping Name: White asbestos (chrysotile)

DOT Hazard Class: 9

UN/NA ID: UN2590

Packing Group: III

Labels: 9

Marine Pollutant: No information

DOT Status: Not Regulated

Section 15: Regulatory Information

United States:

TSCA
This product is listed under the TSCA Inventory.

CERCLA:
This product has an RQ of 1 pound under CERCLA.

SARA:
Section 313
This product is listed under SARA Section 313.

California Prop. 65:
Asbestos a known carcinogen under California Prop. 65.

US Statements:
Confirmed carcinogen. Target organs: Lung

European/International Regulations:
European Labeling in Accordance with EC Directives

Hazard Symbols: T Toxic
Risk Phrases:
R23 Toxic by Inhalation
R45 May cause cancer
R48 Danger of serious damage to health by prolonged exposure
R49 May cause cancer by inhalation

Safety Phrases:
S53 Avoid exposure â€“ obtain special instructions before use
S45 In case of accident, or if you feel unwell, seek medical advice immediately (show the label where possible.)

Canada

This product has a WHMIS classification of D2B.

DSL/NDSL
This product is listed on the DSL List and is not listed on the NDSL List.

Section 16: Other Information

If this product should be used in ways that are outside of the intended applications in scanning electron microscope laboratories, and if it is going to be formulated into some other system, so that it becomes just another component of that other system, read the MSDS sheets for the other components before blending as the resulting mixture may have the hazards of all of its parts.

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Wednesday December 03, 2008

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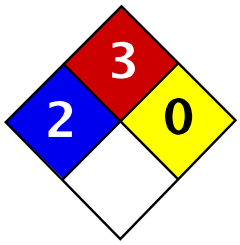

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Ethylbenzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ethylbenzene

Catalog Codes: SLE2044

CAS#: 100-41-4

RTECS: DA0700000

TSCA: TSCA 8(b) inventory: Ethylbenzene

CI#: Not available.

Synonym: Ethyl Benzene; Ethylbenzol; Phenylethane

Chemical Name: Ethylbenzene

Chemical Formula: C8H10

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ethylbenzene	100-41-4	100

Toxicological Data on Ingredients: Ethylbenzene: ORAL (LD50): Acute: 3500 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (irritant, sensitizer).
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 432°C (809.6°F)

Flash Points:
CLOSED CUP: 15°C (59°F). (Tagliabue.) OPEN CUP: 26.667°C (80°F) (Cleveland) (CHRIS, 2001)
CLOSED CUP: 12.8 C (55 F) (Bingham et al, 2001; NIOSH, 2001)
CLOSED CUP: 21 C (70 F) (NFPA)

Flammable Limits: LOWER: 0.8% - 1.6%UPPER: 6.7% - 7%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive in presence of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Vapors may form explosive mixtures in air.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 125 (ppm) from OSHA (PEL) [United States]
TWA: 435 STEL: 545 from OSHA (PEL) [United States]
TWA: 435 STEL: 545 (mg/m3) from NIOSH [United States]
TWA: 100 STEL: 125 (ppm) from NIOSH [United States]
TWA: 100 STEL: 125 (ppm) from ACGIH (TLV) [United States]
TWA: 100 STEL: 125 (ppm) [United Kingdom (UK)]
TWA: 100 STEL: 125 (ppm) [Belgium]
TWA: 100 STEL: 125 (ppm) [Finland]
TWA: 50 (ppm) [Norway]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweetish. Gasoline-like. Aromatic.

Taste: Not available.

Molecular Weight: 106.16 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 136°C (276.8°F)

Melting Point: -94.9 (-138.8°F)

Critical Temperature: 617.15°C (1142.9°F)

Specific Gravity: 0.867 (Water = 1)

Vapor Pressure: 0.9 kPa (@ 20°C)

Vapor Density: 3.66 (Air = 1)

Volatility: 100% (v/v).

Odor Threshold: 140 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:
Easily soluble in diethyl ether.
Very slightly soluble in cold water or practically insoluble in water.
Soluble in all proportions in Ethyl alcohol.
Soluble in Carbon tetrachloride, Benzene.
Insoluble in Ammonia.
Slightly soluble in Chloroform.
Solubility in Water: 169 mg/l @ 25 deg. C.; 0.014 g/100 ml @ 15 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ingnition sources (flames, sparks, static), incompatible materials, light

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials.
Sensitive to light.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): 3500 mg/kg [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
May cause damage to the following organs: central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation.
Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals:
Lethal Dose/Conc 50% Kill:
LD50 [Rabbit] - Route: Skin; Dose: 17800 ul/kg
Lowest Published Lethal Dose/Conc:
LDL[Rat] - Route: Inhalation (vapor); Dose: 4000 ppm/4 H

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data.
May cause cancer based on animals data. IARC evidence for carcinogenicity in animals is sufficient. IARC evidence of carcinogenicity in humans inadequate.
May affect genetic material (mutagenic).

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Can cause mild skin irritation. It can be absorbed through intact skin.
Eyes: Contact with vapor or liquid can cause severe eye irritation depending on concentration. It may also cause conjunctivitis. At a vapor exposure level of 85 - 200 ppm , it is mildly and transiently irritating to the eyes; 1000 ppm causes further irritation and tearing; 2000 ppm results in immediate and severe irritation and tearing; 5,000 ppm is intolerable (ACGIH, 1991; Clayton and Clayton, 1994). Standard draize test for eye irritation using 500 mg resulted in severe irritation (RTECS)
Inhalation: Exposure to high concentrations can cause nasal, mucous membrane and respiratory tract irritation and can also result in chest constriction and, trouble breathing, respiratory failure, and even death. It can also affect behavior/Central Nervous System. The effective dose for CNS depression in experimental animals was 10,000 ppm (ACGIH, 1991). Symptoms of CNS depression include headache, nausea, weakness, dizziness, vertigo, irritability, fatigue, lightheadedness, sleepiness, tremor, loss of coordination, judgement and conciousness, coma, and death. It can also cause pulmonary edema. Inhalation of 85 ppm can produce fatigue, insomnia, headache, and mild irritation of the respiratory tract (Haley & Berndt, 1987).
Ingestion: Do not drink, pipet or siphon by mouth. May cause gastroinestinal/digestive tract irritation with Abdominal pain, nausea, vomiting. Ethylbenzene is a pulmonary aspiration hazard. Pulmonary aspiration of even small amounts of the liquid may cause fatal pneumonitis. It may also affect behavior/central nervous system with

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 14 mg/l 96 hours [Fish (Trout)] (static). 12.1 mg/l 96 hours [Fish (Fathead Minnow)] (flow-through)]. 150 mg/l 96 hours [Fish (Blue Gill/Sunfish)] (static). 275 mg/l 96 hours [Fish (Sheepshead Minnow)]. 42.3 mg/l 96 hours [Fish (Fathead Minnow)](soft water). 87.6mg/l 96 hours [Shrimp].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Ethylbenzene UNNA: 1175 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Ethylbenzene
Illinois toxic substances disclosure to employee act: Ethylbenzene
Illinois chemical safety act: Ethylbenzene
New York release reporting list: Ethylbenzene
Rhode Island RTK hazardous substances: Ethylbenzene
Pennsylvania RTK: Ethylbenzene
Minnesota: Ethylbenzene
Massachusetts RTK: Ethylbenzene
Massachusetts spill list: Ethylbenzene
New Jersey: Ethylbenzene
New Jersey spill list: Ethylbenzene
Louisiana spill reporting: Ethylbenzene
California Director's List of Hazardous Substances: Ethylbenzene
TSCA 8(b) inventory: Ethylbenzene
TSCA 4(a) proposed test rules: Ethylbenzene
TSCA 8(d) H and S data reporting: Ethylbenzene: Effective Date: 6/19/87; Sunset Date: 6/19/97
SARA 313 toxic chemical notification and release reporting: Ethylbenzene

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
CLASSE D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable.
R20- Harmful by inhalation.
S16- Keep away from sources of ignition - No smoking.
S24/25- Avoid contact with skin and eyes.
S29- Do not empty into drains.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Manufacturer's Material Safety Data Sheet.
-Fire Protection Guide to Hazardous Materials, 13th ed., National Fire Protection Association (NFPA)
-Registry of Toxic Effects of Chemical Substances (RTECS)
-Chemical Hazard Response Information System (CHRIS)
-Hazardous Substance Data Bank (HSDB)
-New Jersey Hazardous Substance Fact Sheet
-Ariel Global View
-Reprotext System

Other Special Considerations: Not available.

Created: 10/09/2005 05:28 PM

Last Updated: 11/06/2008 12:00 PM

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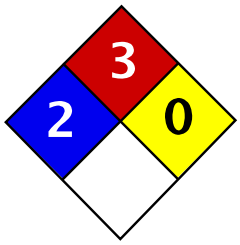

Health	2
Fire	3
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
m-Xylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: m-Xylene

Catalog Codes: SLX1066

CAS#: 108-38-3

RTECS: ZE2275000

TSCA: TSCA 8(b) inventory: m-Xylene

CI#: Not applicable.

Synonym: m-Methyltoluene

Chemical Name: 1,3-Dimethylbenzene

Chemical Formula: C6H4(CH3)2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{m-}Xylene	108-38-3	100

Toxicological Data on Ingredients: m-Xylene: ORAL (LD50): Acute: 5000 mg/kg [Rat.]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit.].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant).
Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance is toxic to blood, kidneys, the nervous system, liver.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 527°C (980.6°F)

Flash Points: CLOSED CUP: 25°C (77°F). OPEN CUP: 28.9°C (84°F) (Cleveland).

Flammable Limits: LOWER: 1.1% UPPER: 7%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid, insoluble in water.

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 STEL: 150 (ppm) from ACGIH (TLV)
TWA: 434 STEL: 651 (mg/m3) from ACGIHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 139.3°C (282.7°F)

Melting Point: -47.87°C (-54.2°F)

Critical Temperature: Not available.

Specific Gravity: 0.86 (Water = 1)

Vapor Pressure: 6 mm of Hg (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.62 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:
Easily soluble in methanol, diethyl ether.
Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 5000 mg/kg [Rat.].
Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit.].

Chronic Effects on Humans: The substance is toxic to blood, kidneys, the nervous system, liver.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant).
Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
0347 Animal: embryotoxic, foetotoxic, passes through the placental barrier.
0900 Detected in maternal milk in human.
Narcotic effect; may cause nervous system disturbances.

Special Remarks on other Toxic Effects on Humans: Material is irritating to mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Xylene : UN1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: m-Xylene
Massachusetts RTK: m-Xylene
TSCA 8(b) inventory: m-Xylene
SARA 313 toxic chemical notification and release reporting: m-Xylene
CERCLA: Hazardous substances.: m-Xylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R10- Flammable.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
-Material safety data sheet emitted by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec.
-SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.
-The Sigma-Aldrich Library of Chemical Safety Data, Edition II.
-Guide de la loi et du rÃ¨glement sur le transport des marchandises dangeureuses au canada. Centre de conformitÃ© internatinal LtÃ©e. 1986.

Other Special Considerations: Not available.

Created: 10/10/2005 08:33 PM

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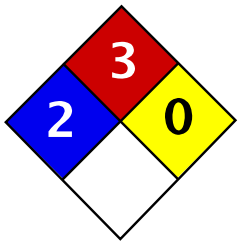

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Toluene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Toluene

Catalog Codes: SLT2857, SLT3277

CAS#: 108-88-3

RTECS: XS5250000

TSCA: TSCA 8(b) inventory: Toluene

CI#: Not available.

Synonym: Toluol, Tolu-Sol; Methylbenzene; Methacide; Phenylmethane; Methylbenzol

Chemical Name: Toluene

Chemical Formula: C6-H5-CH3 or C7-H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Toluene	108-88-3	100

Toxicological Data on Ingredients: Toluene: ORAL (LD50): Acute: 636 mg/kg [Rat]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit]. VAPOR (LC50): Acute: 49000 mg/m 4 hours [Rat]. 440 ppm 24 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to blood, kidneys, the nervous system, liver, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: CLOSED CUP: 4.4444°C (40°F). (Setaflash) OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 1.1% UPPER: 7.1%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat.
Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, insoluble in water.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:
Toluene forms explosive reaction with 1,3-dichloro-5,5-dimethyl-2,4-imidazolididione; dinitrogen tetraoxide;

concentrated nitric acid, sulfuric acid + nitric acid; N_2O_4; $AgClO_4$; BrF_3; Uranium hexafluoride; sulfur dichloride. Also forms an explosive mixture with tetranitromethane.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Toxic flammable liquid, insoluble or very slightly soluble in water.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 200 STEL: 500 CEIL: 300 (ppm) from OSHA (PEL) [United States]
TWA: 50 (ppm) from ACGIH (TLV) [United States] SKIN
TWA: 100 STEL: 150 from NIOSH [United States]
TWA: 375 STEL: 560 (mg/m^3) from NIOSH [United States]
Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweet, pungent, Benzene-like.

Taste: Not available.

Molecular Weight: 92.14 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 110.6°C (231.1°F)

Melting Point: -95°C (-139°F)

Critical Temperature: 318.6°C (605.5°F)

Specific Gravity: 0.8636 (Water = 1)

Vapor Pressure: 3.8 kPa (@ 25°C)

Vapor Density: 3.1 (Air = 1)

Volatility: Not available.

Odor Threshold: 1.6 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2.7

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Soluble in diethyl ether, acetone.
Practically insoluble in cold water.
Soluble in ethanol, benzene, chloroform, glacial acetic acid, carbon disulfide.
Solubility in water: 0.561 g/l @ 25 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks, static), incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with strong oxidizers, silver perchlorate, sodium difluoride, Tetranitromethane, Uranium Hexafluoride.
Frozen Bromine Trifluoride reacts violently with Toluene at -80 deg. C.
Reacts chemically with nitrogen oxides, or halogens to form nitrotoluene, nitrobenzene, and nitrophenol and halogenated products, respectively.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
Acute oral toxicity (LD50): 636 mg/kg [Rat].
Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 440 24 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
May cause damage to the following organs: blood, kidneys, the nervous system, liver, brain, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose:
LDL [Human] - Route: Oral; Dose: 50 mg/kg
LCL [Rabbit] - Route: Inhalation; Dose: 55000 ppm/40min

Special Remarks on Chronic Effects on Humans:
Detected in maternal milk in human. Passes through the placental barrier in human. Embryotoxic and/or foetotoxic in animal. May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes mild to moderate skin irritation. It can be absorbed to some extent through the skin.
Eyes: Cauess mild to moderate eye irritation with a burning sensation. Splash contact with eyes also causes conjunctivitis, blepharospasm, corneal edema, corneal abraisons. This usually resolves in 2 days.
Inhalation: Inhalation of vapor may cause respiratory tract irritation causing coughing and wheezing, and nasal discharge. Inhalation of high concentrations may affect behavior and cause central nervous system effects characterized by nausea, headache, dizziness, tremors, restlessness, lightheadedness, exhilaration, memory loss, insomnia, impaired reaction time, drowsiness, ataxia, hallucinations, somnolence, muscle contraction or spasticity, unconsciousness and coma. Inhalation of high concentration of vapor may also affect the cardiovascular system (rapid heart beat, heart palpitations, increased or decreased blood pressure, dysrhythmia,), respiration (acute pulmonary edema, respiratory depression, apnea, asphyxia), cause vision disturbances and dilated pupils, and cause loss of appetite.
Ingestion: Aspiration hazard. Aspiration of Toluene into the lungs may cause chemical pneumonitis. May cause irritation of the digestive tract with nausea, vomiting, pain. May have effects similar to that of acute inhalation.
Chronic Potential Health Effects:
Inhalation and Ingestion: Prolonged or repeated exposure via inhalation may cause central nervous system and cardiovascular symptoms similar to that of acute inhalation and ingestion as well liver damage/failure, kidney damage/failure (with hematuria, proteinuria, oliguria, renal tubular acidosis), brain damage, weight loss, blood (pigmented or nucleated red blood cells, changes in white blood cell count), bone marrow changes, electrolyte imbalances (Hypokalemia, Hypophostatemia), severe, muscle weakness and Rhabdomyolysis.
Skin: Repeated or prolonged skin contact may cause defatting dermatitis.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 313 mg/l 48 hours [Daphnia (daphnia)]. 17 mg/l 24 hours [Fish (Blue Gill)]. 13 mg/l 96 hours [Fish (Blue Gill)]. 56 mg/l 24 hours [Fish (Fathead minnow)]. 34 mg/l 96 hours [Fish (Fathead minnow)]. 56.8 ppm any hours [Fish (Goldfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may

arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Toluene UNNA: 1294 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Toluene
California prop. 65 (no significant risk level): Toluene: 7 mg/day (value)
California prop. 65 (acceptable daily intake level): Toluene: 7 mg/day (value)
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Toluene
Connecticut hazardous material survey.: Toluene
Illinois toxic substances disclosure to employee act: Toluene
Illinois chemical safety act: Toluene
New York release reporting list: Toluene
Rhode Island RTK hazardous substances: Toluene
Pennsylvania RTK: Toluene
Florida: Toluene
Minnesota: Toluene
Michigan critical material: Toluene
Massachusetts RTK: Toluene
Massachusetts spill list: Toluene
New Jersey: Toluene
New Jersey spill list: Toluene
Louisiana spill reporting: Toluene
California Director's List of Hazardous Substances.: Toluene
TSCA 8(b) inventory: Toluene
TSCA 8(d) H and S data reporting: Toluene: Effective date: 10/04/82; Sunset Date: 10/0/92
SARA 313 toxic chemical notification and release reporting: Toluene
CERCLA: Hazardous substances.: Toluene: 1000 lbs. (453.6 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable.
R20- Harmful by inhalation.
S16- Keep away from sources of ignition - No smoking.
S25- Avoid contact with eyes.
S29- Do not empty into drains.
S33- Take precautionary measures against static discharges.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:30 PM

Last Updated: 11/06/2008 12:00 PM

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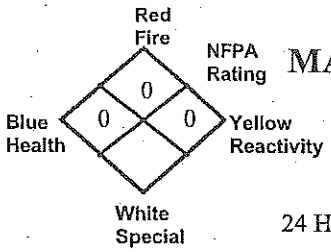
Alconox ®



MATERIAL SAFETY DATA SHEET

Alconox, Inc.
30 Glenn Street
White Plains, NY 10603

24 Hour Emergency Number – Chem-Tel (800) 255-3924

I. IDENTIFICATION

Product Name (as appears on label)	ALCONOX
CAS Registry Number:	Not Applicable
Effective Date:	January 1, 2001
Chemical Family:	Anionic Powdered Detergent
Manufacturer Catalog Numbers for sizes	1104, 1125, 1150, 1101, 1103 and 1112

II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

There are no hazardous ingredients in ALCONOX as defined by the OSHA Standard and Hazardous Substance List 29 CFR 1910 Subpart Z.

III. PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point (F):	Not Applicable
Vapor Pressure (mm Hg):	Not Applicable
Vapor Density (AIR=1):	Not Applicable
Specific Gravity (Water=1):	Not Applicable
Melting Point:	Not Applicable
Evaporation Rate (Butyl Acetate=1):	Not Applicable
Solubility in Water:	Appreciable-Soluble to 10% at ambient conditions
Appearance:	White powder interspersed with cream colored flakes.
pH:	9.5 (1%)

IV. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	None
Flammable Limits:	LEL: No Data UEL: No Data
Extinguishing Media:	Water, dry chemical, CO_2, foam
Special Fire fighting Procedures:	Self-contained positive pressure breathing apparatus and protective clothing should be worn when fighting fires involving chemicals.
Unusual Fire and Explosion Hazards:	None

V. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur
Incompatibility (Materials to Avoid):	None
Hazardous Decomposition or Byproducts:	May release CO_2 on burning

VI. HEALTH HAZARD DATA

Route(s) of Entry:	Inhalation? Yes Skin? No Ingestion? Yes
Health Hazards (Acute and Chronic):	Inhalation of powder may prove locally irritating to mucous membranes. Ingestion may cause discomfort and/or diarrhea. Eye contact may prove irritating.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No
Signs and Symptoms of Exposure:	Exposure may irritate mucous membranes. May cause sneezing.
Medical Conditions Generally Aggravated by Exposure:	Not established. Unnecessary exposure to this product or any industrial chemical should be avoided. Respiratory conditions may be aggravated by powder.
Emergency and First Aid Procedures:	Eyes: Immediately flush eyes with water for at least 15 minutes. Call a physician. Skin: Flush with plenty of water. Ingestion: Drink large quantities of water or milk. Do not induce vomiting. If vomiting occurs administer fluids. See a physician for discomfort.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken if Material is Released or Spilled:	Material foams profusely. Recover as much as possible and flush remainder to sewer. Material is biodegradable.
Waste Disposal Method:	Small quantities may be disposed of in sewer. Large quantities should be disposed of in accordance with local ordinances for detergent products.
Precautions to be Taken in Storing and Handling:	Material should be stored in a dry area to prevent caking.
Other Precautions:	No special requirements other than the good industrial hygiene and safety practices employed with any industrial chemical.

VIII. CONTROL MEASURES

Respiratory Protection (Specify Type):	Dust mask - Recommended
Ventilation:	Local Exhaust-Normal Special-Not Required Mechanical-Not Required Other-Not Required
Protective Gloves:	Impervious gloves are useful but not required.
Eye Protection:	Goggles are recommended when handling solutions.
Other Protective Clothing or Equipment:	None
Work/Hygienic Practices:	No special practices required

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**** MATERIAL SAFETY DATA SHEET ****

Methanol
14280

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Methanol
Catalog Numbers:
, S75959, S75965, S75965A, S75965HPLC, S75965SPEC, A408-1, A408-4, A408SK-4 A411-20, A411-4, A412-1, A412-20, A412-200, A412-200LC, A412-4, A412-4LC, A412-500, A412-500LC, A412CU1300, A413FB115, A412FB19, A412FB200, A412FB50, A412J500, A412P-4, A412P-4LC, A412POP19, A412POP200, A412POP50, A412POPB19, A412POPB200, A412POPB50, A412RE115, A412RE19, A412RE200, A412RE50, A412RS115, A412RS200, A412RS28, A412RS50, A412SK-4, A412SS-115, A412SS-19, A412SS-200, A413-20, A413-200, A413-4, A413-500, A433F-1GAL, A433P-4, A433P1GAL, A433S-20, A433S-200, A433S-4, A434-20, A450-4, A452-1, A452-4, A452-4LC, A452J1, A452NB219, A452POP19, A452POP200, A452POP28, A452POP50, A452POPN19, A452RS-115, A452RS-19, A452RS-200, A452RS-28, A452RS-50, A452SK-1, A452SK-4, A452SS-115, A452SS-19, A452SS-200, A452SS-50, A453-1, A453-1LC, A453-500, A453J1, A454-1, A454-1LC, A454-4, A454-4LC, A454POP19, A454POP200, A454POP50, A454RS-115, A454RS-19, A454RS-200, A454RS-28, A454RS-50, A454SS-19, A454SS-28, A454SS-50, A455-1, A455POP19, A455POP200, A455POP50, A455SS19, A455SS200, A455SS50, A457-4, A935-4, A935FB200, A935POPB200, A935RB200, A936-1, A936-4, A947-4, A947-4LC, A947POP19, A947POP200, A947POP50, A947RS-115, A947RS-200, A947RS-28, A947SS-115, A947SS-19, A947SS-200, A947SS-28, A947SS-50, BP1105-1, BP1105-4, BP1105POP19, BP1105POP20, BP1105POP50, BP1105RS19, BP1105SS19, BP1105SS28, BP1105SS50, BP2618100, HC400 1GAL, NC9633361, NC9766429, NC9780216, NC9905242, NC9941388, NC9942270, NC9964975, NC9979250, SC95-1, SW2-1, TIA9474, TIA947P200L .
Synonyms:
Carbinol; Methyl alcohol; Methyl hydroxide; Monohydroxymethane; Wood alcohol; Wood naptha; Wood spirits; Columbian spirits; Methanol.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
67-56-1	Methanol	>99.0	200-659-6

Hazard Symbols: T F
Risk Phrases: 11 23/24/25 39/23/24/25

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: clear, colorless liquid. Flash Point: 11 deg C.
Danger! Flammable liquid and vapor. Causes respiratory tract irritation. May cause central nervous system depression. Poison! Cannot be made non-poisonous. Causes eye and skin irritation. May be fatal or cause blindness if swallowed. Harmful if swallowed, inhaled, or absorbed through the skin. Vapor harmful.
Target Organs: Eyes, nervous system, optic nerve.

Potential Health Effects
Eye:
Methanol is a mild to moderate eye irritant. Inhalation, ingestion or skin absorption of methanol can cause significant disturbances in vision, including blindness.
Skin:
Causes moderate skin irritation. Harmful if absorbed through the skin. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances.
Ingestion:
Harmful if swallowed. May be fatal or cause blindness if swallowed. Aspiration hazard. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.
Inhalation:
Methanol is toxic and can very readily form extremely high vapor concentrations at room temperature. Inhalation is the most common route of occupational exposure. At first, methanol causes CNS depression with nausea, headache, vomiting, dizziness and incoordination. A time period with no obvious symptoms follows (typically 8-24 hrs). This latent period is followed by metabolic acidosis and severe visual effects which may include reduced reactivity and/or increased sensitivity to light, blurred, double

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and/or snowy vision, and blindness. Depending on the severity of exposure and the promptness of treatment, survivors may recover completely or may have permanent blindness, vision disturbances and/or nervous system effects.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. Chronic exposure may cause effects similar to those of acute exposure. Methanol is only very slowly eliminated from the body. Because of this slow elimination, methanol should be regarded as a cumulative poison. Though a single exposure may cause no effect, daily exposures may result in the accumulation of a harmful amount. Methanol has produced fetotoxicity in rats and teratogenicity in mice exposed by inhalation to high concentrations that did not produce significant maternal toxicity.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.
Skin:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
Ingestion:
Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:
Effects may be delayed.
Antidote:
Ethanol may inhibit methanol metabolism.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water.
Autoignition Temperature:464 deg C (867.20 deg F)
Flash Point: 11 deg C (51.80 deg F)
Explosion Limits, lower:6.0 vol %
Explosion Limits, upper:36.00 vol %
NFPA Rating: (estimated) Health: 1; Flammability: 3; Instability: 0

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid use in confined spaces. Avoid breathing vapor or mist.
Storage:
Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep containers tightly closed.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methanol	200 ppm; 250 ppm STEL; skin - potential for cutaneous absorption	200 ppm TWA; 260 mg/m3 TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m3 TWA

OSHA Vacated PELs:
Methanol:
200 ppm TWA; 260 mg/m3 TWA

Personal Protective Equipment

Eyes:
Wear chemical goggles.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Liquid
Color:	clear, colorless
Odor:	alcohol-like - weak odor
pH:	Not available.
Vapor Pressure:	127 mm Hg @ 25 deg C
Vapor Density:	1.11 (Air=1)
Evaporation Rate:	5.2 (Ether=1)
Viscosity:	0.55 cP 20 deg C
Boiling Point:	64.7 deg C @ 760 mm Hg
Freezing/Melting Point:	-98 deg C
Decomposition Temperature:	Not available.
Solubility in water:	miscible
Specific Gravity/Density:	.7910 g/cm3 @ 20&C
Molecular Formula:	CH4O
Molecular Weight:	32.04

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
High temperatures, ignition sources, confined spaces.
Incompatibilities with Other Materials:
Strong oxidizing agents, strong acids, powdered aluminum, powdered magnesium.
Hazardous Decomposition Products:
Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, formaldehyde.
Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 67-56-1: PC1400000
LD50/LC50:
CAS# 67-56-1: Draize test, rabbit, eye: 40 mg Moderate; Draize test, rabbit, eye: 100 mg/24H Moderate; Draize test, rabbit, skin: 20 mg/24H Moderate; Inhalation, rabbit: LC50 = 81000 mg/m3/14H; Inhalation, rat: LC50 = 64000 ppm/4H; Oral, mouse: LD50 = 7300 mg/kg; Oral, rabbit: LD50 = 14200 mg/kg; Oral, rat: LD50 = 5600 mg/kg; Skin, rabbit: LD50 = 15800 mg/kg.
Human LDLo Oral: 143 mg/kg.
Inhalation; 300 ppm caused visual field changes & headache.
LDLo Skin: 393 mg/kg.
experimental animals than humans, because most animal species metabolize methanol differently. Non-primate species do not ordinarily show symptoms of metabolic acidosis or the visual effects

which have been observed in primates and humans.
Carcinogenicity:
Methanol -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No data available.
Teratogenicity:
There is no human information available. Methanol is considered to be a potential developmental hazard based on animal data. In animal experiments, methanol has caused fetotoxic or teratogenic effects without maternal toxicity.
Reproductive Effects:
See actual entry in RTECS for complete information.
Neurotoxicity:
ACGIH cites neuropathy, vision and CNS under TLV basis.
Mutagenicity:
See actual entry in RTECS for complete information.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Fish: Fathead Minnow: 29.4 g/L; 96 Hr; LC50 (unspecified)Fish: Goldfish: 250 ppm; 11 Hr; resulted in deathFish: Rainbow trout: 8000 mg/L; 48 Hr; LC50 (unspecified)Fish: Rainbow trout: LC50 = 13-68 mg/L; 96 Hr.; 12 degrees CFish: Fathead Minnow: LC50 = 29400 mg/L; 96 Hr.; 25 degrees C, pH 7.63Fish: Rainbow trout: LC50 = 8000 mg/L; 48 Hr.; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 51,000-320,000 mg/L; 30 minutes; Microtox test

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: CAS# 67-56-1: waste number U154 (Ignitable waste).

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: METHANOL
Hazard Class: 3
UN Number: UN1230
Packing Group: II
Canadian TDG
Shipping Name: METHANOL
Hazard Class: 3.61
UN Number: UN1230
Other Information: FLASHPOINT 11 C

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 67-56-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
CERCLA Hazardous Substances and corresponding RQs
CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 67-56-1: acute, flammable.
Section 313
This material contains Methanol (CAS# 67-56-1, 99.0%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.

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None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Methanol can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T F

Risk Phrases:

R 11 Highly flammable.
R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 39/23/24/25 Toxic : danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

Safety Phrases:

S 7 Keep container tightly closed.
S 16 Keep away from sources of ignition - No smoking.
S 36/37 Wear suitable protective clothing and gloves.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 67-56-1: 1

United Kingdom Occupational Exposure Limits

CAS# 67-56-1: OES-United Kingdom, TWA 200 ppm TWA; 266 mg/m3 TWA
CAS# 67-56-1: OES-United Kingdom, STEL 250 ppm STEL; 333 mg/m3 STEL

United Kingdom Maximum Exposure Limits

Canada

CAS# 67-56-1 is listed on Canada's DSL List.
This product has a WHMIS classification of B2, D1B, D2B.
CAS# 67-56-1 is listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 67-56-1: OEL-ARAB Republic of Egypt:TWA 200 ppm (260 mg/m3);Skin

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 7/21/1999 Revision #11 Date: 10/21/2002

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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**** MATERIAL SAFETY DATA SHEET ****

Nitric Acid
16550

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Nitric Acid
Catalog Numbers:
, S71972, S71972MF, S75623-2, S75623-3, S76523, A198C-212, A198C4X-212, A200-212, A200-500, A200-612GAL, A200C-212, A200C4X-212, A200C4X2001, A200C4X2122, A200C4X212L, A200J500, A200S-212, A200S-500, A200S4X-212, A200S4X212L, A200SI-212, A467-1, A467-2, A467-250, A467-500, A483-212, A509-212, A509-500, A509SK-212, S719721, S71972IMF, S71972SC
Synonyms:
Azotic Acid; Engravers Nitrate; Hydrogen Nitrate.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7697-37-2	Nitric acid	69-71	231-714-2
7732-18-5	Water	29-31	231-791-2

Hazard Symbols: O C
Risk Phrases: 35 8

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear to yellow liquid.
Danger! Strong oxidizer. Contact with other material may cause a fire. Corrosive. Causes eye and skin burns. Causes digestive and respiratory tract burns. Check internal container upon receipt. Bottles should be vented periodically to relieve pressure.
Target Organs: Eyes, skin, mucous membranes.

Potential Health Effects

Eye:
Causes severe eye burns. May cause irreversible eye injury. May cause chemical conjunctivitis and corneal damage.

Skin:
Causes skin burns. May cause deep, penetrating ulcers of the skin. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

Ingestion:
May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects.

Inhalation:
Effects may be delayed. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema.

Chronic:
Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause erosion of teeth. Effects may be delayed.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin:
Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:
Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration

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using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician:
Treat symptomatically and supportively.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Use water with caution and in flooding amounts.
Extinguishing Media:
Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Contact professional fire-fighters immediately.
Autoignition Temperature:Not available.
Flash Point: Not available.
Explosion Limits, lower:Not available.
Explosion Limits, upper:Not available.
NFPA Rating: (estimated) Health: 4; Flammability: 0; Instability: 0; Specia

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Neutralize spill with sodium bicarbonate. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not breathe dust, vapor, mist, or gas. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not get on skin or in eyes. Avoid ingestion and inhalation. Discard contaminated shoes.
Storage:
Keep away from heat, sparks, and flame. Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Bottles should be vented periodically in order to overcome pressure buildup.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Nitric acid	2 ppm; 4 ppm STEL	2 ppm TWA; 5 mg/m3 TWA 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA
Water	none listed	none listed	none listed

OSHA Vacated PELs:
Nitric acid:
2 ppm TWA; 5 mg/m3 TWA
Water:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate gloves to prevent skin exposure.

Clothing:
Wear a chemical apron. Wear appropriate clothing to prevent skin exposure.

Respirators:
Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Liquid
Color:	clear to yellow
Odor:	strong odor - acrid odor
pH:	1.0
Vapor Pressure:	6.8 mm Hg
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Viscosity:	Not available.
Boiling Point:	186.8 deg F
Freezing/Melting Point:	-43.6 deg F
Decomposition Temperature:	Not available.
Solubility in water:	Soluble in water.
Specific Gravity/Density:	1.50
Molecular Formula:	HNO3
Molecular Weight:	63.0119

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable. Decomposes when in contact with air, light, or organic matter.
Conditions to Avoid:
High temperatures, incompatible materials, ignition sources, moisture, combustible materials, reducing agents.
Incompatibilities with Other Materials:
Reducing agents, combustible materials, strong bases, alcohols, aldehydes, cyanides, metals, Incompatible with many substances..
Hazardous Decomposition Products:
Nitrogen oxides.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 7697-37-2: QU5775000 QU5900000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 7697-37-2: Inhalation, rat: LC50 = 260 mg/m3/30M; Inhalation, rat: LC50 = 130 mg/m3/4H; Inhalation, rat: LC50 = 67 ppm(NO2)/4H.
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Carcinogenicity:
Nitric acid -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information found.
Teratogenicity:
No information found.
Reproductive Effects:
No information found.
Neurotoxicity:
No information found.
Mutagenicity:
No information found.
Other Studies:
See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Other
No information available.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: NITRIC ACID
Hazard Class: 8
UN Number: UN2031
Packing Group: II

Canadian TDG
Shipping Name: NITRIC ACID
Hazard Class: 8(9.2)
UN Number: UN2031

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 7697-37-2 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
CERCLA Hazardous Substances and corresponding RQs
CAS# 7697-37-2: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 7697-37-2: 1,000 lb TPQ
SARA Codes
CAS # 7697-37-2: acute, chronic, flammable.
Section 313
This material contains Nitric acid (CAS# 7697-37-2, 69 71%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Nitric acid can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: O C
Risk Phrases:
R 35 Causes severe burns.
R 8 Contact with combustible material may cause fire.
Safety Phrases:
S23B Do not breathe fumes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36 Wear suitable protective clothing.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
WGK (Water Danger/Protection)
CAS# 7697-37-2: 1
CAS# 7732-18-5: No information available.
United Kingdom Occupational Exposure Limits
CAS# 7697-37-2: OES-United Kingdom, TWA 2 ppm TWA; 5.2 mg/m3 TWA
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL

United Kingdom Maximum Exposure Limits

Canada
CAS# 7697-37-2 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.
This product has a WHMIS classification of C, D1A, E.
CAS# 7697-37-2 is listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 7697-37-2: OEL-ARAB Republic of Egypt:TWA 2 ppm (5 mg/m3)
OEL-AUSTRALIA:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-BELGIUM:TWA 2 ppm (5.2 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-CZECHOSLOVAKIA:TWA 2.5 mg/m3;STEL 5 mg/m3
OEL-DENMARK:TWA 2 ppm (5 mg/m3)
OEL-FINLAND:TWA 2 ppm (5 mg/m3);STEL 5 ppm (13 mg/m3);Skin
OEL-FRANCE:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-GERMANY:TWA 10 ppm (25 mg/m3)

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OEL-HUNGARY:STEL 5 mg/m3
OEL-JAPAN:TWA 2 ppm (5.2 mg/m3)
OEL-THE PHILIPPINES:TWA 2 ppm (5 mg/m3)
OEL-POLAND:TWA 10 mg/m3
OEL-RUSSIA:TWA 2 ppm;STEL 2 mg/m3;Skin
OEL-SWEDEN:TWA 2 ppm (5 mg/m3);STEL 5 ppm (13 mg/m3)
OEL-SWITZERLAND:TWA 2 ppm (5 mg/m3);STEL 4 ppm (1 mg/m3)
OEL-THAILAND:TWA 2 ppm (5 mg/m3)
OEL-TURKEY:TWA 2 ppm (5 mg/m3)
OEL-UNITED KINGDOM:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/30/1998 Revision #10 Date: 4/01/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

MATERIAL SAFETY DATA SHEET: CRYSTAL SIMPLE GREEN®

I. PRODUCT & COMPANY INFORMATION

PRODUCT NAME: CRYSTAL SIMPLE GREEN®

OTHER NAMES: CRYSTAL SIMPLE GREEN® - SPECIALIZED CLEANER / DEGREASER
SIMPLE GREEN SAFETY TOWELS (fluid only)

COMPANY NAME: SUNSHINE MAKERS, INC.
15922 Pacific Coast Highway
Huntington Harbour, CA 92649 USA
Telephone: 800-228-0709 • 562-795-6000
Fax: 562-592-3034
Website: www.simplegreen.com

Version No. 4006
Issue Date: January 2002

For 24-hour emergency, call Chem-Tel, Inc.: 800-255-3924

USE OF PRODUCT: A specialized cleaner and degreaser for use in the industrial and institutional workplace..

II. INGREDIENT INFORMATION

The only ingredient of Crystal Simple Green® with established exposure limits is undiluted 2-butoxyethanol (<6%) (Butyl Cellosolve; CAS No. 111-76-2): the OSHA PEL and ACGIH TLV is 25 ppm (skin). Note, however, that Butyl Cellosolve is only one of the raw material ingredients that undergo processing and dilution during the manufacture of Crystal Simple Green®. Upon completion of the manufacturing process, Crystal Simple Green® does not possess the occupational health risks associated with exposure to undiluted Butyl Cellosolve. Verification of this is contained in the independent test results detailed under "Toxicological Information" on Page 3 of this MSDS.

The Butyl Cellosolve in Crystal Simple Green® is part of a chemical category (glycol ethers) regulated by the Emergency Planning and Community Right-to-Know Act (SARA, Title III, section 313); therefore, a reporting requirement exists. Based upon chemical analysis, Crystal Simple Green® contains no known EPA priority pollutants, heavy metals, or chemicals listed under RCRA, CERCLA, or CWA. Analysis by TCLP (Toxicity Characteristic Leaching Procedure) according to RCRA revealed no toxic organic or inorganic constituents.

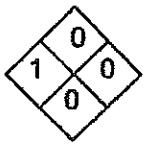
All components of Crystal Simple Green® are listed on the TSCA Chemical Substance Inventory.

III. HAZARDS IDENTIFICATION

UN Number: Not required
Dangerous Goods Class: Nonhazardous

Hazard Rating (NFPA/HMIS)

Health = 1* Reactivity = 0
Fire = 0 Special = 0



Rating Scale

0 = minimal 1 = slight
2 = moderate 3 = serious
4 = severe

*Mild eye irritant, non-mutagenic and non-carcinogenic. **None of the ingredients in Crystal Simple Green® are regulated or listed as potential cancer agents by Federal OSHA, NTP, or IARC.**

IV. FIRST AID MEASURES

SYMPTOMS OF OVEREXPOSURE AND FIRST AID TREATMENT

Eye contact: Reddening may develop. Immediately rinse the eye with large quantities of cool water; continue 10-15 minutes or until the material has been removed; be sure to remove contact lenses, if present, and to lift upper and lower lids during rinsing. Get medical attention if irritation persists.

Skin contact: Minimal effects, if any; rinse skin with water, rinse shoes and launder clothing before reuse. Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area and get medical attention if reaction persists.

Swallowing: Essentially non-toxic. Give several glasses of water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.

Inhalation: Non-toxic. Exposures to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Get medical attention if irritation persists.

V. FIRE FIGHTING MEASURES

Crystal Simple Green® is stable, not flammable, and will not burn.

Flash Point/Auto-Ignition:	Not flammable.
Flammability Limits:	Not flammable.
Extinguishing Media:	Not flammable/nonexplosive. No special procedures required.
Special Fire Fighting Procedures:	None required.

VI. ACCIDENTAL RELEASE MEASURES

Recover usable material by convenient method; residual may be removed by wipe or wet mop. If necessary, unrecoverable material may be washed to drain with large quantities of water.

VII. HANDLING, STORAGE & TRANSPORT INFORMATION

No special precautions are required. **This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations.** Crystal Simple Green® requires no special labeling or placarding to meet U.S. Department of Transportation requirements.

UN Number:	Not required
Dangerous Goods Class:	Nonhazardous

VIII. EXPOSURE CONTROLS

Exposure Limits: The Crystal Simple Green® formulation presents no health hazards to the user when used according to label directions for its intended purposes. Mild skin and eye irritation is possible (please see Eye contact and Skin contact in Section IV.).

Ventilation: No special ventilation is required during use. Large-scale uses indoors should provide an increased rate of air exchange.

Human Health Effects or Risks from Exposure: Adverse effects on human health are not expected from Crystal Simple Green®, based upon twenty years of use of Simple Green without reported adverse health incidence in diverse population groups, including extensive use by inmates of U.S. Federal prisons in cleaning operations.

Crystal Simple Green® is a mild eye irritant; mucous membranes may become irritated by concentrate-mist.

Crystal Simple Green® is not likely to irritate the skin in the majority of users. Repeated daily application to the skin without rinsing, or continuous contact of Crystal Simple Green® on the skin may lead to temporary, but reversible, irritation.

Medical Conditions Aggravated by Exposure: No aggravation of existing medical conditions is expected; dermal-sensitive users may react to dermal contact by Crystal Simple Green®.

IX. PERSONAL PROTECTION

Precautionary Measures: No special requirements under normal use conditions.
Eye Protection: Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur.
Skin Protection: No special precautions required; rinse completely from skin after contact.
Respiratory Protection: No special precautions required except during large-scale spray applications where spray mist levels are high.
Work and Hygienic Practices: Wash or rinse hands before touching eyes or contact lenses. Follow standard hygienic practices for handling cleaning agents.

X. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/odor::	Clear liquid	Vapor Pressure:	18 mm Hg @ 20 °C; 23.5 mm Hg @ 26 °C
Specific Gravity:	1.020	Vapor Density:	1.3 (air = 1)
pH of concentrate:	9.35	Density:	8.5 lbs./gallon
Evaporation:	>1 (butyl acetate = 1)		
Boiling Point:	100.6 °C (212 °F)		
Freezing Point:	-9 °C (16 °F) If product freezes, it will reconstitute without loss of efficacy when brought back to room temperature and agitated.		

VOC Composite Partial Pressure: 0 mm Hg @ 20 °C
Volatile Organic Compounds (VOCs): 0 g/L per ASTM Method D-2369. Per California AQMD's VOC test method, product must be diluted at least 2 parts of water to 1 part Crystal Simple Green® in order to meet SCAQMD Rule 1171 & Rule 1122 and BAAQMD Regulation 8-16 VOC requirements for solvent cleaning operations.
Water Solubility: Completely soluble in water.
Detection: Crystal Simple Green® has a characteristic odor that is not indicative of any hazardous situation.

XI. STABILITY AND REACTIVITY INFORMATION

Nonreactive. Crystal Simple Green® is stable, even under fire conditions, and will not react with water or oxidizers. Hazardous polymerization will not occur.

XII. TOXICOLOGICAL INFORMATION

The information and conclusions cited in this section are based on data and testing of Simple Green®. The data are directly applicable to Crystal Simple Green® because, except for the fragrance and dyes which have been removed, it contains the same ingredients as Simple Green®.

Nonhuman Toxicity

Acute Mortality Studies:
Oral LD_{50} (rat): >5.0 g/kg body weight // Dermal LD_{50} (rabbit): >2.0 g/kg body weight

Dermal Irritation: Only mild, but reversible, irritation was found in a standard 72-hr test on rabbits. A value of 0.2 (non-irritating) was found on a scale of 8.

Eye Irritation: With or without rinsing with water, the irritation scores in rabbits at 24 hours did not exceed 15 (mild irritant) on a scale of 110.

Subchronic dermal effects: No adverse effects, except reversible dermal irritation, were found in rabbits exposed to Simple Green® (up to 2.0 g/kg/day for 13 weeks) applied to the skin of 25 males and 25 females. Only female body weight gain was affected. Detailed microscopic examination of all major tissues showed no adverse changes.

Fertility Assessment by Continuous Breeding: The Simple Green® formulation had no adverse effect on fertility and reproduction in CD-1 mice with continuous administration for 18 weeks, and had no adverse effect on the reproductive performance of their offspring.

XIII. BIODEGRADABILITY AND ENVIRONMENTAL TOXICITY INFORMATION

Biodegradability:
Like Simple Green®, Crystal Simple Green® is readily decomposed by naturally occurring microorganisms. The biological oxygen demand (BOD), as a percentage of the chemical oxygen demand (COD), after 4, 7, and 11 days was 56%, 60%, and 70%, respectively. Per OECD Closed Bottle Test, Crystal Simple Green® meets OECD and EPA recommendations for ready biodegradability.

In a standard biodegradation test with soils from three different countries, Butyl Cellosolve reached 50% degradation in 6 to 23 days, depending upon soil type, and exceeded the rate of degradation for glucose, which was used as a control for comparison.

Environmental Toxicity Information:
Crystal Simple Green® is considered practically non-toxic per EPA's aquatic toxicity scale.

XIV. DISPOSAL CONSIDERATIONS

Crystal Simple Green® is fully water soluble and biodegradable and will not harm sewage-treatment microorganisms if disposal by sewer or drain is necessary. Dispose of in accordance with all applicable local, state, and federal laws.

XV. OTHER INFORMATION

Containers:	Crystal Simple Green® residues can be completely removed by rinsing with water; the container may be recycled or applied to other uses.
Contact Point:	Sunshine Makers, Inc., Research and Development Division: 562-795-6000.

***** NOTICE *****

All information appearing herein is based upon data obtained by the manufacturer and recognized technical sources. Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, Sunshine Makers, Inc. or its distributors extends no warranties, makes no representations and assumes no responsibility as to the suitability of such information for application to purchaser's intended purposes or for consequences of its use.

Appendix D

Forms

Appendix E

GEI's Health and Safety SOPs and Programs

Applicable GEI H&S SOPs *(check all that apply)*		
☒ Biological Hazards – 001	☒ Inclement Weather – 010	☐ Aerial Lift – 020
✔ Bloodborne Pathogens – 002	☐ Ladders -011	☐ Mobile Equipment – 021
☒ Container Management – 003	☒ Noise Exposure -012	☐ Aquatic Ecological Survey & Electrofishing -022
☒ Driver Safety - 004	☐ Nuclear Density Gauge Operation -013	☐ Scaffolding - 023
☐ Electrical Safety - 005a	☒ Utility Markout-014	☐ Wilderness Safety - 024
☐ Lockout Tagout - 005b	☐ Respirator Fit Test Procedure-015	☒ Manual Lifting – 025
☒ Excavation Trenching - 006	☒ Traffic Hazards -016	✔ Hazard Identification - 026
☒ Non-Powered Hand Tools - 008a	☐ Water Safety – 017	☐ Confined Space Entry for Sanitary Sewers – 027
☐ Powered Hand Tools – 008b	☒ Working Around Heavy Equipment – 018	☐ Safe Trailer Use – 028
☒ Hazardous Substances Management -009	☐ Rail Safety -019	✔ COVID-19 Field Work Guidance

Scan this QR code with your smartphone to access all GEI H&S SOPs

Applicable GEI H&S Programs *(check all that apply)*		
☐ Asbestos Program	☒ DOT Driver Safety	☐ Hydrogen Sulfide
☐ Arsenic Safety	✔ Ergonomic	☐ Injury and Illness Prevention (California Only)
☒ Benzene Awareness	☐ Fall Protection	☐ Respiratory Protection Program
☐ Cadmium Awareness	✔ Hazard Communication	☐ Hydrogen Sulfide
☒ Cold Stress	☒ Hearing Conservation	✔ Fire Prevention
☐ Confined Space Entry	☒ Heat Illness Prevention	☐ Lead Compliance
☒ Crystalline Silica	☐ Hexavalent Chromium	

Scan this QR code with your smartphone to access all GEI Programs

STANDARD OPERATING PROCEDURES

SOP No. HS-001 Biological Hazards

1.1 Objective

The objective of this standard operating procedure (SOP) is to prevent or limit the potential for GEI personnel to encounter biological hazards during field activities.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for contact with biological hazards such as animals, insects, plants, and sewage. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with biological hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.2.1 Animals

During some site operations, animals such as stray or domesticated dogs or cats, raccoons, snakes, bears, rats, bats, etc. may be encountered. Employees should use discretion and attempt to avoid contact with animals. If these animals present a problem, efforts will be made to remove these animals from the site by contacting a licensed animal control technician.

1.2.1.1 Rabies

The rabies virus is transmitted through the bite of an infected animal or contact with saliva or brain/nervous system tissue of an infected animal. The rabies virus infects the central nervous system causing disease in the brain. The early symptoms of rabies in people are fever, headache, and general weakness or discomfort. As the disease progresses, more specific symptoms appear and may include insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation (increase in saliva), difficulty swallowing, and hydrophobia (fear of water). Death usually occurs within days of the onset of these symptoms.

If you are bitten or think you may be exposed, wash any wounds immediately and thoroughly with soap and water. Then notify the Project Manager and Corporate Health and Safety Officer (CHSO) and go to the hospital emergency room. The doctor, possibly in consultation with the state or local health department, will decide if you need a rabies vaccination. Decisions to start vaccination will be based on your type of exposure and the animal you were exposed to, as well as laboratory and surveillance information for the

geographic area where the exposure occurred. An Accident Report Form should be completed and submitted per GEI's accident reporting procedures.

1.2.2 Insects

Insects, including bees, wasps, hornets, mosquitoes, ticks, spiders, etc may be present at a job site making the chance of a bite/sting possible. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition. Some insect bites can transmit diseases such as Lyme disease or a virus such as West Nile. The following is a list of preventive measures:

- Apply insect repellent prior to performing field work and as often as needed throughout the work shift
- Wear proper protective clothing (work boots, socks and light colored clothing)
- Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many insects are most active (between dawn and dusk).
- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible
- Field personnel who may have insect allergies should have bee sting allergy medication on site and should provide this information to the Site Safety Officer (SSO) and the CHSO prior to commencing work.
- Field personnel should perform a self-check at the end of the day for ticks.

1.2.3 Tick-borne Diseases

Lyme disease is caused by infection from a deer tick that carries a spirochete. During the painless tick bite, the spirochete may be transmitted into the bloodstream often after feeding on the host for 12 to 24 hours. The ticks that cause the disease are often no bigger than a poppy seed or a comma in newsprint. The peak months for human infection are from May to September.

Symptoms appear in three stages. First symptoms usually appear from 2 days to a few weeks after a person is bitten by an infected tick. Symptoms usually consist of a ring-like red rash on the skin where the tick was attached. The rash is often bulls-eye like with red around the edges and clear in the center. The rash may be warm, itchy, tender, and/or "doughy." Unfortunately, this rash appears in only 60 to 80 percent of infected persons. An infected person also has flu-like symptoms of a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. These symptoms often disappear after a few weeks.

The second stage symptoms, which occur weeks to months later include meningitis, severe headache, drooping of the muscles on the face, called Bell's Palsy, encephalitis, numbness, withdrawal and lethargy. These symptoms may last for several weeks to several months. Third stage symptoms, which occur months or years later include arthritis, heart problems, and loss of memory. The third stage symptoms may mimic multiple sclerosis and Alzheimer's disease.

Personnel should check themselves when in areas that could harbor deer ticks, wear light color clothing and visually check themselves and their buddy when coming from wooded or vegetated areas. If a GEI employee has been bitten by a tick, the CHSO should be contacted immediately. An Accident Report form must be completed by the individual in compliance with the Accident Reporting procedure outlined in the Corporate Health and Safety Manual.

From left to right: The deer tick adult female, adult male, nymph, and larva on a centimeter scale.

The tick can be removed by pulling gently at the head with tweezers. If tweezers are not available, cover your fingers with tissue paper and use them to grasp the tick. It is important to grasp the tick as close to the site of attachment and use a firm steady pull to remove it. Wash hands immediately after with soap and water. The affected area should then be disinfected with an antiseptic wipe. All mouth parts must be removed from the skin. If the tick is removed by breaking off the mouth parts, an irritation or infection may occur. Also, the organism that is causing the disease can still enter the body through the skin. The employee will be offered the option for medical treatment by a physician, which typically involves antibiotics. If personnel feel sick or have signs similar to those above, they should notify the SSO and the CHSO immediately.

Treatment with antibiotics is effective and recovery is usually complete. In the first stage antibiotics are usually given orally. Second and third stage treatment, however is prolonged and recovery may take longer. Antibiotic treatment is usually provided intravenously for second and third stage Lyme disease.

The deer tick can also cause **Babesiosis**, an infection of the parasite Babesia Microti. Symptoms of Baesiosis may not be evident, but may also include fever, fatigue and

hemolytic anemia lasting from several days to several months. Babesiosis is most commonly diagnosed in the elderly or in individuals whose immune systems are compromised.

Ehrlichiosis is a tick-borne disease which can be caused by either of two different organisms. Human monocytic ehrlichiosis (HME) is caused by *Ehrlichia chaffeensis*, which is transmitted by the lone star tick (*Amblyomma americanum*). Human granulocytic anaplasmosis (HGA), previously known as human granulocytic ehrlichiosis (HGE), is caused by *Anaplasma phagocytophilia*, which is transmitted by the deer tick (*Ixodes scapularis*).

In New York State, most cases of ehrlichiosis have been reported on Long Island and in the Hudson Valley. Ehrlichiosis is transmitted by the bite of infected ticks, including the deer tick and the lone star tick. The symptoms of HME and HGE are the same and usually include fever, muscle aches, weakness and headache. Patients may also experience confusion, nausea, vomiting and joint pain. Unlike Lyme disease or Rocky Mountain spotted fever, a rash is not common. Infection usually produces mild to moderately severe illness, with high fever and headache, but may occasionally be life-threatening or even fatal. Symptoms appear one to three weeks after the bite of an infected tick. However, not every exposure results in infection.

Rocky Mountain spotted fever (RMSF) is a tick-borne disease caused by a rickettsia (a microbe that differs somewhat from bacteria and virus). Fewer than 50 cases are reported annually in New York State. In the eastern United States, children are infected most frequently, while in the western United States, disease incidence is highest among adult males. Disease incidence is directly related to exposure to tick-infested habitats or to infested pets. Most of the cases in New York State have occurred on Long Island. RMSF is characterized by a sudden onset of moderate to high fever (which can last for two or three weeks), severe headache, fatigue, deep muscle pain, chills and rash. The rash begins on the legs or arms, may include the soles of the feet or palms of the hands and may spread rapidly to the trunk or rest of the body. Symptoms usually appear within two weeks of the bite of an infected tick.

*(Information on Ehrlichiosis, Babesiosis, and Rocky Mountain Spotted Fever was derived from the New York State Department of Health).

1.2.4 West Nile Virus

West Nile Virus (WNV) is a mosquito-borne infection transmitted through the bite of an infected mosquito. The symptoms of WNV can be asymptomatic (no symptoms) or in more serious cases can lead to West Nile Fever. West Nile Fever can include fever, headache, tiredness, body ache, an occasional rash on the trunk of the body, and swollen lymph glands, In severe cases, people have developed West Nile Encephalitis or

Meningitis which symptoms include fever, headache, neck stiffness, tremors, coma and in some cases death. The incubation period for the disease is usually 2 to 15 days. The symptoms can range from a few days to several weeks. Most mosquitoes are not infected and the chance of infection from a mosquito bite of an on-site employee is very small.

The following precautions will be used to help reduce the risk of mosquito bites:

- Reduce mosquito-breeding areas by making sure wheelbarrows, buckets, and other containers are turned upside down when not used so that they do not collect standing water.
- Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many mosquitoes are most active (between dawn and dusk).
- Use mosquito repellant according to the manufacturer's directions when outdoors for long periods of time and when mosquitoes are most active.

Centers for Disease Control and Prevention (CDC) evaluation of information contained in peer-reviewed scientific literature and data available from the Environmental Protection Agency (EPA) has identified several EPA registered products that provide repellent activity sufficient to help people avoid the bites of disease carrying mosquitoes. Products containing these active ingredients typically provide reasonably long-lasting protection:

- **DEET** (Chemical Name: N,N-diethyl-m-toluamide or N,N-diethly-3-methyl-benzamide) 20 to 30 percent DEET
- **Picaridin** (KBR 3023, Chemical Name: 2-(2-hydroxyethyl)-1-piperidinecarboxylic acid 1-methylpropyl ester)
- **Oil of Lemon Eucalyptus** or **PMD** (Chemical Name: para-Menthane-3,8-diol) the synthesized version of oil of lemon eucalyptus
- **IR3535** (Chemical Name: 3-[N-Butyl-N-acetyl]-aminopropionic acid, ethyl ester)
- **Permethrin** (3-Phenoxybenzyl (1RS)-cis,trans-3-(2,2-dichlorovinyl) -2,2-dimethylcyclopropanecarboxylate) - Permethrin kills ticks and can be used on clothing (but not skin)

EPA characterizes the active ingredients DEET and Picaridin as "conventional repellents" and Oil of Lemon Eucalyptus, PMD, and IR3535 as "biopesticide repellents", which are derived from natural materials.

In general, higher concentrations of active ingredient provide longer duration of protection, regardless of the active ingredient, although concentrations above approximately 50 percent do not offer a marked increase in protection time. Products with less than 10 percent active ingredient may offer only limited protection, often from 1 to 2 hours. Products that offer sustained release or controlled release (micro-encapsulated) formulations, even with lower active ingredient concentrations, may provide longer protection times. Regardless of what product you use, if you start to get mosquito bites reapply the repellent according to the label instructions or remove yourself from the area with biting insects if possible.

Clothing and other products can be purchased pre-treated, or products can be treated using EPA-registered products. Permethrin is the only pesticide approved by the EPA for these uses. Permethrin binds tightly to the fabrics, resulting in little loss during washing and minimal transfer to the skin. Permethrin is poorly absorbed through the skin, although sunscreens and other products may increase the rate of skin absorption.

If you decide to use permethrin-treated clothing, consider these tips:

- Read the application instructions carefully and apply the product according to the label directions. Do not over-treat products.
- Permethrin treatments are only intended for use on fabrics; do not apply them directly to the skin or other items.
- Do not apply permethrin to clothing while it is being worn.
- Apply the products outdoors in well ventilated areas that are protected from wind.
- Hang treated fabrics outdoors and allow them to dry completely before wearing them.
- Wash permethrin treated clothing separately from other clothing items.

1.2.5 Plants

The potential for contact with poisonous plants, such as poison ivy, sumac, and oak, exists when performing fieldwork in wooded or boggy areas. These plants can cause allergic reaction when in contact with the leaves or vines.

Poison ivy can be found as vines on tree trunks or as upright bushes. Poison ivy consists of three leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison ivy is red in the early spring and turns shiny green later in the spring. Poison ivy grows throughout much of North America, including all states east of the Rocky Mountains. It is normally found in

wooded areas, especially along edge areas where the tree line breaks and allows sunshine to filter through. It also grows in exposed rocky areas, open fields and disturbed areas.

Poison sumac can be present in the form of a flat-topped shrub or tree. It has fern-like leaves, which are velvety dark green on top and pale underneath. The branches of immature trees have a velvety "down." Poison sumac has white, "hairy" berry clusters. Poison sumac grows exclusively in very wet or flooded soils, usually in swamps and peat bogs, in the eastern United States.

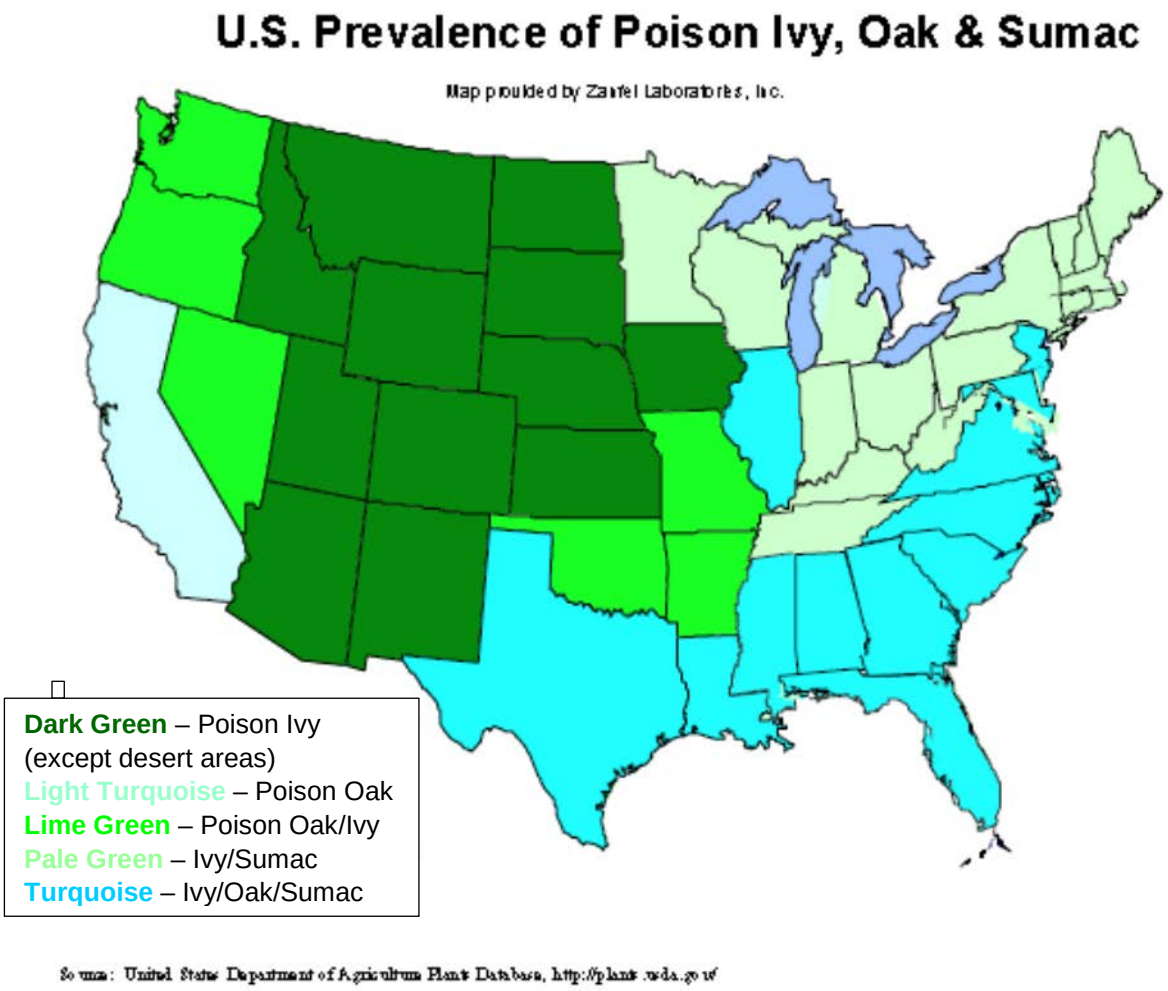
Poison oak can be present as a sparingly branched shrub. Poison oak can grow anywhere in the United States with the exception of Hawaii, Alaska, and some southwest areas that have desert climates. Poison oak is similar to poison ivy in that it has the same leaflet configuration; however, the leaves have slightly deeper notches.

Keep in mind that for each of these plants,

Poison Oak

Poison Ivy

Poison Sumac



To prevent exposure to these poisonous plants:

- Barrier skin creams, such as lotion containing bentoquatum (Tecnu®), may offer some protection prevent the occurrence of exposure symptoms.
- Wear long sleeves, long pants, boots, and gloves.

Contact with poison ivy, sumac, or oak may lead to a skin rash, characterized by reddened, itchy, blistering skin which needs first aid treatment. Susceptible individuals should identify themselves to the SSO or GEI Project Manager. If you believe you have contacted one of these plants:

- Immediately wash skin thoroughly with soap and water, taking care not to touch your face or other body parts.
- Wash exposed clothing separately in hot water with detergent.
- After use, clean tools, and soles of boots with rubbing alcohol or soap and lots of water. Urushiol can remain active on the surface of objects for up to 5 years.

- If a rash occurs, contact the CHSO and complete and submit an Accident Report Form.

1.2.6 Sewage and Bacterial Impacted Sediments

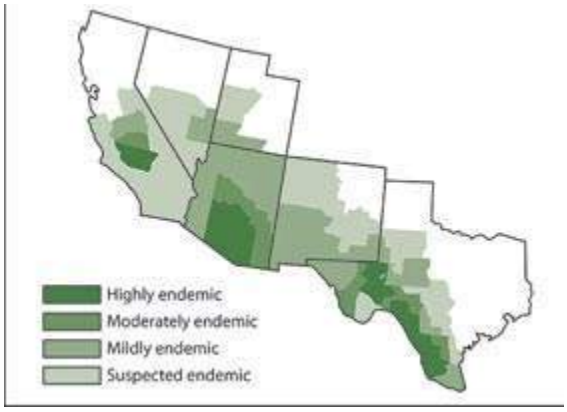
Some project work may be conducted at sites that serve or have served as a combined sewer overflow (CSO) and consequently may have received untreated sanitary sewage from numerous sources. Decomposed sewage can potentially be encountered within sites and their sediments. Sediments could contain soil and marine microorganisms, and bacterium associated with sewage. Many of these bacterium can cause illness through ingestion, direct contact, or the inhalation of a bio-aerosol. Potential respiratory exposure to biological agents can also occur through the inhalation of aerosols produced during sediment handling activities. Personal protective equipment as identified in the site-specific HASP will be worn to minimize potential exposures. Employees will follow the decontamination or disposal procedures identified in the HASP.

1.2.6 Fungal Spores in Soil – Valley Fever

Valley Fever is an illness that usually affects the lungs. It is caused by the fungus Coccidioides immitis that lives in the top 2 to 12 inches of soil in many parts of California. When fungal spores are present, any work activity that disturbs the soil, such as digging, grading or other earth moving operations, or vehicle operation on dirt roads, can cause the spores to become airborne, therefore increasing the risk of Valley Fever. All employees on sites where the fungus is present, and who are exposed to dusty conditions and wind-blown dusts are at increased risk of becoming infected.

Valley Fever fungal spores are too small to be seen, and there is no reliable way to test the soil for spores before working in a particular place. Valley Fever can be found throughout the southwestern United States, parts of Mexico and South America. Some California counties consistently have Valley Fever fungus present in the soil. In these regions Valley Fever is considered endemic. Health departments track the number of cases of Valley Fever illness that occur. This information is used to map illness rates as seen on the figure below.

California county-specific coccidioidomycosis incidence rates, 2011
Merced
Madera
Fresno
Tulare
Kings
San Luis Obispo
Kern
Cases per 100,000 population
0.0
0.1—19.9
20.0—74.9
75.0—304.0
Potentially unreliable rate, relative standard error 23 percent or more
Center for Infectious Diseases - Division of Communicable Disease Control
Infectious Diseases Branch - Surveillance and Statistics Section


Highly endemic
Moderately endemic
Mildly endemic
Suspected endemic

When present, symptoms usually occur between seven to 21 days after breathing in spores, and can include:

- Cough
- Fever
- Chest pain
- Headache
- Muscle aches
- Rash on upper trunk or extremities
- Joint pain in the knees or ankles
- Fatigue

Symptoms of Valley Fever can be mistaken for other diseases such as the flu (influenza) and TB (tuberculosis), so it is important for employees to obtain medical care for an accurate diagnosis and possible treatment.

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

- Determine if the worksite is in an endemic area. Contact the local health department for more information about the risk in the county GEI is performing work that may disturb soils.
- Prepare work plans and work practices that reduce employee's exposure, which may include:
    - Provide air conditioned cabs for vehicles that generate heavy dust and make sure employees keep windows and vents closed.
    - Suspend work during heavy winds.
- When exposure to dust is unavoidable, provide National Institute for Occupational Safety and Health (NIOSH)-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or High Efficiency Particulate Air (HEPA). Employers must develop and implement a respiratory protection program in accordance with California's Occupational Safety and Health Administration (Cal/OSHA's) Respiratory Protection standard (8 CCR 5144).
- Take measures to reduce transporting spores off site, such as:
    - Clean tools, equipment, PPE and vehicles before transporting off site.
    - If employee's clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.

1.3 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.4 References

http://www.cdc.gov/ncidod/dvbid/westnile/index.htm
http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm
http://www.epa.gov/pesticides/health/mosquitoes/insectrp.htm
http://www.cdc.gov/niosh/topics/lyme/
Protecting Yourself From Ticks and Mosquitoes, NIOSH Fast Facts, Publication No. 2010-119
http://npic.orst.edu/pest/mosquito/ptc.html

1.5 Attachments

None

1.6 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-002 Infectious Materials and Bloodborne Pathogens Exposure Control Plan

1.1 Objective

GEI personnel may come in contact with potentially infectious agents when performing first aid or cardiopulmonary resuscitation (CPR). Employees may also come into contact with these materials when working at certain contaminated sites (i.e., urban sites, discarded contaminated needles or sewer outfall exposures). This standard operating procedure (SOP) has been developed to minimize the potential for exposure to employees who may contact, directly or indirectly, infectious agents.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for contact with infection materials and bloodborne pathogens. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with infectious materials or bloodborne pathogens and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

- Universal Precautions (i.e., treat all potentially infectious materials as if it were infected) will be used by GEI employees.

1.3 Exposure Control Plan

1.3.1 Standard Procedures

Sampling of potentially infectious materials will be performed in a manner that minimizes the potential for creating splashes, droplets, or aerosols. Mechanical pipetting devices will be used for manipulating sanitary sewer effluent. Mouth pipetting is prohibited.

The use of glassware or equipment with sharp or pointed edges will be kept at a minimum to reduce the potential of injury that would create a direct route of entry into the body for infectious materials.

Minor cuts, scratches, or other breaks in the skin barrier will be covered prior to the handling of infectious materials. Employees experiencing exudative lesions or weeping dermatitis will refrain from direct contact with infectious materials.

Eating, drinking, smoking, or application of cosmetics is not permitted in areas where potentially infectious materials are handled or sampled.

Employees will wash and disinfect their hands, face, or other potentially contaminated skin surfaces upon completing the handling of infectious or potentially infectious agents or after rendering first aid.

1.3.2 Personal Protective Equipment

Personal Protective Equipment (PPE) will be worn to reduce the potential of exposures to splashes or aerosols. At a minimum, this equipment will include safety glasses and appropriate gloves, but may also require the use of face, respiratory, foot, and full-body protection. Refer to the site-specific Health and Safety Plan for specific PPE requirements.

Gloves used in the handling or sampling of infectious materials will be appropriately disposed of and not reused.

1.3.3 Medical Monitoring

Medical monitoring is required for an employee when a potential workplace exposure has occurred. The employee must notify the Corporate Health and Safety Officer (CHSO) and Human Resources regarding the potential exposure as soon as possible. For infectious agents in which a medically accepted vaccination has been developed (e.g., hepatitis B virus [HBV]) potentially exposed employees will be given the option to receive an inoculation at no cost. Employees who have been exposed will be given the option to receive a confidential medical evaluation at no cost. Required records for exposed employees will be kept confidential.

1.3.4 Training

Employees with a reasonable risk for exposure must attend Bloodborne Pathogen training covering the following topics:

- An explanation of the Occupational Health and Safety Administration (OSHA) bloodborne pathogen standard.
- A general explanation of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne diseases.
- An explanation of the GEI's Bloodborne Pathogen SOP and exposure control plan.
- Appropriate methods for recognizing tasks that involve potential exposure.
- An explanation of the use and limitations of methods to prevent exposure.
- Proper types, use, handling, decontamination, and disposal of PPE.
- The availability of HBV vaccines and the procedures for obtaining a vaccination.
- Appropriate actions to take during an emergency involving bloodborne pathogens.

- Post-exposure procedures.
- An explanation of required signs and labels.

1.4 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.5 Reference

OSHA 29 CFR 1910.1030 - Bloodborne Pathogens.

1.6 Attachments

1.7 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP NO. HS-003 Container Management

1.1 Objective

This standard operating procedure (SOP) has been developed to minimize the potential for injuries to GEI employees performing container and drum handling and sampling, through proper use of engineering and administrative controls, personal protective equipment (PPE), and education.

1.2 General

This SOP is intended for use by employees engaged in work with the management of containers that may contain hazardous substances or contaminated media. The site-specific health and safety plan (HASP) should include a hazard assessment and control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Hazardous substances and contaminated media will be handled, transported, labeled, and disposed of in accordance with this paragraph. Drums and containers will meet the appropriate United States Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and Environmental Protection Agency (EPA) regulations for the wastes that they contain.

Site operations will be organized to minimize the amount of drum or container movement. Prior to movement of drums or containers, employees exposed to the transfer operation will be notified of the potential hazards associated with the contents of the drums or containers. Unlabeled drums and containers will be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

DOT specified salvage drums or containers and suitable quantities of proper absorbent will be kept available and used in areas where spills, leaks, or ruptures may occur. Where spills may occur, a spill containment program, which may be part of the HASP, will be implemented to contain and isolate the entire volume of the hazardous substance being transferred.

1.3 Opening Drums and Containers

The following procedures will be followed in areas where drums or containers are being opened:

- Employees not actually involved in opening drums or containers will be kept a safe distance from the drums or containers being opened.

- If employees must work near or adjacent to drums or containers being opened, a suitable shield that does not interfere with the work operation will be placed between the employee and the drums or containers being opened to protect the employee in case of accidental release.

- GEI employees will not handle or attempt to open bulging containers. Employees will not stand upon or work from drums or containers. GEI will contract with a hazardous waste company to handle, manage, and dispose of a bulging drum.

1.4 Material Handling Equipment

Material handling equipment, such as drum dollies, used to transfer drums and containers will be selected, positioned, and operated to minimize sources of ignition.

1.5 Radioactive Wastes

GEI does not routinely handle or manage radioactive waste. If required to do so for a project, procedures will be approved by the Corporate Health and Safety Officer (CHSO) and Regional Health and Safety Officer (RHSO).

1.6 Shock-Sensitive Wastes

GEI employees will not handle shock-sensitive waste. Shock-sensitive waste or chemicals may explode with friction, movement or heat. Some chemicals are shock-sensitive by nature-, others become shock-sensitive through drying, decomposition, or slow reactions with oxygen, nitrogen, or the container. Some chemicals that are, or can, become shock-sensitive will have that hazard noted in the safety data sheet (SDS).

- Drums and containers containing packaged laboratory wastes will be considered to contain shock-sensitive or explosive materials until they have been characterized. *Caution: Shipping of shock-sensitive wastes may be prohibited under U.S. Department of Transportation regulations. Shippers will refer to 49 CFR 173.21 and 173.50.*

1.7 Laboratory Waste Packs

GEI employees will not handle or open laboratory waste packs.

1.8 Sampling of Drum and Container Contents

Sampling of containers and drums will be done in accordance with a site-specific sampling plan that will be developed in conjunction with a site-specific HASP.

1.9 Staging Areas

Drums and containers will be identified and classified prior to packaging for shipment. Drum or container staging areas will be kept to a minimum number as approved by the client to safely identify and classify materials and prepare them for transport. Staging areas will be provided with adequate access and egress routes. Bulking of hazardous wastes will be permitted only after a thorough characterization of the materials has been completed and approved by the Client. GEI employees will not sign manifests unless a written authorization agreement is in place with the Client.

1.10 Tank and Vault Procedures

GEI employees do not routinely sample vaults and tanks. Entry procedures will be coordinated and approved by the CHSO and RHSO.

1.11 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.12 References

OSHA 1910.120 Hazardous Waste Operations and Emergency Response (j) Handling of Drums and Containers.

1.13 Attachments

None

1.14 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURE
HS-004 Driver Safety

1.1 Objective

GEI has implemented a Safe Driving Program to encourage safe driving habits and promote the ongoing safety of our staff and the communities where we work. For more information, refer to the Operation of Vehicles section of GEI's Employee Handbook.

This standard operating procedure (SOP) provides requirements and recommendations to minimize the potential risks while operating or riding in a motor vehicle.

1.2 General

GEI employees will adhere to the following requirements when operating a vehicle while conducting business on behalf of GEI. These requirements apply to GEI owned, rental, and personal vehicles used to conduct GEI business:

- Employees must maintain a valid and current driver's license.
- Employees using a personal vehicle for work-related travel must have proper insurance coverage that meets the requirements in the state in which they reside.
- Employees must wear their safety belt while in a moving vehicle.
- Vehicle accidents will be reported in accordance with GEI's accident reporting procedures. .
- Vehicles will be properly maintained and safely operated (refer to GEI's Fleet Maintenance Program).
- Employees will follow safe driving behaviors, which include limiting distractions such as manipulating radios or other equipment that may cause a distraction. Employees should not exceed the posted speed limit and should maintain a safe distance between other vehicles.
- When parking a vehicle at a job site, the employee should position the vehicle in a manner to reduce or eliminate the need to operate the vehicle in reverse. A safety cone should be placed at the rear of the vehicle after parking the vehicle and be removed prior to moving the vehicle. This procedure makes the employee aware of other vehicles, equipment, and structures within the backup radius of the vehicle.

When driving a rental vehicle or GEI vehicle that you are unfamiliar with orient yourself to the vehicle by:

- Walking around the vehicle to observe the condition of the vehicle and hazards that could be within the travel path.
- Becoming familiar with the size of the vehicle.

- Adjusting mirrors (rear and side).
- Becoming familiar with dashboard, center console, and steering controls.
- Locating the turn signals, windshield wipers, lights, emergency flashers, and the heating, air conditioning, and defrost controls.

1.3 Driving Defensively

Driving defensively means not only taking responsibility for yourself and your actions but also keeping an eye on "the other guy." Good defensive drivers may be able to anticipate what the other driver will do next. GEI recommends the following guidelines to help reduce your risks on the road.

Do not start the vehicle until each passenger and their belongings are secured in the vehicle.

- Remember that driving above or below the speed limit can increase the likelihood of a collision.
- If you notice that a car is straddling the center line, weaving, making wide turns, stopping abruptly or responding slowly to traffic signals, the driver may be impaired or using a cellular telephone.
- Avoid an impaired driver by turning right at the nearest corner or exiting at the nearest exit. If it appears that an oncoming car is crossing into your lane, pull over to the roadside, sound the horn and flash your lights.
- Notify the police if you observe motorist who is driving suspiciously.
- Follow the rules of the road. Do not contest the "right of way" or try to race another car during a merge. Be respectful of other motorists.
- Allow large vehicles, including tractor trailers, extra breaking distance, turning radius, and avoid traveling in their blind spots.
- Do not follow too closely. GEI employees should use a "three-second following distance" or a "three-second plus following distance."
- While driving be cautious, aware, and responsible.
- Use extra caution and reduce speed in construction areas and school zones.
- Be aware of pedestrians, bicyclists, and motorcyclists.

1.4 Cellular Phone Use and Other Distractions

Refer to the Human Resources policy on use of cellular telephones while operating a vehicle on company business.

1.5 Drugs and Alcohol

The use of illegal drugs or alcohol is prohibited when driving a vehicle on GEI business. Be aware of the side effects of prescription and over-the-counter medications which can impair an employee’s ability to drive.

1.6 Adverse Driving Conditions

1.6.1 Driving at Night

Vision maybe limited at night due to impairment of the driver's depth perception, color recognition, and peripheral vision. Another factor adding danger to night or early morning driving is fatigue. Drowsiness makes driving more difficult by dulling concentration and slowing reaction time.

Effective measures to minimize these hazards by preparing your car and following guidelines:

- Have your headlights properly aimed. Misaimed headlights blind other drivers and reduce your ability to see the road.
- Alcohol severely impairs your driving ability and acts as a depressant.
- Avoid smoking when you drive. Smoke's nicotine and carbon monoxide hamper night vision.
- Lights will not help the driver see better in early twilight, but they will make it easier for other drivers to see you. Do not overdrive your headlights. You should be able to stop inside the illuminated area. If you do not, you create a blind crash area in front of your vehicle.
- If an oncoming vehicle does not lower beams from high to low, avoid glare by watching the right edge of the road and using it as a steering guide.
- Make frequent stops for light snacks and exercise. If you are too tired to drive, stop in a safe area and get some rest.
- Observe driving safety as soon as the sun goes down. Twilight is one of the most difficult times to drive, because your eyes are constantly changing to adapt to the growing darkness.

1.6.2 Snow/Freezing Conditions

When snow and ice are present, be prepared by following these winter driving safety tips.

1.6.2.1 Prepare the Vehicle Before a Snowstorm

- Check under the hood and take a look at the vehicles cooling system. Make sure the vehicle contains adequate antifreeze and the hoses are in good condition.
- Test heaters and defrosters ahead of time to make sure they are in good working condition.
- Test your windshield wipers and check the condition of your wiper blades. If wipers leave streaks on your windshields, replace the blades.
- It is recommended that a windshield washer/antifreeze solution is used during winter conditions.
- Check your lights and periodically clear them of snow and dirt.
- Car batteries need extra power in cold conditions. Make sure the battery's terminals are clean and cables are secure.

- Keep your gas tank at least half full in the winter to help avoid gas line freeze up.

1.6.2.2 Driving During and After a Snowstorm

- Wear sunglasses to aid in limiting reflection from snow.
- Be aware of blind spots created by snow banks.
- Be extra cautious of pedestrians and other vehicles in intersections.
- Allow extra time for braking and increase the distance between you and the car ahead of you.
- Reduce your speed and do not exceed the posted limit.
- If you start to lose traction take your foot off the gas and gradually reduce your speed. Accelerate slowly once you feel traction is regained.
- If you start to skid, steer in the direction of the skid. Remember, steering can be more important than braking on slippery roads.

1.6.3 Driving In the Rain

To prevent losing control of your car on wet pavement, take these preventive measures.

- Prevent skids by driving slowly and carefully, especially on curves.
- Steer and brake with a light touch.
- When you need to stop or slow, do not brake hard or lock the wheels.
- Maintain mild pressure on the brake pedal.

If you skid, ease your foot off the gas, and carefully steer in the direction you want the front of the car to go. For cars without anti-lock brakes, avoid using your brakes. This procedure, known as "steering into the skid," will bring the back end of the car in line with the front. If your car has anti-lock brake systems (ABS), brake firmly as you "steer into the skid."

Hydroplaning happens when the water in front of your tires builds up faster than your car's weight can push it out of the way. The water pressure causes your car to lose contact with the road surface and slide on a thin layer of water between your tires and the road. At this point, your car can be completely out of contact with the road, and you are in danger of skidding or drifting out of your lane, or even off the road.

To avoid hydroplaning, keep the tires properly inflated and maintain good tread on the tires. If tires need to be replaced on a company vehicle, notify the branch manager or their designee. Slow down when roads are wet, and stay away from puddles. Try to drive in the tire tracks left by the cars in front of you. If you begin to hydroplane, do not brake or turn suddenly. This could throw your car into a skid. Ease your foot off the gas until the car slows and you can feel the road again. If you need to brake, do it gently with light pumping actions. If your car has ABS, then brake normally; the car's computer will mimic a pumping action, when necessary.

If weather conditions worsen to the point where the driver is not comfortable driving, pull the vehicle over to a safe location until conditions improve. Do not drive during severe weather conditions. Do not attempt to drive on roads with standing water or that have been flooded. Find an alternate route if these conditions exist.

1.6.4 Off Road

If operation of a vehicle is required off publicly or privately maintained roads or in situations where four-wheel-drive vehicles are required, the appropriate vehicle for the situation will be used.

1.7 Driver Training

GEI employees are required to complete driver safety training every 3 years. Employees will complete the examination at the end of each module and forward the training certificate to Human Resources.

1.8 Limitations

Follow safety procedures as defined in the site-specific HASP.

1.9 References

National Safety Council
Oklahoma Safety Council
GEI Consultants, Inc. Employee Handbook

1.10 Attachments

1.11 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-006 Excavations and Trenches

1.1 Objective

GEI employees may be involved with projects that include some type of excavation and trenching as part of the work activities. The following guidelines will be followed when excavations or trenches are present on GEI projects.

1.2 General

This standard operating procedure (SOP) is intended for use by employees engaged in work on project sites that include trenching and/or excavation operations. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for trenching and excavation hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Hazards associated with excavations and trenches can include collapse, falls, falling objects, hazardous atmospheres, and incidents involving mobile equipment.

GEI employees will not enter trenches or excavations that do not comply with OSHA 29 CFR 1926.650. If a project requires GEI employees to enter a trench or excavation, the trench or excavation should meet the following requirements:

- The excavation must be inspected daily by a competent person to identify potential hazards associated with the excavation. GEI generally does not act as the competent person.
- A protective system should be in place for trenches or excavations greater than 5- feet in depth.
- Employees will be protected from vehicular traffic by the use of barricades, cones and tape or other physical barriers.
- The protective system should be designed based on soil type, depth of excavation, water level, loads adjacent to the excavation, changes in weather conditions, or other operations in the area. Protective systems can include sloping or benching of the sidewalls, shoring the sidewalls using an approved support system, or shielding workers with a trench box or other similar type of support.
- If the excavation is greater than 20-feet in depth, the protection system requires a design by a registered professional engineer or based on tabulated data prepared and/or approved by a registered professional engineer.

- Excavations and trenches greater than four feet in depth require a safe access and egress including ladders, steps, or ramps. These points of access and egress are to be no greater than 25 feet of lateral travel in any direction.

- Where oxygen deficiency (atmospheres containing less than 20.7 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than four feet in depth.

When GEI is subcontracting the excavation activities:

- Care should be taken not to create new hazards like narrow walkways along edges of an excavation.
- Heavy equipment should not be parked or working at the edge of the excavation.
- Spoils should not be stockpiled within 2 feet of the trench edges.
- Confirm with subcontractor that underground utilities have been located before any excavation or trenching activities begin (refer to SOP HS-014 Utility Mark-out).
- When required guardrails will be installed for crossings and walkways to provide fall protection.
- Confirm with the subcontractor that the excavation or trench has been tested for hazardous atmospheres before entering.
- Confirm with the subcontractor that the excavation or trench has been inspected by a competent person before each work shift and after any type of precipitation. Water should be directed away from the excavation or trench whenever possible. If hazards are identified during this inspection, verify that the hazards are controlled prior to entering the trench or excavation.
- GEI employees will not work under raised or suspended loads.

In circumstances where GEI employees are working on sites where a contractual agreement with the excavation contractor does not exist and we cannot confirm the above stated conditions, entry into trenches or excavations should not be conducted.

1.3 Soil Classifications

The soil classification system means a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability.

1) Stable rock means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

2. Type A means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

a) The soil is fissured; or

b) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or

c) The soil has been previously disturbed; or

d) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or

e) The material is subject to other factors that would require it to be classified as a less stable material.

3) Type B means:

a) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or

b) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.

c) Previously disturbed soils except those which would otherwise be classed as Type C soil.

d) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or

e) Dry rock that is not stable; or

f) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

4) Type C means:

a) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or

b) Granular soils including gravel, sand, and loamy sand; or

c) Submerged soil or soil from which water is freely seeping; or

d) Submerged rock that is not stable, or

e) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Where soils are configured in layers, i.e., where a layered geologic structure exists, the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

1.4 GEI Requirements for the Excavation/Trenches Competent Person

Although GEI does not normally act as the competent person for excavations and trenches this person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
  - soil analysis;
  - use of protective systems; and
  - requirements of 29 CFR Part 1926 Subpart P.
- Ability to detect:
  - conditions that could result in cave-ins;
  - failures in protective systems;
  - hazardous atmospheres; and
  - other hazards including those associated with confined spaces.
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

1.5 Test Equipment And Methods For Evaluating Soil Type

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area, as described below.

A. Pocket Penetrometer. Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, Penetrometers have error rates in the range of ± 20-40%.
    1. Shearvane (Torvane). To determine the unconfined compressive strength of the soil with a shearvane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kPa).

2. Thumb Penetration Test. The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.
3. Dry Strength Test. Dry soil that crumbles freely or with moderate pressure into individual grains is granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into smaller clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

B. Plasticity or Wet Thread Test. This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3 mm) in diameter (thick) by 2 inches (50 mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

C. Visual Test. A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. If the soil remains in clumps, it is cohesive; if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for any signs of vibration.

During a visual test, the evaluator should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sluffing, as well as for signs of surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions. In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

1.6 Shoring Types

Shoring is the provision of a support system for trench faces used to prevent movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical. Shoring systems consist of posts, wales, struts, and sheeting. There are two basic types of shoring, timber and aluminum hydraulic.

Hydraulic shoring can be a prefabricated strut and/or wale system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

- Are light enough to be installed by one worker;
- Are gauge-regulated to ensure even distribution of pressure along the trench line;
- Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movement; and
- Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

Pneumatic Shoring works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

- Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks, and their weight creates handling difficulties.
- Single-Cylinder Hydraulic Shores. Shores of this type are generally used in a water system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.
- Underpinning. This process involves stabilizing adjacent structures, foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

1.7 Shielding Types

Trench Boxes are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench boxes and the excavation side are backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand.

Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box should extend at least 18 in (0.45 m) above the surrounding area if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.

Earth excavation to a depth of 2 ft (0.61 m) below the shield is permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of possible loss of soil from behind or below the bottom of the support system. Conditions of this type require observation on the effects of bulging, heaving, and boiling as well as surcharging, vibration, adjacent structures, etc., on excavating below the bottom of a shield. Careful visual inspection of the conditions mentioned above is the primary and most prudent approach to hazard identification and control.

1.8 Sloping And Benching

Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

Soil type	height / Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°
(For a maximum excavation depth of 12 ft)		

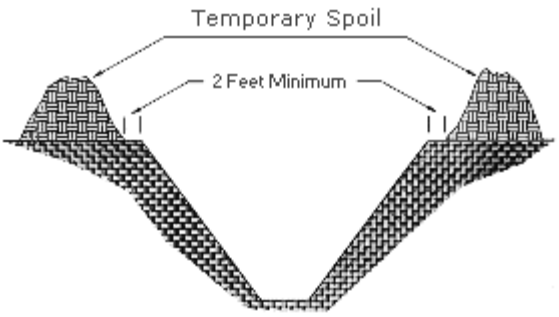
There are two basic types of benching, simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 ft (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft (1.5 m) vertical in Type A soil and 4 ft (1.2 m) in Type B soil to a total trench depth of 20 ft (6.0 m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted in cohesive soil only.

1.9 Spoil

Temporary spoil must be placed no closer than 2 ft (0.61 m) from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.



Permanent spoil should be placed at some distance from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

1.10 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

Do not enter a trench or excavation without consulting with the project manager, Corporate Health and Safety Officer (CHSO), or Regional Health and Safety Officer (RHSO).

Some states, including Massachusetts, require a trench permit prior to trenching or excavation activities. Verification of local requirements will be evaluated in the planning stage.

1.11 References

OSHA 29 CFR 1926.650 – Subpart P; *Excavations.*
OSHA Construction eTool - http://www.osha.gov/SLTC/etools/construction/index.html
OSHA Technical Manual (OTM), Section V: Chapter 2 - Excavations: Hazard Recognition In Trenching And Shoring

1.12 Attachments

None

1.13 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

HS-007 General Safety Requirements

1.1 Objective

GEI is committed to providing its employees with a safe and healthy work environment. To maintain a safe work environment, GEI has established general safety requirements to promote safe work practices.

1.2 General Health and Safety Training

GEI requires employees to complete Health and Safety Training on an annual basis. Project employees must have completed, at a minimum, GEI's General 4-Hour Health and Safety Training or when required, HAZWOPER training before beginning on-site work activities. In addition, field staff must be current in First Aid and CPR Training. Site-specific safety training will also be completed before beginning work on each project site. Further Health and Safety training requirements can be found in Section 2 of the GEI Health and Safety Manual.

1.3 Tailgate Meetings

Health and Safety tailgate meetings will be conducted by the GEI Project Manager or Site Safety Officer (SSO), and be recorded in the GEI field book or on the GEI daily safety briefing log. Employees on-site will sign the daily safety briefing log to indicate attendance.

1.4 Health and Safety Plans

GEI projects must have a health and safety plan (HASP) before beginning site work. GEI HASP templates are located on the Health and Safety page on the GEI intranet. Specific requirements for HASPs are located in Section 7 of GEI's Health and Safety Manual. After the HASP has been completed, it must be sent to the Corporate Health and Safety Officer (CHSO) and the Regional Health and Safety Officer (RHSO) for review. Project employees must read the HASP and sign the signature page to document that they have read, understood, and will comply with the requirements of the HASP. The site-specific HASP must be kept on-site at all times.

1.5 Personal Protective Equipment

Project-specific personal protective equipment (PPE) will be identified in the HASP based on the hazards present during work tasks. Required PPE must be worn on the project site. More information regarding PPE is located in Section 6 of GEI's Health and Safety Manual.

1.6 Fire Protection and Prevention

The work site should be kept clear of flammable materials and debris. GEI field personnel should know where fire extinguishers are located, and be familiar in the use of the extinguisher. Information on the correct use of a fire extinguisher is included in GEI's general health and safety training. Call 911(or other number identified in the project HASP) in the event of a fire.

1.7 Accident/Incident Reporting

The following accident reporting procedures must be followed:

- Seek medical attention.
- Notify your supervisor.
- Notify CHSO and Human Resources (HR) within two hours of the accident/incident.
- Complete Accident Reporting Form (found on the Health and Safety page of the GEI Intranet or on the GEI App) within **24 hours** and send to the CHSO and Human Resources. Refer to Section 8 of the GEI Health and Safety Manual for more information.

1.8 Near Miss Reporting

GEI employees will complete a near-miss reporting form if a hazardous or unsafe condition or near miss is observed. The near-miss reporting form is located on the Health and Safety page of the GEI Intranet. Refer to Section 8 of the GEI Health and Safety Manual for more information.

1.9 Housekeeping

Work areas, passages, and stairs will be kept clear of debris. Debris will be removed from the project site at regular intervals.

1.10 Illumination

Project sites will be illuminated either with natural or artificial illumination, in compliance with OSHA regulations.

1.11 Sanitation

Hand-washing is an essential form of protection from chemical and biological exposures and illness. GEI employees should wash their hands after performing work tasks and

regularly throughout the day. If soap and water are not available, hand sanitizers and/or wipes should be used.

1.12 Machinery, Tools, Material, and Equipment

Machinery, tools, material, and equipment will be kept in good working condition and will be inspected by a competent person. Unsafe equipment will be identified as unsafe by tagging or locking the controls to render them inoperable. Arrangements will be made to repair or dispose of damaged or unsafe equipment.

1.13 Vehicles

GEI's motor vehicles will be maintained in accordance with the GEI fleet maintenance program. Each GEI-owned vehicle will have a fire extinguisher and first aid kit. Additional fire extinguishers and first aid kits are kept in each GEI office for use in personal or rental vehicles.

1.14 Heavy Equipment

GEI employees will keep a line of sight between them and heavy equipment operators. If a GEI employee needs to communicate with heavy equipment operators, they will use hand signals or direct communication with the operator. GEI employees should not:

- Operate or climb on heavy equipment
- Approach heavy equipment while it is in operation.
- Use cellular telephones when working near operating equipment.

For more information regarding heavy equipment, refer to GEI's SOP HS-018 Heavy Equipment.

1.15 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.16 Attachments

None

1.17 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer

GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP NO. HS-009 Hazardous Substances Management

1.1 Objective

This Standard Operating Procedure (SOP) is intended to outline the steps GEI employees will take to identify potential hazards associated with exposure to hazardous substances, the risks associated with these hazards, and the proper controls to use to minimize exposure. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with biological hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.2 Hazard Identification

An initial identification of hazards should be done based on a review of available documents including lists of chemicals used on site, analytical data from soil, surface water, groundwater, air, spill history, site history, equipment on site, maps, photos, and a preliminary survey.

1.3 Risk Identification

Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances will be identified. GEI employees and GEI subcontractors who will be working on the site will be informed of risks that have been identified.

Risks to consider include, but are not limited to:

- Potential exposures exceeding the permissible exposure limits and published exposure levels.
- Potential Immediately to Life and Health (IDLH) Concentrations.
- Potential Skin Absorption and Irritation Sources.
- Potential Eye Irritation Sources.
- Potential hazardous atmospheres, including oxygen deficiency and fire and explosion hazards.

1.4 Engineering Controls, Work Practices, and Personal Protective Equipment for Employee Protection

Engineering controls, work practices, and personnel protective equipment (PPE) for substances regulated in OSHA Subpart Z (Toxic and Hazardous Substances) will be implemented in accordance with this section to protect employees from exposure to hazardous substances and safety and health hazards.

1.4.1 Engineering Controls, Work Practices, and Personal Protective Equipment for Substances Regulated in Subparts G (Occupational Health and Environment Control) and Subpart Z (Toxic and Hazardous Substances)

Engineering controls and work practices will be instituted to reduce and maintain employee exposure at or below the permissible exposure limits for substances regulated by 29 CFR Part 1910.

Engineering controls that may be feasible include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment. Work practices may include removing non-essential employees from potential exposure during opening of drums, wetting down dusty operations, and positioning employees upwind of potential hazards.

If engineering controls and work practices are not feasible, or not required, a reasonable combination of engineering controls, work practices, and PPE will be used to reduce and maintain at or below the permissible exposure limits or dose limits for substances regulated by 29 CFR Part 1910, Subpart Z.

GEI will not implement a schedule of employee rotation as a means of compliance with permissible exposure limits or dose limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation.

The provisions of 29 CFR, subpart G, Occupational Health and Environment control, will be followed.

1.4.2 Engineering Controls, Work Practices, and Personal Protective Equipment for Substances <u>Not</u> Regulated in Subparts G and Subparts Z

An appropriate combination of engineering controls, work practices, and personal protective equipment will be used to reduce and maintain employee exposure to or below published exposure levels for hazardous substances and health hazards not regulated by 29 CFR Part 1910, Subparts G and Subparts Z. GEI will use published literature and Safety Data Sheet (SDS) as a guide in making the determination of what level of protection is appropriate for hazardous substances and health hazards for which there is no permissible exposure limit or published exposure limit.

1.4.3 Decontamination Procedure

Decontamination procedure(s) will be developed, communicated to employees, and implemented before employees or equipment enter areas on site where potential for exposure to hazardous substances exists. Procedures will be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

GEI employees leaving a contaminated area will be properly decontaminated; contaminated clothing and equipment leaving a contaminated area will be properly disposed of or decontaminated.

Decontamination procedures will be monitored by the site safety officer (SSO) to determine their effectiveness. When such procedures are found to be ineffective, the site safety officer will contact the CHSO and appropriate steps will be taken to correct deficiencies.

1.4.3.1 Location

Decontamination will be performed in areas that will minimize the exposure to employees, equipment, and the environment.

1.4.3.2 Equipment and Solvents

Equipment and solvents used for decontamination will be decontaminated or disposed of properly.

1.4.3.3 Personal Protective Clothing and Equipment

Protective clothing and equipment will be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness.

Employees whose clothing comes in contact with hazardous substances will immediately remove that clothing and rinse the exposed area with water. The clothing will be disposed of or decontaminated before it is removed from the work zone.

1.4.3.4 Commercial Laundries or Cleaning Establishments

Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment will be informed of the potentially harmful effects of exposures to hazardous substances.

1.4.3.5 Showers and Changing Rooms

Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they will be provided and meet the requirements of

29 CFR 1910.141 (Sanitation). If temperature conditions prevent the effective use of water, then other effective means for cleansing will be provided and used.

1.5 Limitations

None

1.6 Attachments

None

1.7 References

OSHA 1910.120 Hazardous Waste Operations and Emergency Response
OSHA 1910 Subpart G Occupational Health and Environment Control
OSHA 1910 Subpart Z Toxic and Hazardous Substances
OSHA 1910.141 General Environmental Controls - Sanitation

1.8 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-010 Inclement Weather

1.1 Objective

Inclement weather can affect work activities and pose safety hazards to employees working in these conditions. The following guidelines will be followed when weather conditions become a safety concern.

1.2 General

This standard operating procedure (SOP) is intended for use by employees engaged in work with the potential to be affected by inclement weather. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for encounters with biological hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Employees should be aware of local weather conditions and monitor advisories issued by the National Weather Service and other local reporting services. Depending on location and season, storms are capable of producing heavy rain, floods, extreme temperatures, high wind conditions, lighting, tornados, and/or snowfall.

1.2.1 Heavy Rain

If working or driving in a storm use extreme caution. When driving, turn your lights on when the rainfall becomes heavy. Employees should be aware of the following:

- Heavy rain decreases visibility, especially when driving.
- Surfaces and tools become slippery.
- If you are working in the rain and your clothes become wet there is a risk of hypothermia when exposed to winds, even in warm temperatures.
- If the storms are going to produce thunder and/or lightning, leave the work area immediately and move to a safe area.
- Use your best judgment to determine if the rainfall becomes too heavy to continue working safely.

1.2.2 Lightning

Lightning can strike as far as 10 miles from the area where it is raining. That's about the distance you can hear thunder. **If you can hear thunder, you are within striking distance. Seek safe shelter immediately.** This can be within a building or vehicle. Wait 30 minutes after the last clap of thunder or flash of lightning before going outside again.

1.2.3 Flooding

Flooding may occur as a result of heavy rain in a short period of time. Flooding can be particularly acute in canyon areas where dry creek beds can turn into raging rivers from rainfall in distant or higher elevation areas. Be aware of this and your surroundings and move to a safe place if you begin to see signs that flooding may occur. Do not attempt to drive through areas or streets that are flooded. Seek alternate routes. Be particularly cautious at night when flooded areas are difficult to see. Urban flooding can stop traffic and increase the potential for traffic accidents and becoming trapped in vehicles.

1.2.4 Extreme Temperatures

Work activities may take place in extreme heat or cold. Be prepared if these conditions are anticipated. Have the appropriate personal protective equipment (PPE) available, exercise proper fluid intake, and take breaks to prevent heat and cold stress. For more information about these conditions see the heat stress and cold stress programs found in GEI's Health and Safety Manual.

1.2.5 High Wind and Tornados

Tropical storms are described as storms with sustained winds ranging from 39 to 73 miles per hour (mph) and hurricanes produce sustained winds that exceed 74 mph. When winds approach 40 mph (gale force winds) twigs begin to break off of trees and vehicles will veer off of the road. When winds approach **40 mph** or the GEI employee feels unsafe based on the activities being performed, stop work and seek shelter as soon as possible. Blowing or falling debris and overhanging limbs/signs can be a significant hazard. If possible, avoid driving in these conditions; 70 percent of injuries during hurricanes are a result of vehicle accidents. Note that tall or elevated equipment will have manufacturer's safe operating wind speeds defined that could be less than 40 mph. The operator's manual should be consulted prior to operation of the equipment.

A tornado is a violent, dangerous, rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. The Fujita Scale is used to rate the intensity of a tornado by examining the damage caused by the tornado after it has passed over a man-made structure. Based on the Fujita Scale or F-Scale Numbers begin at F0: 40-72 mph and go to F6: 319-379 mph (F6 is generally theoretical). Nearly three-fourths of tornados are on the weak F0-F1 scale with just over two-thirds of deaths resulting from the violent F4-F5 tornados. If tornado wind

speeds exceed the 40 mph, stop work and seek shelter immediately if a tornado is seen. If a tornado siren is sounded move immediately to safety indoors and then move to a windowless interior space, basement, stair well, or designated fall-out shelter. Windows should not be opened before an oncoming tornado. If there is no shelter available, seat belt yourself into your stationary vehicle or seek a depression or low spot on the land surface.

1.2.6 Snowfall and Ice Conditions

Working in the winter months will result in activities taking place during periods of snowfall or icy conditions. If you are working during or after snow has fallen, dress appropriately for the conditions. Snow and ice can cause working surfaces to become slippery. Clear snow and ice from work areas to prevent slip hazards. Use caution when performing snow or ice removal activities to prevent injuries. Driving in snowy and icy conditions is also hazardous. Reduce speed and use caution if you must drive in these conditions.

If the weather conditions deteriorate and you do not feel safe working in these conditions, stop work, move to a safe indoor location, and contact your Project Manager to let them know the weather, work conditions, and your location.

1.3 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection. Protection extreme weather conditions can best be accomplished if the conditions are anticipated. Monitor local weather conditions prior to starting work.

1.4 References

Center for Disease Control and Prevention – Natural Disasters and Severe Weather
http://www.bt.cdc.gov/disasters/
National Lightning Safety Institute
NOAA, National Weather Service
Office of Climate, Water, and Weather Services

1.5 Attachment

None

1.6 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer

GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-012 Noise Exposures

1.1 Objective

Working in loud environments can cause hearing damage and loss if the proper protection is not in place. The following procedures describe methods to mitigate unhealthy noise levels and protect hearing.

1.2 General

This SOP is intended for use by employees engaged in work within loud environments. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for work in loud environments and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

Prior to working on a project, an Activity Analysis or Job Hazard Analysis will be performed by the Project Manager or their designee to evaluate the potential hazards and identify steps to be taken to protect workers from hazards. If projects involve high levels of noise from such sources as heavy equipment, power tools, pumps, generators, or other noise source employees should take steps to remove the noise exposure. GEI has an established Hearing Conservation Program located in the GEI Health and Safety Manual.

Hearing protection is required if noise levels in a work area are known to be above 85 decibels (dB), which can be measured with a noise meter. When decibel levels are not known, hearing protection is required if you need to raise your voice to talk to someone standing within a normal speaking distance from you.

The first option for employee protection from hazardous noise levels is to remove the hazard by taking away the source of the noise or using engineering controls to reduce the level. If this cannot be accomplished, the next control measure to be used is to remove the employee from the source. This can be done by moving the work area to a quieter location or distancing the employee from the noise source. For example, GEI employees do not need to be standing next to an operating drill rig or other heavy equipment, by distancing themselves from heavy equipment or other noise sources the need for hearing protection can be eliminated. The final option for employee protection is personal protective equipment (PPE). Disposable ear plugs are made available to GEI employees

and are to be used when required. Additional means of hearing protection will be provided, such as ear muffs, if the disposable ear plugs are not adequate.

Employees should be aware of surroundings such as moving equipment, traffic, and other site hazards when wearing hearing protection.

1.3 Proper Use of Hearing Protection

DISPOSABLE EAR PLUG FITTING INSTRUCTIONS

Before fitting any ear plugs, make sure your hands are clean.
Foam ear plugs are disposable and not intended for reuse.

Hold the ear plug between your thumb and forefinger. Roll and compress the entire ear plug to a small, crease-free cylinder. While still rolling, use your other hand to reach over your head and pull up and back on your outer ear. This straightens the ear canal, making way for a snug fit.

Insert the ear plug and hold for 20 to 30 seconds. This allows the ear plug to expand and fill your ear canal.

Test the fit. In a noisy environment, and with earplugs inserted, cup both hands over your ears and release. You should not notice a significant difference in the noise level. If the noise seems to lessen when your hands are cupped over your ears, your ear plugs are not fitted properly. Remove and refit following instructions.

Always remove ear plugs slowly, twisting them to break the seal. If you remove them too quickly, you could damage your ear drum.

REUSABLE EAR PLUG FITTING INSTRUCTIONS

Before fitting any ear plugs, make sure your hands are clean. Reach around your head and pull up and back on your outer ear. This straightens out the ear canal, making way for a snug fit.

Reusable ear plugs should be inspected and cleaned often in soapy water. If they become hard, torn, or deformed they should be replaced.

Hold the stem end of the ear plug and insert it well inside your ear canal until you feel it sealing and the fit is comfortable.

Test the fit. In a noisy environment, and with ear plugs inserted, cup both hands over your ears and release. You should not notice a significant difference in the noise level. If the noise seems to lessen when your hands are cupped over your ears, your ear plugs are not fitted properly. Remove and refit following instructions.

Always remove ear plugs slowly, twisting them to break the seal. If you remove them too quickly, you could damage your ear drum.

1.4 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.5 References

OHSA 29 CFR 1910.95 – Occupational Noise Exposure
OHSA 29 CFR 1926.101 – Hearing Protection
Texas American Safety Company (TASCO)

1.6 Attachment

None

1.7 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURE

SOP HS-014 Utility Mark-out

1.1 Objective

This standard operating procedure (SOP) provides guidance for utility mark-out procedures related to drilling, excavation, or other sub-surface or intrusive activities to avoid injury to GEI employees or property damage. This SOP is applicable when GEI is responsible for its operation or our subcontractor's operation for utility mark-out.

Clients or local agencies may have additional requirements or procedures for the marking of utilities. If local utility mark-out procedures differ from those described within this SOP, applicable state or municipal regulations should be followed.

1.2 General

- This SOP is intended for use by employees engaged in work with sub-surface or intrusive activities. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for subsurface hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.
- The contractor or GEI employee visits the site and marks out each exploration area with white paint, flags, or stakes. Mark-outs will be performed wearing required PPE, including eye protection when using spray paint to perform the mark-out.
- Exploration locations should be marked out with sample identification number(s) and type of sample (e.g., boring, test-pit, or monitoring well).
- The contractor compiles information about the work areas on a request form specified by the state utility mark-out program and provides this information to the mark-out program call center with a phone call or electronic submittal. Work area location maps can be sent to the utility mark-out program to clarify locations.
- The mark-out program customer service representative will provide a mark-out ticket number and a list of utilities notified upon receipt of the request information. This information will be recorded on the GEI documentation form or in other project documents.

- If known, the contractor will also notify non-member utility operators (such as apartment complexes, commercial complexes, railroads with communication cables, etc.).
- Utility companies or their sub-contractors will only mark-out, or clear, utilities under their responsibility. Generally, this means that they will only mark-out utilities within the public right-of-way up to private property boundaries. Information needed to determine the location of utilities on private properties will be requested from the property owner. This may include available property drawings or as-built figures. If this information is not available, additional non-intrusive surveys of the property may be required by a private utility locator to find underground utilities by using techniques, including ground penetrating radar (GPR).
- American Public Works Association (APWA) Uniform Color Code For Marking Underground Utility Lines are:

    1. **White** – Proposed Excavation
    2. **Pink** – Temporary Survey Markings
    3. **Red** – Electric Power Lines, Cables, Conduit and Lighting Cables
    4. **Yellow** – Gas, Oil, Steam, Petroleum, and Gaseous Material
    5. **Orange** – Communications, Alarm, Signal Lines, Cables or Conduit
    6. **Blue** – Water
    7. **Purple** – Radioactive Materials
    8. **Green** – Sanitary and Storm Sewers and Drain Lines

- Before the intrusive work activities begin, the contractor will verify that each utility company has completed a utility location for the work area or the location has been cleared by a private locator and record this on the mark-out request information sheet.
- A visual survey of the project area will be done prior to the start of intrusive activities. This visual inspection will be done to identify signs, manholes, utility boxes, or other evidence of an underground utility is present and has been considered.
- The contractor can begin work on the scheduled work date and time if the utility operators have responded, taking care to find and preserve markings that have been made.
- Completed clearance documentation will be located on the excavation site during excavation activities and kept in project files.
- When excavating near a buried utility, observe the approximate location around that utility.

- If exposing a utility, proper support and protection must be provided so that the utility will not be damaged.
- If the excavation work requires significant spans of the utility to be exposed, it is the contractor's responsibility to support them (to prevent sagging or collapse) as needed. Contact the utility operator for support, guidance, or assistance.
- When the excavation is complete, provide proper backfill for utilities that have been exposed.

- Take care not to damage the conduit or protective coating of a utility. If the contractor damages this, leave the damaged utility exposed and immediately call the utility owner.
- If a gas line is contacted, the contractor must notify police, fire, and emergency personnel, and evacuate employees according to the site evacuation procedures. No attempt should be made to tamper with or correct the damaged utility.
- If the contractor/consultant needs to dig within the approximate location of a combustible, hazardous fluid, or gas line (natural gas, propane or gasoline), soft digging is required (hand digging, vacuum extraction) to a maximum depth of five feet. The approximate location is defined as 24 inches on either side of the designated center line of the utility if the diameter is not provided or 24 inches from each outside edge if the diameter is provided.

1.3 Limitations

- Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.
- Mark-out notification time usually does not include holidays. Make sure holidays are considered and mark-out time is scheduled accordingly. Under no circumstances are intrusive activities allowed to be performed prior to the required mark-out.
- Do not use white paint if precipitation is eminent. Consider using stakes if snow is predicted.

1.4 References

Reference the website for the "Call Before You Dig – 811" for the utility mark-out agency for the state you working in prior to site work. If you have issues locating the appropriate agency, contact the Health and Safety Committee for assistance.

1.5 Attachment

Attachment A – Standard Utility Color Codes
Attachment B – GEI Utility Clearance Documentation Form

1.6 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

COLOR CODE FOR UTILITY MARKING

(BASED ON 'THE AMERICAN PUBLIC WORKS ASSOCIATION' RECOMMENDATIONS AND THE ANSI STANDARD Z-53.1 FOR SAFETY COLORS)

UTILITY	COLOR
PROPOSED EXCAVATION	WHITE
ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES	RED
POTABLE WATER	BLUE
STEAM, CONDENSATE, GAS OR OIL COMPRESSED AIR	YELLOW
TELECOMMUNICATIONS, ALARM OR SIGNAL LINES, CABLES OR CONDUIT	ORANGE
TEMPORARY SURVEY MARKINGS	PINK
SEWER AND STORM DRAINS	GREEN
CHILLED WATER, RECLAIMED WATER, IRRIGATION AND SLURRY LINES	PURPLE
OTHER	LIGHT BLUE

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Utility Clearance Documentation

Client: _____

Project: _____

Site: _____

Excavation/Drilling Location ID: _____

Excavator/Driller: _____

GEI PM: _____

GEI Field Team Leader: _____

Utility Drawings Reviewed: _____

Provided By: _____

Reviewed By: _____

Utility Clearance Call Date: _____

Utility Clearance Received back from (list utilities): _____

Completed By (Company): _____ Date: _____

GEI Staff Responsible for Oversight: _____

Metal Detector Survey (yes/no): _____

Drilling Location Cleared by: _____

Contractor: _____ Date: _____

GEI Staff Responsible for Oversight: _____

Private Location Clearance Required (yes/no): _____

Contractor: _____ Date: _____

Methods used for utility location (i.e. GPR, electronic pipe location) _____

GEI Staff Responsible for Oversight: _____

Hand clearing Performed: _____ Date: _____

Contractor: _____

GEI Staff Responsible for Oversight: _____

Notes: _____

_____

Based upon the best available information, appropriate utility clearance procedures were performed for the invasive work specified. If client ordered/site specific deviations from existing GEI utility clearance procedures exist, they are approved by the client signature below.

Client Signature (Optional): _____ Date: _____

GEI, Inc. Representative: _____ Date: _____

STANDARD OPERATING PROCEDURES

SOP No. HS-016 Traffic Hazard Management

1.1 Objective

The objective of this standard operating procedure (SOP) is to prevent or limit the potential for GEI personnel to encounter traffic hazards during field activities.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for traffic hazards. The site-specific health and safety plan (HASP) should include a hazard assessment for the project that identifies the potential for exposure to traffic hazards and the control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.3 Traffic Hazard Management

Traffic Hazard Management is the process of identifying and managing the potential risks associated with the movement of traffic through, around, or past a work area. This Traffic Hazard Management SOP is designed to assist employees in identifying and managing these hazards. Work areas should be as safe as possible. It is the responsibility of GEI employees to follow the Traffic Hazard Management plan and adhere to these safety standards. Safety is not negotiable.

Under no circumstances are GEI employees permitted to commence work in a situation that they feel puts their health and safety, or the health and safety of others, at risk.

Major risk factors for work site Traffic Hazard Management include:

- The speed of traffic past or through a work site.
- The clearance between moving traffic, workers, vehicles and equipment, and over-head power lines.
- Traffic volume and vehicle composition.
- Nature and conditions at the work site and approaches to the work site.
- Other factors such as the time of day, sight distance, weather, presence of pedestrians, or cyclists, and the type of work being carried out.

- Other hazards in proximity to the work site (e.g., power lines, open excavations) that may have conflicting measures needing to be considered when developing the plan.

1.4 Site Preparation

The following management measures will be considered whenever working in traffic areas. In addition, remain aware of the amount of traffic around the working area. The work space should be large enough for the job to be completed safely. Check permit, traffic control plans, and flagger/police detail requirements for the local jurisdiction. Perform routine checks of the work zone to make sure there are adequate levels of protection.

1.4.1 Warning Cones and Warning Signs

GEI employees will comply with the Department of Transportation's (DOT) Manual on Uniformed Traffic Control Devices (MUTCD) and/or state regulations for temporary traffic barriers (cones, barriers) and sign placement when required for working in traffic areas. Clearly define the work site by placing traffic barriers around the work space to indicate the space that is needed to safely perform the work. The traffic barrier will help make the work site more visible to other workers and moving vehicles. Place traffic barriers to give yourself adequate space to work, so equipment is not outside the space. OSHA suggests placing the first warning sign at a distance calculated to be 4 to 8 times (in feet) the speed limit (in MPH).

1.4.2 Adequate Light

Requirements for night conditions and work areas with poor visibility are similar to day requirements; however there are a number of additional things to consider, such as visibility of the work site to advancing traffic and sufficient lighting. OSHA requires lighting for workers on foot and equipment operators to be at least 5 foot-candles or greater.

Visibility of the work area can be increased by employing the following measures:

- Using parked vehicles hazard and flashing lights.
- Wearing reflective safety vest that is in good condition.
- Providing adequate lighting to illuminate the work area. This lighting should be positioned so that there is no glare to approaching drivers.
- Placing advance warning signs and cones with retro reflective stripes so that they are visible to road users.

1.4.3 Distance from the Nearest Traffic Lane

Work areas located along roadsides will have a minimum clearance as defined by DOT's MUTCD and/or state or local DOT regulations for cone and sign placement.

1.4.4 PPE

The proper personal protective equipment (PPE), as outlined in the project HASP, will be worn when appropriate. The color/type of safety vest will comply with site regulations.

1.5 Equipment Operation

Vehicles and heavy equipment operators should use a spotter when possible if it is necessary to drive in reverse to reduce risk of collision with oncoming traffic. If it is necessary to drive against the flow of traffic make sure this area is within the work zone and properly blocked off from oncoming traffic.

1.6 Pedestrian Safety

When working near pedestrian traffic, a safe walkway will be established. Refer to local regulations when establishing pedestrian walkways.

1.7 Limitations

Follow safety procedures as defined in the site-specific HASP, federal DOT, and local jurisdictions. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.8 References

DOT's Manual on Uniformed Traffic Control Devices (2009 Edition)
https://www.osha.gov/SLTC/etools/hurricane/work-zone.html

1.9 Attachments

None

1.10 Contact

GEI Corporate Health and Safety Officer
GEI East-North Regional Health and Safety Officer
GEI East-South Regional Health and Safety Officer
GEI Mid-West Regional Health and Safety Officer

GEI Western Regional Health and Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-018 Working Around Heavy Equipment

1.1 Objective

The objective of this standard operating procedure (SOP) is to prevent or limit the physical hazards when working around heavy equipment for GEI personnel.

1.2 General

This SOP is intended for use by employees engaged in work with the potential for working near heavy equipment. The site-specific health and safety plan (HASP) should include a hazard assessment for the project for working near heavy equipment to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Health and Safety page of the GEI intranet.

1.3 Heavy Equipment

Heavy equipment (excavators, backhoes, drill rigs, etc.), can present many physical hazards that can result in serious injury or death if the proper safety precautions are not followed. The following is a list of precautions to be aware of when working around heavy equipment:

- Wear appropriate personal protective equipment (PPE), including a reflective, high-visibility safety vest.
- Always keep your distance from moving vehicles.
- Do not assume the vehicle operator knows where you are or where you are going. Make sure to make eye contact and receive acknowledgement of your presence with the operator. Avoid working near heavy equipment, but if unavoidable, communicate your location with the heavy equipment operators. If using hand signals, discuss the signals with the equipment operator prior to starting work.
- Watch for moving equipment. Construction sites can have a lot of activity and vehicles may be moving closer than you may think.
- Do not rely on back-up or other alarms. They may not be working or you may not hear them with the noise of other activities taking place in the area.
- Stay out of the swing radius of cranes, excavators, or other equipment that swings or rotates.
- Do not walk beside a moving vehicle, the vehicle may turn, slip, or the load may shift causing the vehicle to go off course.

- Do not ride on the outside of a moving vehicle.
- Always stay out from under a suspended load on cranes or hoists, even if it means taking the long way around.
- Do not walk behind a piece of equipment that is backing up. The operator may not see you.
- If working next to heavy equipment is unavoidable, be aware of the hazards including pinch points and moving parts. Use a spotter to watch the work area for moving equipment.
- If necessary, ask the operator to stop equipment operation to perform your work tasks.
- Verify the location and operation of emergency shut-off devices on the equipment.
- Be aware of the fuels and chemicals associated with the equipment. Have a spill prevention and response plan in place that includes the appropriate containment materials (i.e., spill kit).
- Do not wear loose fitting clothing when working around moving equipment (i.e., drill rig augers).
- Do not operate heavy equipment.
- Do not use cellular telephones near operating equipment.

1.4 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection.

1.5 References

OSHA 29 CFR 1926.600 – Subpart O; Motor Vehicles, Mechanized Equipment, and Marine Operations.
www.*toolboxtopics.com*/Construction
Caterpillar Safety – http://safety.cat.com/

1.6 Attachment

None

1.7 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP No. HS-025 Manual Lifting

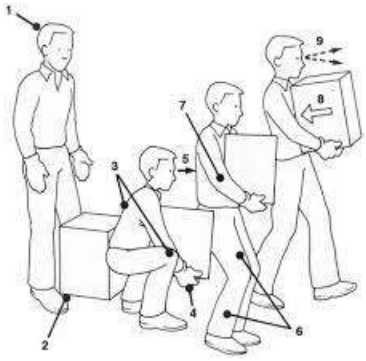
1.1 Objective

The purpose of the GEI Consultants, Inc. (GEI) Manual Lifting SOP is to identify and reduce potential work-related musculoskeletal disorder (WMSD) hazards. The SOP is intended to comply with state regulations and safe work practices developed by the Occupational Safety and Health Administration (OSHA). Modifications to meet these requirements will be made to this program as changing laws or regulations dictate.

1.2 General

The following Safe Lifting guidelines will be followed by GEI employees involved in manual lifting activities:

- Before manual lifting is performed, a hazard assessment must be completed. The assessment must consider size, bulk, and weight of the object(s), if mechanical lifting equipment is required, if two-man lift is required, whether vision is obscured while carrying and the walking surface and path where the object is to be carried.
- Get a co-worker to help if equipment or other item is too heavy to lift.
- If possible, use powered equipment instead of manually lifting heavy materials. Lifting equipment such as dollies, hand trucks, lift-assist devices, jacks, or carts can be provided for employees.
- Reduce lifts from shoulder height and from floor height by repositioning the shelf or bin.
- Make sure walkways are clear of tripping hazards before moving materials.
- Use your legs and keep your back in a natural position while lifting. Keep the load close to your torso.



- Test the load to be lifted to estimate its weight, size, and bulk and to determine the proper lifting method.

- Do not twist while carrying a load. Instead, shift your feet and take small steps in the direction you want to turn.
- Make sure there are appropriately marked and sufficiently safe clearances for aisles and at loading docks or passageways where mechanical-handling equipment is used.
- Properly stack loose or unboxed materials which might fall from a pile by blocking, interlocking, or limiting the height of the pile to prevent falling hazards.
- Bags, containers, bundles, etc. should be stored in tiers that are stacked, blocked, interlocked, and limited in height so that they are stable and secure to prevent sliding or collapse.
- Storage areas should be kept free from accumulation of materials that could lead to tripping, fire, or explosion.
- Work methods and stations should be designed to minimize the distance between the person and the object being handled.

Supervision must periodically evaluate work areas and employees' work techniques to assess the potential for and prevention of injuries. New operations should be evaluated to engineer out hazards before work processes are implemented.

1.3 Injury Reporting

Injuries experienced during manual lifting activities should receive prompt medical attention. If a GEI employee suffers an injury on the job, he/she is to report the injury to their immediate supervisor within 2 hours of the incident. The supervisor will immediately notify the CSHO and Director of Human Resources.

After verbal notification has been made, an Incident and Accident Report Form is to be completed by the employee and/or Project Manager and submitted to Human Resources and the CHSO within 24 hours of its occurrence. This form is available on the Health and Safety site on the GEI Intranet.

Upon notification from a Branch or Office Manager, Human Resources, and/or the receipt of the Incident and Accident Report Form, the CHSO and/or the RHSO will conduct an investigation and evaluation of the incident and the incident response. Information received will be analyzed for the hazards and risk factors associated with the incident. The CHSO will then recommend (as necessary) engineering controls, PPE, training or other appropriate measures to minimize the potential for future musculoskeletal injuries. The CHSO/RHSO will develop educational information based on lessons learned for distribution to GEI employees.

1.4 Training

Training will include general principles of ergonomics, correct maul lifting training to avoid musculoskeletal injuries, recognition of hazards and injuries, procedures for reporting hazardous conditions, and methods and procedures for early reporting of injuries.

1.5 Ergonomic Evaluation Process

1.5.1 Requesting an Evaluation

An evaluation can be requested by the employee if they have concerns about their workstation, tasks, or are experiencing discomfort while working. The employee can request an evaluation by directly contacting their supervisor, Branch Manager, RHSO, HR or the CHSO via email. The Branch Manager will be notified of the requested evaluation. The Coordinator will send the Worksheet to the employee, who will complete it and return it to the Coordinator. The Coordinator will review the Worksheet and suggest modifications to the employee. If these modifications do not resolve the issue, the Coordinator will then schedule an in-person evaluation with the employee. If an employee is experiencing discomfort at their workstation and a request for an evaluation has been made, the evaluation will occur as soon as possible to assist the employee. If the Coordinator is not available another Coordinator will be assigned the evaluation.

Coordinators will be trained to treat the information obtained during the evaluation as confidential. If there are concerns the employee does not wish to discuss with the Coordinator due to their personal nature, a representative from HR will be designated to assist with the evaluation.

1.5.2 Job Hazard Analysis

Once the evaluation has been scheduled, the Coordinator will meet with the employee at their workstation and conduct the interview and review their work area. The Ergonomic Evaluation Checklist will help guide the Coordinator through a series of questions to help evaluate the potential ergonomic safety concerns. The evaluation is designed to be a conversation between the employee and Coordinator to help develop an open dialog. During the evaluation the Coordinator will identify ergonomic risk factors and implement immediate corrective actions, if possible. In many cases, simple adjustments can be made to the work station using existing equipment. Ergonomic work practices including “ergo breaks” and stretching can also be recommended.

1.5.3 Corrective Actions

During the evaluation the Coordinator may suggest adjustments that can be made to the existing work station. The employee will be encouraged to adopt the suggestions but ultimately has the choice to accept and implement them. Once the evaluation has been completed, the Coordinator will review the evaluation and if there are concerns, they will evaluate them with the HSC. Once the HSC has discussed the evaluation and developed corrective actions, they will be documented on the Checklist. The corrective actions will be shared with the employee and the Branch Manager. Prior to equipment purchases, approval will be authorized by the local branch manager.

Broken equipment will be taken out of service, properly disposed of and replaced. If improper equipment is being used, the proper equipment will be obtained or purchased with approval. If the employee's workspace presents a hazardous condition (fire hazards, trip hazards, noise exposure, etc.) the hazard will be corrected, if possible, or the employee will be moved to a safe workspace. If the equipment being used is not an appropriate fit for the employee, a suggestion will be made in the evaluation report to obtain or purchase the equipment that fits the employee properly.

If a repetitive task is identified, options will be discussed with the Branch Manager, the HSC and/or other appropriate personnel to evaluate whether the task can be altered to facilitate a safer condition. Many times accelerated deadlines, apprehension, or lack of options cause an employee to believe they don't have a choice and will just push through to complete the task potentially causing an ergonomic injury. These types of situations need to be recognized and corrected. A proactive approach by both the Branch Manager and employee should be instituted to prevent or anticipate these situations so that the correct equipment, additional employees or better planning can be incorporated while still meeting the deadline.

The organization of the workspace is also an important ergonomic factor. Items should be placed so that frequently used equipment is within arm's reach and located on the correct side of the body for which that equipment is used to prevent unnecessary twisting or reaching. Having adequate space to complete tasks is necessary but may not be achieved if piles and unnecessary items occupy the space. The Coordinator can suggest how to take advantage of tools and organizational skills to free up space.

Other areas of concern may be outside factors that occur away from the office. If the employee conducts field work, the tasks should be completed with ergonomics in mind.

A separate evaluation of these tasks may be conducted to determine if a different process or equipment may be used to reduce any unnecessary pressure or fatigue to the employee's body. At times when employees have permission to work from home or use their GEI computers at home, in hotels while traveling, in an environment that is not ergonomically correct, employees will be encouraged to adopt the ergonomic recommendations they learn at work.

Employee's hobbies can also pose ergonomic risks. Hobbies that involve repetitive motions, prolonged postures, vibration, excessive force/overexertion and adverse environmental factors may cause ergonomic injuries that can be aggravated at work.

During the interview process, the Coordinator will try to identify these risks and discuss techniques to help alleviate discomfort and minimize additional injury. It will be up to the employee to modify anon-related work risks.

If an employee is experiencing discomfort, efforts will be made to alleviate the discomfort while at work. For example, if an employee has a physical injury that occurred outside of work that requires them to keep their leg elevated, the employee can work with their Coordinator to determine a solution. This may involve temporarily modifying their workstation or transferring to another workstation. Healthy work practices and generally good health are keys to staying comfortable at work too. Regular stretch breaks, good posture, vision check-ups, good sleep habits and maintaining a healthy weight are factors in creating a comfortable work environment. If a physical non-work related problem persists and impedes the employee from being effective at work, suggestions may be made to see a personal physician for further advice.

1.5.4 Reporting and Follow-up

Once the evaluation has been completed and the Coordinator's suggestions have been implemented, the Coordinator will document the findings on the Checklist and an evaluation report will be completed and submitted to the employee, the evaluated employee's Branch Manager, and the CHSO. Then a follow-up will be conducted by the Coordinator to evaluate whether the adjustments were successful. The timeline for follow-up will be based on the adjustments suggested and employed. If new equipment is installed, the Coordinator will follow-up after the equipment has been installed and the employee has had time to adjust to it. If an injury has been identified, the Coordinator will notify the Branch Manager and CHSO immediately following the evaluation. This will confirm on-going management of the injury.

During the follow-up evaluation the Coordinator will make visits to the employee's workstation and assess visually and through interviews determine how the changes have been received. Each of these follow-ups will be documented on the Checklist. If during the follow-up a re-adjustment or different equipment is needed, the reevaluation process will continue until the employee is comfortable.

1.6 Limitations

Follow safety procedures for manual lifting.

1.7 References

OSHA Technical Manual (OTM), Section VII: Chapter 1 - Back Disorders And Injuries

1.8 Attachments

None

1.9 Contact

GEI Corporate Health & Safety Officer
GEI East – North Regional Health & Safety Officer
GEI East – South Regional Health & Safety Officer
GEI Central Regional Health & Safety Officer
GEI West Regional Region Health & Safety Officer

STANDARD OPERATING PROCEDURES

SOP NO. HS-026 Hazard Identification and Management

1.1 Objective

This Standard Operating Procedure (SOP) is intended to outline the steps GEI employees will take to identify potential hazards on site, the risks associated with these hazards, and the proper engineering controls, work practices, and personal protective equipment (PPE) to use to minimize the associated risks.

1.2 Hazard Identification

Establishing proper work procedures by conducting a job hazard analysis will should be performed for all projects involving field work. An initial identification of hazards will be completed based on past and current property usage of the site, what tasks are required to perform the job, what equipment is needed to complete the assigned tasks, what hazards are in the working area etc.

The site-specific health and safety plan (HASP) will include a hazard assessment for the project that identifies the potential hazards and how to alleviate the hazard. These hazards will be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Safety page of the GEI intranet.

1.3 Risk Assessment

A risk assessment will be performed for all aspects of field work. This analysis is to determine the quantitative or qualitative value of risk related to a tangible situation and a recognized hazard. Identification, studies, and monitoring of any hazard to determine its potential, origin, characteristics, and behavior are examples of what could be included and performed during a risk assessment. The assessment will increase awareness of workplace hazards and provide an opportunity to identify and control workplace hazards.

1.3.1 Assessment Guidelines

It is necessary to consider certain general guidelines for assessing the foot, head, eye and face, and hand hazard situations that exist in an occupational operation or process, and to match the protective devices to the particular hazard.

Assessments should be conducted:

- Prior to starting any work at the site
- As conditions change
- Workplace layout changes
- Environmental changes
- Process changes

- Yearly or other pre-determined interval

1.3.2 Hazard Sources

Some examples of hazard sources include but are not limited to:

- Items, materials, or machinery in motion
- Extreme temperatures
- Chemical exposures
- Harmful dust
- Light radiation
- Falling objects or potential from dropping objects
- Sharp objects
- Rolling or pinching objects
- Layout of workplace and location of co-workers
- Electrical hazards
- Noise exposures
- Confined spaces
- Working near or on water
- Fall hazards
- Traffic or other activities taking place on the site
- Air quality issues

1.4 Prevention – Control Methods

Control methods should be considered in the following hierarchy:

- Elimination
- Substitution
- Engineering Controls
- Administrative Controls
- Personal Protective Equipment

1.4.1 Elimination and Substitution

Elimination and substitution, while most effective at reducing hazards, also tend to be the most difficult to implement in an existing process. If the process is still at the design or development stage, elimination and substitution of hazards may be inexpensive and

simple to implement. For an existing process, major changes in equipment and procedures may be required to eliminate or substitute for a hazard. Employees should work with the Safety Team to find solutions.

1.4.2 Engineering Controls

Engineering controls are used to remove a hazard or place a barrier between the work and the hazard. It's implemented to control the hazard at the source. Examples may include machine guards, sound deading/dampening panels, traffic barriers, guardrails, and shields.

1.4.3 Administrative Controls

Administrative controls change the work procedures such as programs, schedules, and supervision to reduce employee exposure to hazards. The controls are frequently used with existing processes where hazards are not particularly well controlled. Examples of administrative controls are requiring frequent breaks or implementing a specific method to perform a task.

1.4.4 Personal Protective Equipment Selection

To select the proper PPE, the potential hazards must be known. The protective equipment selected must ensure a level of protection *greater than* the minimum required in order to help protect employees. The user must be supplied with a properly fitting protective device and given instructions on care and use. Users must be aware of all warning labels for and limitation of the PPE. Employees must be aware that the PPE does not eliminate the hazard.

1.4.5 Hazard Re-Assessment

As necessary, the workplace should be re-assessed for hazards by identifying and evaluating new equipment and processes, reviewing accident records, and re-evaluating the suitability of previously selected PPE. Re-assessment should occur at a defined regular schedule interval.

1.5 Job Safety Analysis

A job safety analysis (JSA) sometimes referred to as a job hazard analysis (JHA) or an activity hazard analysis (AHA) is the breaking down of any method or procedure into its component parts to determine the hazards connected with each key step and the requirements for performing it safely.

When a JSA is being created, make sure it isn't too general where the resulting information is not enough to assess the hazard and select proper controls, and be careful not to add unnecessary steps.

1.6 Injury Reporting

If a GEI employee suffers an injury on the job that is not life threating, call Medcor Triage at 1-800-775-5866 to speak with a medical professional. Then, immediately report the injury to the Supervisor/Project Manager and Regional Health & Safety Officer (RHSO).

After verbal notification has been made, an Incident Report Form is to be completed by the employee and/or Supervisor/Project Manager and submitted to the People & Safety Team immediately following care of the incident. This form is available on the Safety App (smart phones) and on the Safety page on the GEI intranet.

Upon notification from a Branch or Office Manager, Human Resources, and/or the receipt of the Incident Report Form, the RHS) will conduct an investigation and evaluation on what happened and how and why it happened. The Corporate Health and Safety Officer (CHSO) will then recommend (as necessary) engineering controls, personal protection equipment, training or other appropriate measures to minimize the potential for future injuries. The CHSO/RHSO may develop educational information based on lessons learned for distribution to GEI employees.

1.7 Limitations

Limitations may arise on a project specific basis and will be addressed as they arise.

1.8 Attachments

None.

1.9 References

Risk Analytics, LLC Hazard Assessment Training Program, January 2011

1.10 Contact

Health&SafetyTeam@geiconsultants.com

1.11 Review History

- November 2016
- June 2015

Appendix F

National Grid, Contractor Safety Requirements

FOREWORD

National Grid's vision is to be a world-class safety organization with zero injuries every day. This includes working to help ensure the safety of our employees, contractors and the community. National Grid is committed to delivering operational excellence, including excellent levels of safety internally and in cooperation with the external contractors we rely on.

The Executive Safety Committee provides review and input for Safety Policies and Procedures through the Safety Policies and Procedures Subcommittee.

The Safety department is the owner of this procedure and is responsible for maintaining and implementing this procedure, soliciting comments from stakeholders and revising as necessary.

This document, "Contractor Safety Requirements", represents the current contractor safety requirements that are unique to operations and various functional groups at National Grid. This document does not specifically reference actions that are required by OSHA, other laws, rules, or regulations. These are requirements that should be understood by the contractor and contractor compliance with all applicable federal, state and local laws, rules, and regulations is expected by National Grid as a contractual condition.

Questions regarding this procedure should be referred to the National Grid Safety Department.

This document will be updated as necessary to communicate all aspects of National Grid's contractor safety to bidders, current contractors and to reflect changes in National Grid's Safety Policies and Procedures.

Date of Review/Revision:

Revision	Date	Description
1	8/5/2004	Initial
2	3/2/2005	Additions
3	1/30/2007	Additions
4	8/1/2008	Additions
5	8/1/2010	Additions
6	2/1/2011	Audit recommendations included

Date of Review/Revision Continued:

Revision	Date	Description
7	9/11/2013	Additions included OH; technical changes; Compliance Monitoring; Ethics; Job Briefs
8	11/2/2015	Additions include Audit & IA recommendations; ISN alignment; technical changes, 1910. 269 updates
9	8/17/2016	Format update and technical changes
10	3/29/2017	Additions to sections 2.2.6 and 6.5
11	2/26/2018	Process Safety, PM&CC Electric and PM&CC Vegetation Additions
12	3/12/2019	Contaminated Site Work Additions
13	10/24/2019	Job brief, Hi-Vis clothing, ladder use, and air gap revisions
14	1/13/2020	Hi-Vis clothing and ladder use revisions; Fatigue Risk Addition in HASPs
15	3/10/2021	EH rated work boot and Dielectric (DI) footwear definitions and requirements; OSHA 1910.136(a) reference; requirement not to wear loose clothing; Hi-Vis vest or garment requirements
16	3/24/2021	One HASP form; HASP revisions; self-assessments; qualifications; and notice of subcontractors

17	6/14/2021	Loose garments/items for heavy equipment operators revision; addition of heavy equipment definition
18	5/4/2022	Removed requirements to upload contractor orientation/pre-construction meeting documents to ISN; Removed requirement to upload forestry training qualifications to ISN; Clarified that medium/high risk contractors acknowledge N1402 requirements by signing the N1402 acknowledgment form in ISN; Added additional examples to the medium/high risk exposure category; Revised the pre-construction meeting/contractor orientation requirement from “may” to “shall”; Changed Corporate Safety team references to Safety Policies & Programs

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1.0 CONTRACTOR SAFETY AT NATIONAL GRID

1.1 Definitions

Adverse Public Impact
Incident that disrupts service to the public or results in adverse public reaction.

Bulk Commodity Transportation
Activities involved in the movement of bulk commodities via truck, rail, plane or water vessel onsite and offsite on behalf of National Grid that if released could have safety and / or environmental consequences. Examples include but are not limited to: gasoline, oil, boiler chemicals, LNG, Nitrogen.

Compliance Assessments (CAs)
An act of observing and engaging in discussion with employees at a job site or work area locations. Compliance Assessments are documented using the Compliance Assessment checklist for each segment of operation and are not considered anonymous. Compliance Assessments are utilized to comply with internal policy and external regulatory requirements.

Contracted Services
Contracted Services refers to any activity that is conducted by an organization or individual under the terms of a purchase order or through other financial arrangements (Procurement Card or credit card) between a National Grid representative and a contractor. Contracted services may include all types of construction and maintenance services, tree trimming, building maintenance and demolition, electrical structure dismantling, site restoration, engineering design, recycling and waste disposal, drilling, rigging, electrical, and utility pole/structure maintenance.

Contractor
An independent person or company that undertakes a contract to provide materials or labor to perform a service or do a job and are responsible for the safety of his/her employees and subcontractors.

Contractor Orientation
Contractor orientation is intended to serve as a resource in order to provide the contractor with the tools necessary to educate their employees and subcontractors. The session is not intended to train the contractor management, their employees or subcontractors. The extent and content of the orientation session shall be commensurate with the scope and type of the contractor's activities.

Dielectric (DI) Footwear
This term describes either boots or overshoes that are labeled in accordance with ASTM F1117, marked clearly and permanently with the name of the manufacturer or supplier, the size and AC voltage rating. The footwear shall meet dielectric strength testing prescribed in ASTM F1116. Dielectric footwear shall have a minimum rating of 15kV.

Effective Safety Discussion (ESD)
A discussion with an individual or group about their safety programs, issues or concerns (safety plans, tools, equipment, procedures, etc.). They are safety discussions amongst employees that share similar work environments…office to office, field to field.

EH Rated Work Boot
ASTM F2413 EH rated work boots are the minimum foot protection standard. This boot protects against impact, compression, and low voltage exposure.

Health & Safety Plan (HASP)
Contractors who perform high or medium risk-ranked services shall submit a project-specific HASP prior to the start of the project. In this plan, the contractor shall identify all significant tasks, their anticipated hazards and mitigation steps.

Hazardous Conditions
A condition that can and is rectified immediately by the person who identified the hazard.

Heavy Equipment
Maintenance and construction equipment including excavators, compact (mini) excavators, backhoe loaders, towable compact backhoes, front end loaders, skid-steer loaders, compact loaders, digger derricks, boom trucks, cranes and bulldozers.

Incident
An unplanned event that has a human component and results in or could potentially result in harm to people, damage to property and/or adverse public impact.

Incident Management System (IMS)
National Grid's online incident management tool that allows the company to report safety, environmental and asset-related incidents, perform incident analysis, generate safety reports and monitor the organization's safety performance.

ISNetworld, Inc. (ISN or ISN System)
Third party contractor that is a global resource for connecting Hiring Clients with safe and reliable contractors and is a contractor information management system currently contracted with National Grid.

Job Brief
A planned interactive discussion that covers, but is not limited to, potential hazards associated with the job including situational awareness (assets or other items which may impact the job at hand), work procedures involved, special precautions, and personal protective equipment requirements. The discussion should include all contractor employees, sub-contractors and team members working on a job that occurs just prior to a job, task or project. A new job brief shall be conducted for each of the following events: prior to a change in planned work specific to the job site, changes in weather conditions, extended breaks (i.e. lunch breaks) or when a new worker or company joins the crew. When possible and reasonably practical, a National Grid Representative should be present at contractor job briefings. Truck drivers for daily, non-hazardous material deliveries such as stone, gravel, concrete material or porta john cleaning are exempt from completing a job brief unless there are potential hazards associated to the driver or delivery. A National Grid representative shall talk to the driver to determine if a job brief is needed.

Major Hazard Asset (MHA)
A class of assets at National Grid, including Compressed Natural Gas (CNG), Gas Transmission (≥ 125 psig), Power Generation sites, Liquefied Natural Gas (LNG) plants, and LNG Trucking, in which any condition, or set of conditions, presents potential for a major accident to occur. Also referred to as process safety assets.

Major Accident
An event involving the release of potentially dangerous materials, the sudden and uncontrolled release of large amounts of energy (such as fires and explosions), or both. These can have catastrophic effects and can result in multiple injuries and fatalities, as well as substantial reputational, economic, property, and environmental damage

Operator Qualification (OQ)
As defined in the Code of Federal Regulations, Transportation, 49 Subpart 192.801 through 192.809 and/or DOT pipeline qualified for gas contractors doing work at National Grid. Additional state requirements pursuant to the state the contractor is working may be required.

Process Safety Management
Method of focusing and mitigating concerns of major hazards impacting safety, environmental damage and business losses. It is an organized effort to identify and analyze the significance of hazardous situations associated with a process or activity to aid management in making critical safety decisions

Project Representative
National Grid Owner's Representative or designee who is assigned to certain contracted projects and communicates regularly with the contractor during the course of the contracted service. This person also ensures the work is being performed in accordance with the contract, including the safety requirements.

Purchase Order (P.O.)
An agreement/contract between National Grid and a contractor to provide services and/or materials. The P.O. is set up by Procurement. The term "Contract" and "P.O." are similar and may be used interchangeably. A "Blanket P.O." is set up for contractors whose work is on-going. A "one-time P.O." is set up for project work.

Qualified Electrical Worker
Those who are knowledgeable in the construction and operation of the electric power generation, transmission and/or distribution equipment involved, along with the associated hazards.

Qualified Gas Worker
Any contractor who performs covered tasks in accordance with National Grid's Operator Qualification Program and the Northeast Gas Association are required to be knowledgeable and meet all regulatory standards.

Risk Assessment
A risk assessment is the process of identifying hazards and calculating or ranking the associated risks according to: the likelihood of occurrence, the severity of the harm from the hazard, and the amount of time of exposure to the hazard.

Safety Observer
A person who is responsible for alerting the work team to any potential unsafe conditions or lack of compliance with approved work practices, procedures or guidelines.

Transportation Advisor
Third party agency specializing in federal and company mandated drug and alcohol testing programs.

1.2 Introduction

Safety performance is a prime consideration in the selection of contractors. National Grid will stipulate safety performance requirements and responsibilities in our contracts, purchase orders (POs) and will hold the contractor accountable for meeting the contractual requirements.

National Grid's goal is to establish a long-term working relationship with contractors who share the same safety values and demonstrate those values through their work performance.

Contractor safety at National Grid involves three broad areas:

1. **The Contractor Procurement (Selection) Process**
   Contractor safety begins with the selection of contractors who have demonstrated a strong safety record. National Grid will complete a review during the procurement process that involves determining a contractors' risk and the scope(s) of work involved. National Grid currently uses ISNetworld, Inc. as a third (3rd) party assessment process for assisting with contractor procurement. The 3rd party entity will vet and continually monitor individual contractors' compliance with applicable safety and/or risk and insurance program requirements.

2. **Safety Communication**
   Safety communication covers all the avenues and forums in which National Grid and the contractor communicates safety. Communication begins early in the bidding phase and is on-going as an integral part of the contractor-customer relationship. The goal is to ensure clarity, transparency and to limit misunderstandings.

3. **Safety Compliance**
   Safety compliance is the process of ensuring that the necessary technical provisions of the contract are being followed. National Grid will assign a project representative or other designee to provide guidance and oversight. The Contractor is responsible for their employees and subcontractors and shall be held accountable for ensuring compliance with all applicable safety rules while working on National Grid property, rights of way (ROWs) and our assets. Primary contractors are required to notify National Grid of any subcontractors and ensure that there is an appropriate contractual relationship in place in line with the terms and conditions of their contract.

1.3 Risk Ranking of Work

1. National Grid characterizes and ranks risk by the scopes of work performed. The categories are classified as high, medium or low risk. Prior to being considered for work at National Grid, contractors who perform High or Medium Risk work must be pre-qualified in ISN. See Appendix A for more information regarding the National Grid Contractor Risk Matrix.

2. Activities that are designated as “high risk” means that catastrophic event can result if safety measures are not followed. Activities designated as “medium” risk present certain opportunities for moderate to significant injuries, property or reputational damage, and/or loss of service and/or possibly business continuity. Activities designated as “low” risk may still require safety compliance and control measures, although the contractor performing the work does not necessarily need to be enrolled in ISN, if that is the only classification of work that contractor performs for National Grid.

3. The designation High Risk, Medium Risk, or Low Risk, refers only to the inherent risk associated with the work activity and is not an opinion on the ability of a contractor to work safely.

4. If ,at any time, the risk changes from low to medium/high, per the risk matrix, then the medium/high risk process shall be followed. It’s the contractor’s responsibility to identify if the risk changed and to escalate to National Grid personnel.

5. The Procurement Agent will notify the bidder/contractor at the beginning of the procurement process if their contracted service has been ranked as high or medium risk.

1.4 Bidder Information Request – High and Medium Risk Work

1. Any contractor bidding on high or medium risk work shall be required to complete a questionnaire regarding the Contractor’s safety program, compliance and history of occupational illnesses and injuries (ISNetworld New Vendor Onboarding application form, located on the ISNetworld website). Contractors will also be required to demonstrate in ISN that all employees, including subcontractors, are qualified to perform the scope of services.

2. ISNetworld then thoroughly reviews contractors’ qualifications against a prerequisite list of National Grid criteria. National Grid has established that contractors performing high or medium risk work MUST HAVE and MAINTAIN a grade of “C” or better in the ISN system to perform work and services for National Grid. ISN will track and manage the National Grid pre-

qualified contractor bidder lists. This bidder list is the first step for a contractor in establishing a working relationship with National Grid. For active ISN contractors, ISN will request updated information monthly. Contractors who do not have a current PO, contract, or authorized scope of work with National Grid will be considered as a Prospective bidder and will be asked to submit information quarterly. It is understood that insurance may not be maintained within National Grid standards, however, once a contractor is awarded a contract, proper and adequate insurance must be provided to ISNetworld to achieve a passing grade. Lack of insurance or inadequate insurance is an immediate "F" grade in the ISN system per National Grid criteria.

3. Project representatives may request an exemption or variance from requiring a contractor to be placed in ISNetworld for various reasons. A Supplier Exemption Request form (located in the safety policies and procedures section of Grid:home) shall be completed, documented and signed by the business unit VP and Safety Policies & Programs Director prior to contract award.

4. The information that the Bidder provides National Grid via ISN serves as the basis for assessing safety qualification. For this reason, it is important for contractors to maintain transparency throughout the process. National Grid and ISN will review all submitted information. Any effort in avoiding complete disclosure will disqualify the Bidder from bidding work at National Grid.

1.5 Safety Compliance

1. Medium/high risk contractors certify that they have been informed of National Grid safety requirements, that employees and subcontractors have the appropriate qualifications to perform the work, and agree to comply with all applicable safety requirements. This will be accomplished by the contractor signing the N-1402 Contractor Safety Requirements Acknowledgment Form in ISN annually and when there are revisions to N-1402.

2. National Grid representatives evaluate contractor compliance by conducting routine site visits, Compliance Assessments (CA's), Effective Safety Discussion (ESD) visits and attending periodic contractor safety meetings. Contractors should also perform and document safety self-assessments to ensure compliance to federal, state, local and National Grid regulations. This combined effort enhances, solidifies safety compliance and has the added benefit of quality control / quality assurance of the work performed.

3. Contractors bidding on new work shall provide worker qualifications to the National Grid procurement representative via the “Bidder Information Request” form and/or ISN National Grid On-boarding form.

4. If a safety violation is observed by a National Grid representative, the violation will be discussed with the contractor at the time of discovery.

5. Contractor employees enrolled in ISNetworld that are involved in any accident, incident or significant near-miss event, will be required to lead an investigation and root cause determination process. In addition, the contractor must implement corrective actions and establish measures to prevent a recurrence through an incident investigation process and document the details within ISN.

6. Individual contractor personnel who habitually violate any safety rules should be identified, and the contractor should remove the individual(s) from the project. National Grid reserves the right to remove any contractor employee(s) who violate safety rules or procedures; pose a safety risk to themselves, other contractors; our employees; or the general public.

7. If a contractor is observed to be operating in a manner that creates an imminent danger to persons or property, it is the responsibility of all individuals observing the hazard to cease the hazardous operation impacted until the issue has been resolved to the satisfaction of National Grid, the Owners Representative or Safety Representative.

8. Contracts/POs shall require the contractor to immediately forward any citations, notices, or OSHA reportable cases per 29 CFR 1904.39 from a National Grid project, upon receipt to the appropriate project representative and/or ISN. The project representative shall distribute copies of the citation or notice to senior management, Safety, Procurement, and the Legal Department.

9. Willful and/or repeat violations of safety requirements by the contractor may be considered a breach of the contract and reason for contract termination.

10. If the contractor’s overall safety performance is viewed as being unsatisfactory or noncompliant with contract provisions, and if the contractor is unwilling to demonstrate satisfactory program improvement, the result may be considered a breach of the contract and reason for contract termination.

11. National Grid project managers and/or construction supervisors shall document safety compliance by completing a “Contractor Performance Evaluation” for each project. This documents both positive and negative

safety performance or behaviors and this feedback will be used in the decision process for awarding future contracts.

2.0 GENERAL SAFETY REQUIREMENTS

2.1 Introduction

1. All contractors are required, and expected to comply with all applicable requirements of the Occupational Safety and Health Administration (OSHA), and all other applicable federal, state and local laws, ordinances, regulations, and other project and site-specific permits unless superseded by identified National Grid procedures.

2. This document represents policies and safety-related work methods unique to National Grid and they may be more stringent than OSHA regulations. Contractors must follow these requirements as well as their own rules or regulations that meet or exceed OSHA and other regulatory requirements.

3. National Grid will provide more detailed information and guidance regarding specific procedures prior to commencement of work.

4. Per OSHA 1910.136(a) general requirements, the employer shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or when the use of protective footwear will protect the affected employee from an electrical hazard, such as a static-discharge or electric-shock hazard, that remains after the employer takes other necessary protective measures.

2.2 Applicability

Applies to: All contractors, as needed

1. In any contracted task, where a safety observer is required, it is the responsibility of the contractor to provide that person and ensure that he/she is qualified to perform the role when needed.

2. A 4:1 pitch shall be maintained when using an extension ladder or the ladder shall be tied off and/or secured and 3 points of contact shall be maintained by the climber. If both hands are needed to perform work, then fall protection is required.

3. Although not preferred, if hard hats are worn backwards, the suspension adjuster must always face the rear. Class E hard hats are required for all electrical work.

4. ASTM F1117 Dielectric (DI) footwear is required when:
    - Workers on the ground are working within 50’ of the master ground connection point to earth.
    - Operating a wire trailer and pulling/tensioning machine.
    - Operating a winch truck or reel trailer with its payout in an energized area that may result in inadvertent contact.
    - Hand digging in close proximity to energized cables within the tolerance zone.
    - Making repairs in a trench to a faulted primary cable without de-energizing any adjacent energized primary cables within close proximity.
    - Using approved live line tools to move energized primary cables in a trench.
    - If removing underground cable rubber covering or arc suppression blankets from an energized cable.
    - Working within minimum approach distance (MAD) of downed electrical wires or foot patrolling for such wires.
    - If setting poles in proximity to energized lines or equipment and using truck controls from the ground.

5. National Grid expects that all cargo will be secured in accordance with U.S. DOT requirements.

    - As of January 2004, the Federal Motor Carrier Safety Administration (FMCSA) within the U.S. DOT published Cargo Securement Rules 393.100-136 Subpart I – Protection Against Shifting and Falling Cargo.

6. Chaps are required to be worn by ANY person using a chainsaw to make a cut on the ground or assisting in that cut and within striking distance. Other situations where cut off machines are used, chaps designed for the purpose of providing durable protection from abrasion, spatter and sparks from cutting ferrous metals shall be required; however, a hazard assessment should be completed to determine the need. Always use proper cutting techniques and push blades away from the body when using tools that may slip or inadvertently make contact with the leg. Never leave any equipment running while not in use.

7. All applicable contractors must meet the requirements of drug and alcohol testing in accordance with FMCSA DOT 49 CFR Part 40 and Pipeline and

Hazardous Materials Safety Administration (PHMSA) DOT 49 CFR Part 199. National Grid shall monitor contractor compliance to the drug and alcohol regulatory requirements through Transportation Advisor or ISNetworld as needed.

8. Contractors who drive regularly in delivery of service for National Grid shall:

   a. Have a safe motor vehicle operations policy which must be communicated to their employees before they begin driving for company business. The contractor is expected to follow National Grid's *Safe Motor Vehicle Operations* policy to include the following:
      - Prior to moving any vehicle, the driver shall perform a "circle of safety" inspection. This is to confirm not any person, animal, equipment, or property will be injured or damaged when the vehicle is moved.
      - Drivers should back into or pull through a parking space so that when you re-enter the vehicle, the first move is forward.
      - No driver shall use a hand-held mobile telephone while driving a vehicle for National Grid business.
      - The driver shall eliminate or minimize sources of potential driving distractions to include, eating, smoking, reading, writing, grooming, use of any electronic devices, mirror or seat adjustment. These shall be done when the vehicle is not in motion.

   b. Comply with all requirements of all federal, state and local regulations regarding safe motor vehicle operations.

   c. Ensure that new and existing employees have a valid Driver's License in accordance with requirements of specific job duties and classification/type of the vehicle they are operating. Contractors must have an acceptable driving record. If their driving record is unacceptable, the driver shall not be permitted to operate a vehicle on behalf of National Grid.

   d. Provide vehicles in safe operating condition, in accordance with federal state and local regulations. The vehicle should be equipped with proper safety equipment as appropriate for the vehicle type and its intended use.

e. Track and evaluate any vehicular accidents or incidents experienced by their employees. Corrective actions, such as driver coaching, corrective action driver training and medical/vision tests should be recommended and acted upon where appropriate. All accidents or near misses while performing work for National Grid shall be communicated to the National Grid project representative or designee and documented in the ISN system.

f. For more information, contact a National Grid representative for a copy of the National Grid Safety Policy *Safe Motor Vehicle Operations*

9. All contractors that require the use of heavy equipment shall ensure that competent, appropriately licensed, skilled and qualified personnel are in control of this equipment at all times. In addition, contractors shall ensure the following:

- Equipment is inspected for safety and use at the beginning of the work period of shift. All failing or defective equipment and components shall be removed from service.
- Equipment is under the control of trained operators who are always aware of their location and the locations/presence of persons working near the equipment, its swing zones and blind spots.
- While operating heavy equipment, operators shall ensure that loose fitting vests, jackets or other garments/items shall not be worn that could inadvertently get caught on equipment controls. Upon exiting the heavy equipment, the operator shall immediately put on their hi-vis vest/garment.
- Equipment is kept free of debris, water, oil, grease, mud or anything that could create a slip/fall hazard inside the cab.
- Keep hands, feet, and clothing away from power-driven and moving parts.
- Equipment cab windows should be kept clean and free of mud, ice, snow and/or fog for maximum visibility.
- Never carry passengers on heavy equipment or any equipment unless it is equipped to do so.
- Ensure that stabilizers are extended prior to starting a task.

- Before making a swing, operators shall always look out the windows and mirrors for confirmation that the area is clear. If visual confirmation is impaired or the operator is unsure due to weather, lighting or other interferences, the operator shall cease operation until an independent spotter can check the swing area and confirm it is clear.

- All excavations shall have signs posted, demarcation and controlled to prevent unauthorized persons from entering and falling inadvertently into the excavation. Excavations shall only be opened under the supervision of a competent person for excavation.

- All pot holing/test holing and exploratory excavations shall utilize vacuum excavation whenever near known or the possibility of unknown hazards such as live electrical or gas conveyances. When using vacuum excavation in combination with air blowing/air knife tools, all persons in the immediate area shall be wearing safety glasses in addition to a full face shield.

- No one is to work under a suspended load.

- Never use a bucket to lift personnel.

- Ensure stabilizers are in the upright and stored position before moving equipment.

- Operators shall not leave heavy equipment running unless the following requirements are met:

    - Parking break is engaged and wheels are chocked (if applicable)

    - Surroundings create no hazard of unqualified personnel entering unattended equipment

    - Vehicles and equipment idling limited to that designated state and local environmental regulations (generally, 3 to 5 minutes maximum). See table below for additional information

Region	Vehicles	Idling Limit	Exemptions Include
New York	Diesel trucks	5 minutes	• Traffic conditions • Temperatures < 25°F and motionless for two hrs • Hybrid electric engine charging battery vehicles • To provide power to auxiliary sources
NYC	All Motor vehicles	3 minutes	• Emergency vehicles • Loading/unloading • Temperatures <40°F
New Hampshire	Diesel/ Gas vehicles	5 minutes >32°F 15 minutes -10°F to 32°F No Limit <-10°F and no nuisance created	• Traffic conditions • Emergency vehicles takeoff power for auxiliary uses • Vehicles being serviced or repaired • Operated solely to defrost windshield
Massachusetts	All Motor Vehicles	5 minutes	• Vehicles being serviced or repaired • Vehicles in operation for which associated power is needed • Delivery vehicle in which engine power is needed
Rhode Island	Diesel Motor Vehicles	5 minutes	• Traffic conditions • Operate defrosting, heating, or cooling equipment to ensure health and safety of the driver or passenger. • Temperatures between 0 & 32°F - 15 minutes per hour. If < 0°F idling as needed for heat • To provide power to auxiliary sources • Vehicles being serviced or repaired
Vermont	All Motor Vehicles	5 minutes within any 60-minute period	• Emergency/public safety vehicles while engaged in "official operations" • Idling necessary to operate safety equipment • Vehicles in operation for which associated power is needed • Vehicles being serviced or repaired

- All lifts that occur on National Grid properties, ROWs or near critical assets require formal lifting plans developed by the contractor and reviewed with the National Grid project representative. Some lifts will also require formal critical lifting plans and this may include PE or geotechnical assessments to ensure a stable lifting base for the crane or other apparatus.

10. All temporary, metal fencing installed or located under transmission lines shall be grounded and have signage according to National Grid grounding standards. Contact a National Grid representative for a copy of the Engineering Documents ST 03.05.001ST 03.06.001 and SP 08.00.001.

3.0 ADMINISTRATIVE SAFETY REQUIREMENTS

3.1 Worker Qualification Assurance

1. In order to meet National Grid safety requirements, the contractor must describe how workers, including subcontractors, are qualified. The contractor must supply information concerning the type of skills assessment performed, training programs and how they ensure that employees

demonstrate competencies. National Grid reserves the right to review this information and request additional training requirements. All documents shall be uploaded and maintained in the ISN system for high/medium contractors. For work on process safety assets, the contractor shall ensure all workers and sub-contractors are trained and receive appropriate refresher training to maintain their appropriate level of certification and qualifications needed to perform work safely.

2. For low-risk contractors who perform activities that require PPE, which excludes office-based contractors and/or consultants, or other non-physical low-risk contractors, the contractor is required to watch an on-boarding video annually prior to any jobs starting for that year. The contractor employees and subcontractors are required to watch the video to be clear on safety expectations. Contractor to ensure that any new employees performing services for National Grid watch the on-boarding video if they hadn't watched it in the annual release. A link to the video can be obtained from the Project Representative.

3. Medium/high risk contractors shall complete an annual in-person on-boarding hosted by National Grid supervisor or project manager. The on-boarding shall emphasize required qualifications, HASP requirements, and requirements on revisions to HASPs when changes to the scope of work on the site or changes to risk occur. The National Grid supervisor or project manager are to conduct the on-boarding and determine the appropriate material to be used to communicate and emphasize the expectations.

4. Contractors shall conduct their own safety self-assessments.

Periodic field visits and/or verbal contact shall be conducted by the National Grid supervisor or project manager who are familiar with the work and existing scope. The National Grid supervisor or project manager shall review the work performed during the field checks and/or verbal contact and can ask the contractor to provide qualifications upon request.

During the field visits/verbal contacts, National Grid supervisor or project manager shall also review existing HASPs and/or job briefs as applicable for current work scope and require any revisions based on observations. The field checks/contacts are to be documented using Compliance Assessments, Contractor Evaluations, or ESDs.

If HASP or job brief does not cover observed hazards and risk mitigation, work shall be stopped until a revised HASP or job brief and approval of the revision occurs, which is required before work can continue.

The frequency of the field visits/verbal contacts are based on risk perception of the job, including variability of conditions, and if there is greater chance of serious injury or fatality based on high-energy presence (gravity, pressure, energy). Higher volume of visits should be conducted if it's a new contractor, based on contractor's performance (review IMS, Compliance Assessments, etc.), or if variations exist including: change in project scope, weather, change in crew and/or subcontractors, change in equipment on site, new high energy factors are present (greater chance of SIF), and long duration job.

5. The contractor shall provide management personnel qualifications through resumes or other documents. National Grid may interview and/or approve management personnel if considered necessary.

6. For work on Process Safety assets (Gas Transmission, Generation, LNG, LNG Transportation and CNG), contractors shall provide a description of their experience in the business asset and specific tasks including similar projects, lists of licenses/certifications, and references from previous similar projects. Contractors shall be made knowledgeable of National Grid process safety requirements that are relevant to their specific work activities by the business hiring them.

3.2 Meetings

Applies to: All contractors; as needed

1. The pre-bid meeting is coordinated by National Grid Procurement to provide bidders with an opportunity to become acquainted with contractual requirements and specific safety issues concerning the project, including company-specific safety rules and known site conditions.
   a. For contractors working on Major Hazard Assets, contractual language including designation of site medical facilities, locker rooms, bathrooms, etc. should be discussed by the project team with the contractor at this time.

2. At this time, Procurement will notify the prospective bidders of the following:

   a. If they are required to submit a project safety plan (HASP) prior to the pre-construction meeting

b. The cost of specific safety equipment, practices and personal protective equipment shall be factored into their bid/proposal.

3.3 Project Health & Safety Plan (HASP)

Applies to: Contractors performing high or medium risk work

All HASPs shall be submitted to the National Grid project owner for review and approval before work commences. The National Grid project owner shall ensure the HASP meets National Grid criteria and includes all aspects of the project prior to a review by Field Safety (if applicable). The project owner shall review the HASP. Field Safety shall also review the HASP after the business conducts its review only if the work is unique, there's a new project manager or supervisor, the work involves PHAs, or there's unfamiliarity with the project or safety standards.

If changes are required, a new HASP shall be created and rereviewed.

If the scope of work on the job site changes from the approved HASP, work shall be stopped. The HASP shall be revised and rereviewed by National Grid Business (Field Safety review as applicable), and work can continue once the revised HASP has been reviewed for risk controls of changed scope. Until the HASP is updated work shall remain stopped. Failure to update the HASP will be considered a violation of safety requirements in line with section 1.5. It's the contractor's responsibility to inform National Grid personnel if the scope changes.

1. Contractors who perform high or medium risk-ranked services shall submit a project-specific HASP plan prior to the start of the project and/or at pre-construction meeting. The HASP is to be followed by the contractor's employees and its subcontractors.
2. At a minimum, the HASP shall include the following elements:
   a. Roles and Responsibilities
   b. Scope of Work
   c. For contractors working on Major Hazard Assets - List of all equipment contractor is expected to use in work activities and indication that it meets regulatory and National Grid requirements
   d. For contractors working on Major Hazard Assets - List of contractor materials to be brought onto work site for review and approval by National Grid

e. Task and hazard identification and risk assessment of the hazards

f. Hazard mitigation/control procedures and work methods

g. Incident investigation and reporting

h. Compliance and monitoring

For an example of a HASP, a National Grid representative can provide related policies and procedures under the *Contractor Safety* website in Grid:home.

3. The following requirements shall be included in the HASP for all work at contaminated sites. The HASP shall be site-specific and meet the requirements of 29 CFR 1910.120(b)(4)(ii). The HASP must include at a minimum:

a. A safety and health risk or hazard analysis for each site task and operation

b. Personal Protective Equipment to be used by employees for each of the site tasks and operations

c. Medical surveillance requirements

d. Frequency and types of air monitoring and personnel monitoring to be used

e. Site control measures

f. Decontamination procedures

g. An emergency response plan for safe and effective responses to emergencies, including the necessary PPE and other equipment

The contractor/National Grid project representative shall contact the Environmental Department for guidance on site requirements and to initiate any required regulatory notifications.

For contractors performing bulk commodity transportation activities, a risk assessment including the potential consequences, frequency and safeguards to be used shall be performed and included in the HASP. If a preexisting National Grid requirement is in place for managing bulk commodity transportation activities, one shall follow those requirements, with no additional risk assessment being required.

Every contracted and subcontracted employee, including those working alone, performing work on the project shall review the HASP to ensure steps in the plan are adhered to in order to mitigate hazards during the pre-job orientation. These mitigation steps shall be incorporated into all work plans and job briefs.

Truck drivers for daily, non-hazardous material deliveries such as stone, gravel, concrete material or porta john cleaning are exempt from completing a job brief unless there are potential hazards associated to the driver or delivery. A National Grid representative shall talk to the driver to determine if a job brief is needed.

In addition, all workers shall sign an attendance sheet during the pre-job orientation that they have reviewed the plan, will adhere to the mitigation steps and they fully understand the plan. This document will be kept at the job site and available for review as needed and if requested by any National Grid representative, or any other parties.

A. Roles and Responsibilities

The HASP shall identify who is providing project oversight and how they are qualified. For example, if the work requires excavation, there must be someone on-site who is qualified as an excavation competent person.

For multi-employer work-sites, the general contractor is responsible for all their employees and subcontractors. The safety plan shall clearly state this responsibility.

If requested to do so, Contractors shall designate a competent person to participate in or conduct a process hazard analysis (PHA) regarding a portion or the entirety of the project. National Grid will not be responsible for training the contractor on the PHA methodology.

B. Scope of Work

The Contractor shall clearly and briefly state the scope of work as provided by National Grid. The plan must specifically address the project or services requested by National Grid.

C. Task and Hazard Identification and Risk Assessment

The contractor shall perform a risk assessment by identifying all significant tasks, the anticipated hazards and hazard mitigation procedures.

If, at any time, the risk level changes on the job site, the contractor is to stop work until a revised HASP or job brief is created and discussed on site and reviewed by National Grid personnel.

Contractors performing work where their employees are exposed to fatigue, shall assess fatigue risk in their HASPs and identify the mitigations they will take to manage the risk to their employees.

The contractor's cost to provide adequate safety measures and to comply with National Grid requirements must be considered and budgeted in the bid/proposal.

D. Hazard Mitigation Procedures and Work Methods

For each hazard, the contractor shall specify measures that will be taken to eliminate, control or mitigate these hazards.

A table below is an example of a method to simply and clearly organize and present the task, hazard, and mitigation steps:

Location: Substation Yard		
Task	**Hazard**	**Mitigation Steps**
Material Handling	Contact with overhead energized lines/equipment	Off load in the clear and have a safety observer present

E. Incident Investigation and Reporting

All work related incidents involving injury or illness to employees, the public or property damage (including contractor vehicle accidents) shall be reported to the National Grid project representative and documented in the ISN system.

F. Compliance Monitoring

To ensure that both contractor employees and subcontractors will achieve safety compliance, jobs with over 100 workers at any point in time or in excess of $1 million will require a full time safety professional hired by the contractor. This safety professional must be qualified, competent and be on site anytime work is performed. Qualifications of this safety representative must be acceptable to National Grid prior to hire by the contractor and may be documented in the ISN system.

For other jobs that don't meet the above criteria, contractors shall monitor jobs in line with their safety management system.

G. Environmental Compliance

Unless otherwise specified and based on the scope of work, any potential environmental risks shall be determined and addressed by the contractor following all applicable National Grid procedures. For more information, contact a National Grid representative regarding Environmental Procedure No.6 *Contracted Services* and Environmental Procedure No.25 Appendix A, *Environmental Screening Checklist.*

3.4 Contractor Orientation/Pre-Construction Meeting

Applies to: All contractors, as needed

1. A National Grid project representative, construction supervisor, or other designated National Grid representative that hires the contractor shall hold a contractor orientation and/or pre-construction meeting prior to the contractor working for National Grid. Other attendees may include: the Safety department, Environmental representatives, as well as contractor management as needed.

2. It is intended to serve as a method to provide the contractor with the tools necessary to educate their employees and subcontractors on National Grid's procedures and requirements. The session is not intended to train the contractor management, their employees or subcontractors.

3. All contractors are required to attend a National Grid orientation program specific to the type of work they will be performing. Contractor management representation shall also be present meeting and all documentation of attendance shall be kept at the job site and available to any National Grid representative. For visitors and contractors working on Major Hazard Assets, site orientation shall at a minimum include the following:

   - General site hazards
   - Specific hazards involved in each task the employee may perform
   - Safety policies and work rules, including Process Safety policies
   - Location of emergency equipment like fire extinguishers, eyewash stations, and first-aid supplies
   - Smoking regulations and designated smoking areas if applicable
   - Steps to take following an accident or injury

- Proper reporting of emergencies, accidents, and near misses
- Selection, use, and care of personal protective equipment
- Emergency evacuation procedures, routes, and security systems
- Safe housekeeping rules
- Safe use of tools and equipment
- Hazardous materials in use and location of safety data sheets

Site access shall not be granted to contract employees working on process safety assets until orientation is conducted.

4. The contractor's Project Health & Safety Plan will be discussed at this meeting including a final review of the safety hazards checklist to ensure proper hazard identification and mitigation plan has been implemented.

5. These hazard mitigation measures shall be reviewed and work shall not commence until these hazards have been adequately addressed. The National Grid project representative will discuss the methods by which compliance will be achieved to National Grid safety requirements with the contractor.

6. An Emergency Call List shall be exchanged with the National Grid project representative for high or medium risk projects or as applicable. This list must contain 24-hour contact information for key contractor and project personnel, including the project representative and Safety representatives. This list should be distributed to all concerned, as determined by the project team, prior to the start of work. For contractors working on process safety assets who have an emergency response role, the emergency response plan shall be updated to clarify the contractor's role in the event of an emergency on site.

7. For routine maintenance services, a review of associated safety issues and specific facility issues, restrictions or practices, such as evacuation procedures, shall be discussed with the contractor upon initial hiring. Any changes in the facility that may affect the safety of contractor or National Grid employees or third parties must be communicated immediately.

3.5 Job Safety Briefs

Applies to: All contractors; as needed

1. Job safety briefs shall be documented in writing. Written job safety briefs, permits, and/or plans shall be available at the job site for inspection and retained for 30 days after the job is completed.

2. National Grid reserves the right to perform a safety stand-down with any contractor for purposes including, but not limited to: recent injuries, incidents or near misses; identified hazards at job site or equivalent, and for other reasons to communicate with the contractor crew.

3. Each crew shall conduct these job safety briefs prior to commencing work at the job location. A new job brief is required when there are changes to the day's work order or plan, when there are changes in weather conditions, when a new worker or company joins the crew, and if the crew members take any extended breaks (i.e. lunch breaks). Working alone: A contractor working alone need not conduct a job brief; however, the contractor must review the hazards associated with the job as if a formal job brief had been performed.

4. Each worker must have the opportunity to voice concern. The work cannot begin until each worker signs off on the job safety brief stating that they have discussed the work, raised any questions, and agree with the plan.

5. Visitors to the work site shall be asked to read and sign the job brief acknowledging they understand contents. Contractors shall review the job brief and discuss the elements of the hazards and mitigation steps with each visitor prior to entering the job site. If a visitor refuses to sign, the general foreman will note it on the brief and will not allow the visitor to enter.

6. SITE SIGNAGE: An assessment of the work site should be conducted by the National Grid project representative overseeing the work with the contractor to determine if site signage will be needed to protect site visitors, the public or any other persons entering the work site. If Site Signage is required at the site, the signage shall be posted at the main entrance to the work site. The sign shall direct all visitors to check in with the Person in Charge (PIC), be escorted to the designated safe area and advised of all work currently in progress. The visitor is expected to comply with all related safety requirements and sign off on the Job Brief before entering the work site.

3.6 Safety Meetings

1. In addition to job safety briefs, the contractor shall have regular safety meetings with their employees and subcontractors. Contractors performing high or medium risk work shall have weekly safety meetings, while low risk contractors, at a minimum, shall have safety meetings monthly and attendance must be documented.

2. The safety meetings shall include the following topics: statistics, incidents, near misses, updates on old business and new business raised. It will include the round table discussion by the workers and the action items discussed. Meeting minutes must be documented and shall include specific action items, their due dates, persons responsible and a completion date. This documentation shall be available for inspection during the project period, and for 30 days after the project is completed. For contractors working on Process Safety assets, meeting minutes from contractor shall be shared and discussed with National Grid site management.

3. Routine Safety meetings/calls between National Grid and the Contractor shall be coordinated on a regular basis. Safety meetings may include but are not limited to ESD/Compliance Assessments, Safety Briefs, Safety Day discussions and regularly scheduled calls to promote safety and best safety practices. Contractors working on Process Safety assets for more than 6 months shall schedule leadership visits to discuss process safety topics.

4. Contractors are to perform their own safety self-assessments.

5. Contractors working on process safety assets for greater than three (3) months, or as needed, shall hold project planning meetings to discuss short term and long term work items. Project planning meetings shall include safety performance monitoring against project targets and should include a National Grid SHE representative for jobs on Major Hazard Assets in addition to a National Grid site representative.

3.7 Incident Investigation

Applies to: All contractors (regardless of risk ranking)

1. All contractors are required to report any work-related incidents involving injury or illness to employees, the public or property damage to the National Grid project representative. The first priority is to ensure that anyone injured receives medical treatment. Examples of incidents may include, but is not limited to: injury, property damage, adverse public impact, near miss, a hazardous condition and road traffic collisions (RTC).

2. Contractors will then be responsible to perform an incident investigation immediately following the incident and document root cause/corrective actions in the ISN system and to National Grid.

Incident Response Steps

In the event of an incident, the contractor shall provide details of the incident to National Grid that follows the steps below.

1. Contractor supervisor collects basic information about the incident from the employee or witnesses:
    - What happened?
    - Who and how many people were injured?
    - What treatment was administered?
    - What was the nature and seriousness of the injury?
    - Where did the incident occur?
    - When did the incident occur (date, time of day)?
    - Were there any witnesses?

2. Contractor supervisor immediately calls the project representative or other National Grid point of contact. All incidents shall be entered into the Incident Management System (IMS) as soon as possible by the National Grid project representative or National Grid designee. When dialing 1-866-322-5594, the caller will be prompted to select option 2 for anything other than an employee injury.

3. Contractor shall conduct an investigation within 24 hours of the incident that will identify contributing factors and root cause analysis relating to the incident and the corrective actions that will be taken to prevent future occurrence. This information will be documented in the ISN system.

4. Contractor vehicle accidents occurring during the performance of work will also be investigated and reported to National Grid.

Other Reporting

National Grid may periodically request the following annualized data for all work activities limited to National Grid operations:

- Lost Time Incident (LTI) rate for workers
- Restricted Work rate
- OSHA Recordable Incident (ORI) rate

4.0 TECHNICAL SAFETY REQUIREMENTS

4.1 Personal Protective Equipment (PPE) Requirements – General

Applies to: All contractors (regardless of risk ranking)

1. The contractor and their employees, including subcontractors are expected to follow the same rules and protocols as National Grid personnel. Basic PPE attire at construction sites and other similar work zones include, at a minimum:

   - Hard hat
   - ASTM F2413 EH rated safety shoes
   - Safety glasses with side shields
   - Any contractor who is exposed to vehicular traffic shall wear ANSI 107 certified class 3 hi-vis vest or garment.
   - All contractors who are exposed to vehicular traffic and are exposed to energized electrical equipment or live gas are required to wear ANSI 107, class 3 hi-vis vest or garment, that also meets ASTM 1506 FR standard with a minimum Arc rating of HRC 1. All FR vests must be lime green/yellow. When FR clothing is required the FR vest shall be worn over appropriately rated FR clothing. Please reference the Gas PPE Matrix.
   - All contractors that are exposed to vehicular traffic, but will never be exposed to energized electrical equipment or live gas shall wear at a minimum ANSI certified class 3 vest or garment that is orange OR wear the FR vest in lime green/yellow.
   - ASTM 1506, HRC Category 1 FR vests must be in lime green or yellow. Any vest that does not meet the ASTM 1506, HRC 1 FR rating must be orange.

Storm contractors that do not have a Contractor of Choice contract should follow their existing practices and rules. All other contractors shall refer to the US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD) to determine the correct class of hi-vis clothing / vests.

2. The contractor shall ensure that their employees and subcontractors use protective safety toe footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards. In

addition, during inclement weather conditions or adverse events, the addition of anti-slip footwear or outer foot wear may be appropriate.

3. Guidance for additional PPE is referenced in other sections of this document.

4.2 Flame Resistant Clothing Requirements

Applies to: All contractors; as needed

1. Flame Resistant (FR) clothing shall be worn when personnel work on energized equipment/lines or when distance and position will expose the worker to electric arc or flame hazards. FR clothing shall also be worn during live gas work as outlined in the gas PPE Matrix (Gas Policy SHE01001) and within LNG operations locations as required. FR clothing also includes arc- resistant rain gear. This additional ensemble may also be required as part of the job for contractor personnel. Contact a National Grid representative for a copy or to view the PPE matrix.

2. FR clothing shall be worn as the outermost layer of clothing and when workers measure voltages, test or ground electrical equipment/lines.

3. FR clothing shall be worn when work requires the use of rubber protective equipment or the use of insulated live line tools.

4. FR clothing shall be worn when workers control/operate electrical equipment over 50 volts at the device location or are within 10 feet of equipment which is being physically operated/ worked on by another worker.

5. Visitors are not required to wear FR clothing in substations or production plants unless they are engaged in electrical work. The National Grid project representative will be able to determine whether FR clothing will be required based on the specific contractor task. Note: Gas contractor FR requirements may differ slightly. Please refer to National Grid PPE Matrix for Gas operations within Gas Policy SHE01001 as needed.

6. FR clothing shall meet a minimum arc rating of 8 cal/cm^2 (HRC 2) for energized electrical equipment unless otherwise specified based on increased potential exposure as indicated in the Arc Flash Tables in H-807 *Arc Flash Analysis and Mitigation* program.

7. Additional FR clothing protection is required when performing work on the distribution system in NY North and New England (legacy National Grid) stations. Contact a National Grid representative for a copy. (NG

Employees: If the link does not work, copy and paste the URL into your internet browser) Arc Flash Awareness and Mitigation (sharepoint.com)

8. Contractors who may be involved with tasks requiring the implementation of this program shall be informed by National Grid. Contractors will be required to follow all aspects of OSHA and any other applicable regulation as it applies to the tasks they perform.

4.3 Rubber Gloves and Sleeves

1. Rubber glove use is required for work on all electrical apparatus at 50 Volts or greater. Rubber gloves shall be donned before the worker leaves the ground and shall be worn until the worker returns to the ground (commonly referred to as “ground to ground”, “cradle to cradle”)
2. Class 0 gloves are required for exposures up to 1000 Volts.
3. Class 2 gloves are required for voltages between 1000-15,000 Volts.
4. Rubber sleeves must be worn where work is conducted within the MAD of primary electrical apparatus that is not tested, de-energized and grounded.
5. For voltages 23 kV and above, workers can use specialized equipment or work practices as long as these workers have been appropriately trained and qualified. National Grid may request training records from the contractor.
6. Rubber glove exceptions for specific jobs (other than those listed in this section) are permitted only with the dated, written approval of a Division Director.
7. It is the contractor’s responsibility to wear class 2 rubber gloves when grounding trucks or equipment due to a possible difference in potential.

Exceptions

No rubber gloves are required:

- When working in a properly established equi-potential zone.
- When the operator remains at the same potential as the equipment by being off the ground and on the equipment.

- When a qualified worker performs transmission “hot stick” work on lines 69 kV or greater and no other energized wires are on the pole or structure below the worker.

- When work is performed on transmission structures carrying only energized conductors (115kV and above) and the Live Line Techniques are not being employed. While performing these activities, the worker shall utilize conductive clothing such as conductive gloves, boots, leg straps and/or any other applicable conductive clothing.

- When climbing a steel structure to perform structural reinforcements while maintaining MAD from energized conductors or apparatus.

- When climbing a steel structure to access an area that has been properly grounded.

4.4 Isolation of Energized Apparatus

1. **Non-Reclosing Criteria and Live-Line Maintenance and Construction:** The appropriate interrupting devices (breakers, reclosers, circuit switches, etc.) will be placed on NON-RECLOSING in accordance with National Grid tagging procedures.

2. **Tagging Out Lines or Apparatus**

   The National Grid Construction Supervisor or designee shall coordinate all switching and tagging in accordance with the most current EOP on Clearance and Control.

   Upon receipt of Clearance, the project representative will present the Contractor’s Person in Charge with the “Contractor Permission to Work Form” (Form NG0060), which states the specific apparatus that has been de-energized and that certain device(s) are tagged in the Protective Position and will remain so until the Contractor’s Person in Charge informs the construction supervisor or designee of the completion of the work utilizing the “Contractor Completion of Work” section of the “Contractor Permission to Work” form.

   The original transferred copy needs to be returned after the completion of work section is filled out & signed. In some cases the tailboard is outside & is susceptible to elements & damage; a copy shall be utilized in the field instead of the original.

No work will be performed until the “Contractor Permission to Work Form” is received from the construction supervisor stating that the equipment has been de-energized and a clearance to work has been given. The Contractors Permission to Work Form and a written grounding plan shall be attached to the crews Job Briefing and be kept at the work location.

After the “clearance” is received from the National Grid Construction Supervisor, the various substation conductor bus and equipment to be worked will be tested and “Grounds” installed. Grounds shall be rated for the fault current of the line/equipment being grounded. (Note: Rubber Gloves and FR clothing are required when installing and removing grounds). The contractors “Person in Charge” (Construction Supervisor/General Foreman) shall be responsible for determining the location and number of grounds.

Vehicles and equipment may utilize a single 4/0 cu for grounding inside the substation. Employees working on de-energized lines and equipment shall always work between grounds.

Prior to the application of any personal protective grounds, the circuit to be worked on must be tested for the presence of voltage using an approved potential detector. The worker must verify the detector is in operating order prior to and after testing for voltage. MAD must be maintained during the testing, and appropriate PPE shall be worn. Testing for voltage shall be done at the point where the grounding devices are to be attached. All phases of the circuit to be worked on shall be tested at each location that grounds are installed.

When an Air Gap is required to create a work zone, the component (a tap) shall be removed in whole from the system unless removal of the component is impracticable or creates an additional hazard based on National Grid management in charge of the job. If the component (a tap) is deemed impracticable to be removed in whole it shall be disconnected from one end, isolated from all other conductors and properly secured to ensure accidental energization will not create a hazard. When National Grid switches out lines or apparatus, any grounds that may be installed shall only be considered a visual reference, and shall not be considered a means to protect the Contractor’s employees. The Contractor is responsible to install their personal grounds, in accordance with all OSHA, Federal, State and local safety procedures. National Grid may provide guidance on the minimum size of the grounds to be used based on circuit available fault current. Refer to *Electric Operating Procedure D002,* for applicable grounding size. Ground rods shall be fully driven into the earth away from

the workers and work area. T-Bar ground rods are not to be used on National Grid property.

The National Grid Construction Supervisor shall review the contractor's plan for the quantity and locations of grounds, ensuring that the work the contractor is performing is between grounds, covering all potential sources. All three phases shall be grounded. (In stations, from each phase to the station ground grid). Grounds shall be placed as close to the work area as reasonably possible, between the work area and all potential sources of inadvertent energization. A copy of the grounding plan shall be kept with the job safety brief.

It is the contractor's responsibility to account for all their grounds. The contractor shall provide, maintain, and enforce a ground tracking program suitable to National Grid. In the instance of a zone expanding/collapsing, remaining grounds shall be listed on the Contractor Permission to Work Form and verbally communicated to the construction supervisor.

3. Grounding Mobile Equipment

When mobile equipment requires grounding, it shall be solidly grounded by means of appropriate sized copper cable while using rubber gloves. The cable shall be fastened to a securely attached clean metallic portion of the equipment, or shall be fastened to a grounding stud provided for the purpose at one end and an adequate ground at the other end.

Non insulated booms such as digger derricks that have the possibility of encroaching the MAD shall be grounded and barricaded. The ground is to trip the circuit and the barricade is to protect anyone who may become in contact with the truck during this energization.

4. Minimum Approach Distance (MAD)

Refer to OSHA 29 CFR 1910.269 for more information and details regarding qualified and unqualified workers.

4.5 Appointment of a Safety Observer

A safety observer shall be required if an employee (operator) determines that it is difficult to accurately determine the distance between the equipment (minimum approach distance) and energized parts. The Safety Observer shall never be a substitute for minimum approach distance (MAD), personal protective equipment

(PPE), insulate/isolate techniques or work area identification as a form of employee protection.

The person in charge of the work (contractor or National Grid), shall appoint a qualified employee or employees to perform the task of a safety observer. The personal in charge shall:

1. Ensure a documented job brief is completed and includes the name of the safety observer, additional subjects such as the location of gas lines, energized equipment, in or adjacent to the work area and the limits of any de-energized work area
2. Discuss the scope of work and communication techniques used to warn or notify the equipment operator of hazardous conditions.
3. Communicate any changes to work and job completion to the safety observer
4. Select another safety observer if there is a need for the existing observer to have break in service.

The safety observer is a qualified employee who has been appointed by the person in charge based on the hazard assessment and the job brief. The safety observer shall:

1. Observe the worker performing the task/activity until all hazards have been eliminated or the task/activity has been completed
2. Have shown proficiency in the task/activity being observed and have a full understanding of the job and the hazards associated with the task/activity.
3. Remain continuously focused on the task/activity being performed and not perform or assist any other job activities while observing the worker performing the task/activity
4. Notify the person in charge if there is a need to have a break in service. Work must stop until a new observer is appointed or the safety observer returns.

A safety observer shall also be required when a critical lift is being performed. A critical lift plan shall be required during the following circumstances:

1. An object is lifted over energized apparatuses or assets where a failure of the lifting equipment or rigging could result in a significant safety hazard or cause significant disruption in service to National Grid customers.
2. The crane or other lifting apparatus is anticipated to be operated above 80% of its rated capacity for the specific load chart for the lift.

3. A man basket (pinned or suspended) is to be utilized. All fall protection rules shall be followed when in a man basket.
4. Two cranes will be used in concert to lift a single object
5. Internal substation construction involving all power transformers, control houses, capacitor banks and transmission breakers.
6. Lifts in LNG or Gas plants where a hazard assessment or job brief identifies a significant risk.
7. The lifted load will be less than twice the minimum approach distance (MAD) of the nearest energized part. Until a qualified electrical worker confirms the MAD, loads and equipment shall maintain a 20 foot distance. Once nominal voltage is established, the MAD will be according to OSHA tables.
8. The lifted load is hoisted over buildings or the general public.

4.6 Work Zone Traffic Control

1. If work activity is on or near a road, the contractor and their subcontractors shall comply with all applicable parts of the most current US Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), state, local Work Zone Traffic Control requirements and the National Grid Work Zone Traffic Control Manual. Please contact your National Grid representative for a copy of the manual found in the Safety Homepage on the Grid:home.

2. If pedestrian traffic is disrupted, pedestrians should be provided with a path that is reasonably safe, convenient and accessible. Pedestrians should not be led into conflicts with work site vehicles, equipment or operations.

3. If working in areas covered by state permits issued to National Grid, contractors shall comply with the provisions (work practices and notifications) of the permit language. These permits must be available on the job site upon request.

4.7 Qualified Gas Worker

Applies to gas projects/activities

1. Gas contractor employees will be operator qualified as required and defined according to the Code of Federal Regulations, Transportation, 49, Subpart 192.801 through 192.809.

2. Until these qualified employees have demonstrated proficiency in the work practices involved, they are considered employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a “qualified employee”, the employee also must have demonstrated an ability to perform work safely at his or her level of training.

3. National Grid requires contractors with gas qualified employees to provide documentation on how they qualify their workers.

4. Additionally any qualifications’ of contractor personnel shall be in full accordance with the Company’s Operator Qualification written plan, (OQ Plan) Refer to the most current list of covered tasks in accordance with National Grids’ Operator Qualification Program and the Northeast Gas Association, (NGA).

4.8 Qualified Electrical Worker

Applies to electrical projects/activities

1. According to 1910.269(a)(2)(ii), a qualified electrical employee must be trained and competent in the following prior to starting work:

    - The skills and techniques necessary to distinguish exposed live parts of electrical equipment
    - The skills and techniques necessary to determine the nominal voltage of exposed live parts
    - The MAD specified in 1910.269 corresponding to the voltages to which the qualified employee will be exposed
    - The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment

2. Until these qualified employees have demonstrated proficiency in the work practices involved, they are considered employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of a “qualified employee”, the employee also must have demonstrated an ability to perform work safely at his or her level of training.

3. National Grid requires contractors with electrically qualified employees to provide documentation on how they qualify their workers.

4.9 Qualifying Non-Electrical Worker

Applies to: All qualifying non-electrical contractors working near energized lines and equipment; as needed

1. The contractor shall provide orientation for non-electrical workers entering and working within restricted areas such as a substation and those working near energized lines and equipment.

2. The information provided to these workers must meet the requirements of paragraph 1910.269(a)(2)(ii). However, the orientation and training may not be as comprehensive as the qualified electrical worker would be.

   They must know:

   - What is safe and not safe to touch in the specific areas they will be entering;
   - The maximum voltage of the area;
   - The MAD for the maximum voltage within the area;
   - Proper use of personal protective equipment and in the work practices necessary for performing their specific work assignments within the area.

3. Until these workers have demonstrated proficiency in the work practices involved, they are considered to be employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times.

4.10 Asbestos, Lead and other Hazardous Materials

1. Asbestos and lead materials associated with electrical and gas equipment includes, but is not limited to: cement-type cable covering, cable wrap, wire coatings, coal tar pipe wrap, and transite panels and conduits. Asbestos and lead materials may also be present in building materials including but not limited to: paint, mastics, caulking, insulation and roofing materials.

2. Where asbestos and other hazardous material is present and likely to be disturbed, the National Grid project representative and contractor shall coordinate how the asbestos, lead or other hazardous materials will be

managed and shall consult National Grid's Safety & Environmental department as appropriate.

3. Removal of this material must be done by individuals specifically trained and qualified to handle asbestos and lead. Refer to National Grid Safety Procedures, F-615, F-617 and F-619 for guidance on asbestos and lead handling and removals. For more information, contact a National Grid representative for a copy of these procedures.

Note: Contractors who will encounter asbestos or lead as part of their work shall reference in their safety plan how they will address this hazard.

4.11 Lift Plans for Work Near Energized Electrical Equipment

1. All work involving hoists, cranes or other lifting equipment **within 10' of energized electrical equipment** must have a detailed lift plan/procedure.

2. As a minimum Lift Plans shall include the following:

    a. Designated Operator and Signal person

    b. Detailed travel and flight path that ensures the boom and material being raised is controlled 100% of the time and will maintain the appropriate clearance

    c. Designated cover up and isolation to ensure employee and equipment safety in the event of an unplanned action or failure

    d. Emergency action plan with detailed instructions to respond to unplanned/uncontrolled event during the lift or positioning of the lifting equipment.

    e. Documented load weight and equipment lifting limits

    f. Rigging equipment and methods that will be used during the lifting. Sign off/approval from the management official responsible for the work

4.12 Fall Protection

1. Fall protection or fall restriction devices shall be used when working at heights over 4 feet. When using portable straight and extension ladders,

three points of contact shall be maintained. If 3 points of contact cannot be maintained a work positioning belt is required.

Step ladders shall be set up on level and stable surfaces, fully open with braces locked. Work positioning belts are not required for properly set up step ladders.

2. All fall protection shall be inspected before use each day to determine if equipment is in good working condition. Defective equipment shall not be used and shall be removed from service.

3. A worker may enter or exit an aerial lift (at heights above four (4) feet) provided that fall protection such as guardrails or a fall arrest system is used while the worker moves between the lift and the working surface. Before any such transfer is made, the employee shall be properly tied-off to an adequate support, the pole or structure prior to and in the direction of the transfer.

Exceptions to fall protection shall be in accordance with Federal & State requirements.

4.13 Herbicide Application

1. Vegetation spraying shall be conducted unescorted only by contractor employees who have been designated as a Qualified Electrical Worker, where applicable.

2. The spray applicator shall have ID cards issued by Security with background checks available from the contractor.

3. National Grid management shall require a schedule of the spraying in their areas.

4. Once spraying begins, the contractor must contact local management on a daily basis to inform them of progress or changes to the schedule.

5. The contractor shall post all stations with dated signs indicating when the station was sprayed. These signs should not inhibit access to the station.

6. The contractor shall ensure that any stored materials and equipment do not get covered with “overspray”. Overspray represents a substantial safety hazard and cannot be allowed.

7. When applying herbicides, contractor employees shall wear appropriate PPE in accordance with product labels.

5.0 UNDERGROUND OPERATIONS WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to underground operations work.

5.1 PPE Requirements

All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

5.2 Enclosed Space Assessment, Ventilation, Entry and Rescue

Refer to the National Grid EOP-UG006 *Underground Inspection and Maintenance* and National Grid Safety Procedure I-902 *Enclosed Space Procedure* for more information regarding enclosed space requirements.

1. Contractors are required to follow all procedures in this document in regards to enclosed spaces (manholes, sidewalk vaults, etc.), including assessment, ventilation, entry and rescue.

2. Each enclosed space shall be tested prior to removing manhole lids and entry. Atmospheric testing shall be continuous for the duration of the entry using a calibrated, industry approved atmospheric tester.

3. When performing hot lead work or when indicated by atmospheric monitoring, engineering controls such as forced mechanical ventilation shall be used when working in National Grid manholes at all times.

4. All contractors who are qualified electrical workers will treat these spaces as “enclosed spaces” and follow non-entry rescue provisions.

5. In some situations a boom is allowed for retraction from an enclosed space. Refer to Safety Procedure I-902 for more information.

6. Steel cable or wire rope for non-entry rescue is prohibited.

5.3 Equipment Safety Inspection

1. Inspect underground facilities (manholes, vaults, hand holes, splice boxes, junction boxes, pad mount transformers, switchgear and submersible equipment, etc.) each time a crew performs work at one of these facilities. All separable components in these facilities shall be inspected by infrared instrumentation. A National Grid representative can provide details from the

National Grid EOP-UG001 *Infrared – Non-Contact Thermometer Inspection Requirement for Underground Equipment* for more information.

2. The infrared (IR) thermometer or camera shall, at a minimum, have a range of -25°F to 1400°F with a plus or minus 1% accuracy. For more details and current operating procedures, contact a National Grid representative regarding EOP UG001.

3. The format for data collected shall follow the National Grid EOP UG006 *Underground Inspection and Maintenance* requirements. Please contact a National Grid representative for more information.

4. "Touch Potential" testing of metal street lighting poles is required as a part of any maintenance work. For more information, a National Grid representative can provide a copy of the National Grid EOP G016 *Elevated Equipment Voltage Testing* and National Grid Work Methods Bulletin #04-26 *Touch Potential Testing of Metal Street Lighting Poles.*

5. Touch Potential testing results shall be recorded on the job safety brief and the manhole inspection form which shall be given to the National Grid Construction Supervisor or designee.

6. All contractors working for National Grid shall use materials and equipment in accordance with the manufacturing guidelines. It is the contractors' responsibility to understand the manufacturers' limits and prescribed use of their tools and equipment before each use.

7. Workers shall test and verify that the underground cable is de-energized and guillotine the cable if needed from outside the hole. Rubber gloves shall be worn at all times while performing this task.

6.0 OVERHEAD LINE WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to overhead line work.

6.1 PPE Requirements

All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0. In addition, contractors will follow ground-to-ground and cradle-to-cradle use of rubber gloves while performing work on energized overhead lines. Any foreign wire, including those on a pole or structure constitutes

an energized source and requires the use of rubber gloves (ex: Cable TV, telephone, fire alarm wire, etc.).

6.2 Fall Protection

All contractors who climb structures such as wood poles or transmission towers shall utilize enhanced fall protection equipment (fall arrest devices) and techniques (ex: *Buckingham Buck-Squeeze, Miller StopFall* or *Jelco Pole Choker*). When working on wooden and steel structures, a full body harness and lanyard shall provide 100% fall protection at all times (100% tie off, Shepperd's Hook, etc.). Climbers shall never be allowed to drop or slide down a pole or structure more than two feet.

Exceptions to fall protection shall be in accordance with Federal & State requirements.

6.3 Pole/Structure Inspection

Contractor shall ascertain the structural integrity of the pole or other structure prior to installation, removal, repair or modification of the equipment on the structure.

1. Prior to climbing any pole, an inspection and test of the condition of any pole being climbed shall be performed. The weight of the employee, the equipment being installed and other working stresses (such as the removal or re-tensioning of conductors) can lead to the failure of a defective pole or one that is not designed to handle the additional stresses.

2. If the pole is found to be unsafe to climb or to work from, it must be secured so that it does not fail while an employee is on it. The pole can be secured by a line truck boom, by ropes or guys, or by lashing a new pole alongside it. [29 CFR 1910.269(q)] If measures cannot secure the pole, the contractor must cease operations and notify the National Grid Construction Supervisor or designee

6.4 Electrical Work Methods

1. Jumpers of any type shall not be used to keep transformers, risers or transformer banks energized for the purpose of changing potted porcelain cutouts. A National Grid representative can provide information to the National Grid Electric Operation Procedure (EOP) D001 *Cutouts – Open Type* for more information.

2. Potted porcelain cutouts must be changed out when work is being completed on a pole even if this is not planned in the scope of the work provided.

3. Properly rated and inspected slings, chains or tongs shall be utilized to move poles and equipment. Winch lines must not be wrapped around poles or looped around transformer ears to lift without a sling or chain.

6.5 Transmission Overhead Lines

1. For work on transmission circuits, red tape shall be placed around any energized pole, pole structure, or tower adjacent to the de-energized line.

2. When one circuit of a double circuit pole or tower line is de-energized for work, a red or orange flag shall be placed on the energized side of the pole or tower nine feet below the lowest energized conductor. In addition, a red or orange flag shall be placed on the lower cage on the side toward the energized circuit at each arm level as employees work on them or pass them.

3. All contractors using ATV's, UTV's or RTV's for transmission or forestry work, are required to follow all local OHRV requirements for PPE and driving safety. Training shall include classroom and in-field instruction as well as a formal driving assessment on an annual basis for each type of vehicle planned for use: i.e. UTV specific training for UTV's and ATV specific training for ATV use. All contractor employees must be fully trained and qualified before use. Proof of individual operator training certifications for each operator shall be available at all times. US DOT rated helmets and safety glasses/goggles are required for any vehicle that does not have a seatbelt and a roll cage. In equipment with a roll cage and seatbelt, operators can utilize a hard hat and chin strap.

4. At the end of each day, unless other arrangements have been made for an extended outage, grounds will be removed and the National Grid project representative will be notified that all personnel are "clear" of the conductor bus work and equipment.

5. Wherever transmission line workers "touch" wires, a personal ground shall be installed at the work area to establish an equipotential zone, unless workers are engaged in live-line barehand work (29 CFR 1926.964)

7.0 SUBSTATIONS

In addition to the other requirements referenced in this document, this section covers requirements that are specific to substations work.

For additional information, a National Grid representative can provide a copy of the National Grid Substation Maintenance Procedure SMP 499.01.2 *Protective Grounding Procedure* under the Substation Work Methods Grid:home page for specifics regarding substation grounding practices.

Grounding plans for substation, major distribution and transmission projects will be submitted to the National Grid construction supervisor a minimum of 1 week prior to construction for review. This plan will show the steps, work area limits and ground cable size and amount. Once reviewed with the National Grid and prior to starting the job, the plan will be reviewed by the contractors with all employees and subcontractors on the project.

The use of an “Equipotential” step/platform or a conductive mat is required for access and egress from the following:

a. Crane or any other equipment, including aerial lift equipment, that is connected to the substation ground grid and/or bonded to transmission line conductors when working outside of the station fence
b. In the rights-of-way
c. In areas inside the substation where there is no ground grid present.

When work is performed inside the substation and there is a ground grid available, the “Equipotential” step/platform or conductive mat is not necessary.

All vehicles shall be grounded and barricaded per OSHA standards and the National Grid Electric Operating Procedure G026 *Mechanized Equipment Grounding*.

Proper clearances shall be maintained from adjacent energized substation bus, energized portions of substation equipment and other transmission lines at all times.

Use of proper insulated tooling (shotguns and sticks) shall be utilized per NECA standard maintaining MAD.

7.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. Contractors who perform any ground breaking activities in a substation within a pre-marked area will require Dig Safe marks to be in place; otherwise, the job must be suspended and the National Grid construction supervisor or project representative shall be notified of the condition.

3. When using non-insulated man-lifts, and if provided by the manufacturer, a secure point of attachment for lifelines, or lanyards or deceleration devices shall be utilized, independent of the means to support or suspend the employee. Workers feet shall also always remain on the floor.

7.2 Notification of Control Authority When Entering a Substation

1. When a contractor enters and exits a National Grid substation, the contractor shall ensure that the System Control Center is notified. While work is being conducted, gates must be monitored at all times or the gates shall be locked. For more information, contact a National Grid representative regarding National Grid EOPG022 *Substation Security*.

2. Unescorted entry in substations can only be provided to contractors who provide assurance that their employees and subcontractors are electrically qualified as specified in 29 CFR 1910.269. Refer to Section 4.0 of this document

3. All National Grid specifically identified bulk power stations will require NERC-CIP training, certification and approval prior to entry to those sites.

7.3 Substation Work Area Identification (SWAI)

1. Contractors who will be working in substations shall follow the SWAI procedure. National Grid will provide a copy of this procedure if required by the project. For more information, contact a National Grid representative regarding National Grid SMP499.10.2 *Substation Work Area Identification Procedure*.

2. Qualified contractors as referenced in section 4.8 of this document shall install their own work area identification. National Grid shall arrange work area identification for non-qualified workers as required.

3. Designated storage areas for items not being used will be posted in the yard and should be the only place these items are kept.

8.0 GAS OPERATIONS WORK

In addition to the other requirements referenced in this document, this section covers requirements that are specific to Gas operations work. For more information, contact a National Grid representative regarding National Grid General Safety Requirements SHE1001 *Gas Policy* which can be found following this link:
http://dc-gasweb1/MelSite/WMSafetyAll.asp .

8.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. The contractor shall wear all appropriate PPE and Class 2 rubber gloves for personal protection when digging or probing within 2 feet of known electrical conductors and when the location of energized conductors is unknown.

8.2 Gas Operations

1. Any contractor who performs covered tasks shall be operator qualified (OQ) as defined in the DOT Title 49 CFR, Subpart N and all applicable state requirements pursuant to the state the contractor is working in. Additionally, any qualifications of contractor employees shall be in full accordance with the Company's Operator Qualification written plan, (OQ Plan) Refer to the most current list of covered tasks in accordance with National Grids' Operator Qualification Program and the Northeast Gas Association, (NGA).

    a. The Operator Qualified status of contractor employees must be regularly updated and accessible through the ISN system. This listing must detail employees' current tasks they are qualified for, the next recertification date, associated documentation and a documented annual acknowledgement in ISN on their qualified workers as referenced in section 3.1 of this document.

    b. Contractor personnel involved with covered tasks may require certification by National Grid and an orientation of the involved tasks and National Grid Company standards. National Grid reserves the right to validate contractor qualifications prior to performing Live Gas work.

    c. Atmospheres are to be tested with a properly calibrated Combustion Gas Indicator (CGI) or Gas Measurement Instrument

(GMI) in accordance with National Grid excavation procedures as required.

d. Each employee in an excavation shall be protected from cave-ins by an adequate protective system, such as sloping, benching or an appropriate shoring system. For more information, contact a National Grid representative regarding National Grid Safety Procedure M-1301 *Standards for Working in Excavations.*

9.0 FORESTRY AND VEGETATION MANAGEMENT

In addition to the other requirements referenced in this document, this section covers requirements that are specific to vegetation management work.

9.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. Flame Resistant Clothing is not required per the applicable OSHA Forestry standard. Forestry contractors must instead wear natural fiber clothing when working within 10 feet of energized equipment.

3. Forestry contractors must wear a properly adjusted full-body fall protection harness connected to an appropriate lanyard when working from an aerial lift. The lanyard must connect to an attachment anchored to either the boom or bucket mounting hardware. Attachment points anchored through only the fiberglass portion of the bucket are not acceptable.

4. Forestry contractors will be required to wear chaps while operating a chainsaw or when assisting and/or working in close proximity to a chainsaw that is being operated.

5. Saws shall not be left unattended with the engine running.

6. When a contractor employee carries a saw, the engine shall be off and/or covered or the saw shall be carried with the blade to the rear and locked.

7. Tree crews will not be allowed to fly their buckets in between the primary and secondary cables if the MAD will be violated in process of doing so.

9.2 Equipment and Work Methods

1. Forestry contractors shall utilize fiberglass sticks and stick saws for work around energized equipment. Additionally, integrity tests shall be performed and documented annually. Test results and expirations shall be available on each vehicle as needed.

2. Forestry contractors shall perform and document dielectric testing of all aerial units annually. Test results and expirations shall be available on each vehicle as needed.

3. For lump sum or unit price mileage trimming projects, a single foreman may supervise up to four (4) bucket trucks on the same project. The minimum qualifications for the "lead" person on each of the other trucks shall be a Journeyman Tree Trimmer or equivalent (Qualified Line Clearance Tree Trimmer). At least one other employee on the truck shall be an OSHA defined, Qualified Line Clearance Tree Trimmer Trainee. For Upstate New York only, it is understood that a Qualified Line Clearance Tree Trimmer shall carry the title, wage and benefits as outlined in IBEW LU 1249's existing contract of a Journeyman Treeman and that a Qualified Line Clearance Tree Trimmer Trainee shall carry, at a minimum, the title, wage and benefits as outlined in IBEW LU 1249's existing contract of a Treeman Trainee, 2nd year.

9.3 Training

1. Forestry contractor management will be required to attend safety council meetings hosted by National Grid as required. The contractor shall ensure that all appropriate safety personnel for the National Grid territory are in attendance.

2. Forestry contractors shall implement and provide the required training and certification programs necessary to provide OSHA defined Qualified Line Clearance Tree Trimmers or Qualified Line Clearance Tree Trimmer Trainees. Contractors shall be able to provide the documentation relative to these training and certification programs upon request by National Grid. Forestry contractors shall provide an updated HASP by April 1st of each year for all work being conducted at National Grid.

3. All contractors using ATV's, UTV's and RTV's for transmission or Forestry work are required to follow all local OHRV requirements for PPE and Driving safety

10.0 LNG PRODUCTION, TRANSPORT AND HANDLING

In addition to the other requirements referenced in this document, this section covers requirements that are specific to LNG Production facilities.

All contractors working at LNG plants will sign in and out of plants daily in the contractors log book. All other gas supply facilities and subcontractors require authorization under the contractor management official. If required by the project, trained National Grid plant personnel shall initially, and as needed, review and re-issue as needed, a work permit process which shall which describe the work being performed, valves with their locations and Lock-out/Tag-out numbers.

10.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0 and shall include FR outer clothing.

2. Cryogenic protective gloves/gauntlets and face shields are required when making connections to load / unload LNG. National Grid retains the right to enhance PPE requirements as conditions warrant. The use of additional PPE shall be based on the task performed and the PPE matrix for work in production plants.

10.2 Training

1. Contractors who transport LNG/propane at National Grid facilities are required to be certified in first aid/CPR and are required to complete frost-bite awareness training. Documentation of training records shall be maintained in the ISN system.

2. National Grid expects contractors working at LNG plants to meet the requirements of 49 CFR 193 Subpart H for health, training or experience and/or any applicable National Grid procedures that supersede the above requirements. Contractors shall provide documentation on their qualified workers, as referenced in section 3.1 of this document.

3. All Contractor personnel performing work in LNG plants must meet the requirements of the National Fire Protection Association (NFPA), part 59.

11.0 ELECTRIC GENERATION

In addition to the other requirements referenced in this document, this section covers requirements that are specific to Electric Generation.

11.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0

2. Hearing protection is required when working anywhere inside a generation plant and/or outside the plant where noise may be excessive. Acoustic barriers shall be maintained by the contractor as needed.

3. Safety shoes with a minimum height of six-inches are required in Generation plants.

4. Contractors working in generation plants are required to wear 8-Cal clothing protection. For additional guidance, a National Grid representative can provide reference to Electricity Distribution Operations Grid:home webpage under Electric Generation's Policies and Procedures EGO-028 *Personal Protective Clothing* & EGO-029 *Personal Protective Equipment*.

11.2 Training

1. Required training may include; PCB's, asbestos, mercury, confined space awareness and excavation competent person requirements. HAZCOM is required by contractors working in generation plants as applicable.

2. Contractors who work at a National Grid Generation Station shall attend an orientation regarding plant safety and as required, US Coast Guard Maritime Security (MARSEC) policies.

3. Equipment training is required per federal, state and local regulations and National Grid procedures. Operators of any powered industrial vehicle must be qualified and documentation shall be documented.

11.3 Equipment & Excavations

1. All excavations shall be performed in accordance with EGO-0005 *Procedure for Excavation in National Grid Generation Facilities* and National Grid Safety Procedure M-1301 *Standards for Working in Excavations.* For additional information, contact a National Grid representative for copies.

2. Gasoline and diesel powered fork trucks shall NOT be used inside the plant or other enclosed facility. Only propane/electric fork trucks are permitted except where additional hazards may exist.

3. All wood products necessary for the work must be made of flame retardant material.

11.4 Equipment Isolation

For isolation of hazardous energy sources while working in Generation plants, please contact a National Grid representative regarding EGO-0010, *Control of Hazardous Energy Sources-Work Permit System.*

12.0 CIVIL CONSTRUCTION

In addition to the other requirements referenced in this document, this section covers requirements that are specific to civil construction work.

12.1 PPE Requirements

1. All contractors shall comply with the applicable PPE and WZTC requirements referenced in Section 4.0.

2. Rubber gloves shall be worn while carrying out work in and around energized or identified direct buried lines, live duct banks, transformer enclosures, manholes, switch gear and other electrical apparatus when performing civil investigations, installations or repairs.

12.2 Enclosed Space Assessment and Ventilation

Contact a National Grid representative regarding the National Grid EOP-UG006 *Underground Inspection and Maintenance* and National Grid Safety Procedure I-902 *Enclosed Space Procedure* for more information regarding enclosed space requirements.

1. Contractors are required to follow all procedures in this document in regards to enclosed spaces (manholes, sidewalk vaults, etc.), including assessment, ventilation, entry and rescue.

2. Each enclosed space shall be tested prior to removing manhole lids and entry. Atmospheric testing shall be continuous for the duration of the entry using a calibrated, industry approved atmospheric tester.

3. When performing hot work or when indicated by atmospheric monitoring, engineering controls such as forced mechanical ventilation shall be used when working in National Grid manholes at all times.

7. All contractors who are qualified electrical workers will treat these spaces as “enclosed spaces” and follow non-entry rescue provisions.

8. In some situations a boom is allowed for retraction from an enclosed space. Refer to Safety Procedure I-902 for more information.

9. Steel cable or wire rope for non-entry rescue is prohibited.

12.3 Equipment Safety Inspection

All contractors shall comply with the applicable equipment safety inspection procedures referenced in Section 5.3

12.4 Excavation Requirements

All excavation work shall be performed under the control of a competent person. All soils in National Grid territories are to be considered class “C”, considered unstable and shall require all excavations be performed in accordance with OSHA 1926.651, EGO-0005 *Procedure for Excavation in National Grid Generation Facilities* and National Grid Safety Procedure M-1301, *Standards for Working in Excavations.* For more information, contact a National Grid representative for a copy.

Crews that are performing Excavations shall include an excavation log with their job brief that states the soil type, expected depth and length as well as final depth and length. All required steps need to prevent collapse will be documented on this form as well prior to entry.

Protective systems shall be used for certain manhole installations. These scenarios are covered below:

- The hazard assessment, competent person and/or National Grid supervisor deems it necessary
- If an excavation for a manhole in a roadway is completed and installation of manhole and backfill is not able to be done before the day is complete, a protective system will be required before road plating
- Installation of any manhole 3 way or greater in size/

Where trench boxes are required to be built on site, the contractor shall submit a PE stamped plan and the location shall be designated on the excavation drawings.

All lifts (not limited to materials and equipment) shall be planned and rigged by a competent person. A lift plan shall be provided for all “critical lifts” and must be submitted by a qualified professional to the National Grid representative prior to the lift taking place.

12.5 Cable fault finding and replacements

For excavation work needed to support faulted cables and emergency cable locates, the use of Cable Avoidance Tooling (CAT) shall be used in addition to Dig Safe requirements as an added safeguard to further pin point unidentified buried cables.

For excavations within the tolerance zone, all hand digging in and around direct buried cables shall require basic PPE, non-metallic handled shovels, rubber gloves, FR clothing and EH rated work boots with Dielectric (DI) over shoes.

All excavation equipment shall be grounded in accordance with NG EOP G026. For additional information, contact a National Grid representative.

The use of GPR (Ground Penetrating Radar) shall also be required to verify the Dig Safe/811 locates after award of the project and prior to excavation. This shall include electric URD, UCD and Substation projects.

12.6 Technical Review

Where and when applicable, all trench and excavation work shall be reviewed and stamped by a civil PE in the state of record and will be executed under the supervision of a trenching and excavation competent person. All leading edges of trenches and excavations shall be appropriately demarcated, clearly posted and controlled to prevent unauthorized persons from entering and inadvertently falling into the excavation. All trenches and excavations shall be closed as soon as practical/possible. All excavations shall be fully controlled for the duration of the exposure by adequately substantial means to withstand the environment and conditions expected to be present.

All pot holing/test holing and exploratory excavations shall utilize vacuum excavation whenever near known underground utilities or hazards, and when the potential for unknown hazards such as live electrical or gas conveyances exist. When using vacuum extraction in combination with air blowing/air knife tools, all persons in the immediate area shall be wearing safety glasses in addition to a full face shields.

13.0 CONSTRUCTION PROJECTS AT CONTAMINATED SITES

In addition to other requirements referenced in this document, all work on contaminated sites must be conducted per the requirements of 29 CFR 1910.120, including the worker qualification and training requirements of 1910.120(e).

14.0 AVIATION

1. Helicopter Crews of two or more shall perform a preflight documented job brief.

2. Helicopter work shall require the use of aviation helmets for both the pilot and passengers.

3. Helicopter pilots and passengers shall participate in the "Flying in the Wire and Obstruction Environment" training prior to flight.

4. Helicopter pilots shall meet the following minimum flight time experience:
    a. 2000 hours as Pilot in Command or Second in command of a rotor craft
    b. 1000 hours in a turbine rotorcraft / helicopter
    c. 100 hours in a helicopter of the make and model to be utilized at National Grid
    d. 300 hours flight time in Wire Environments

For more information, contact a National Grid representative for a copy of EOP T012 *Helicopter Utilization & Notifications.*

15.0 TRANSPORTATION RISKS

Contractor shall define transportation related activities that can have potential process safety consequences. National Grid shall determine if additional risk assessment is needed and contractor shall participate in the assessment. Contractor shall modify their process to mitigate risk that is determined to be intolerable.

APPENDIX A: NATIONAL GRID CONTRACTOR RISK MATRIX

National Grid Contractor Risk Matrix			
Category	**Description of Work**	**Impact of Work**	**Examples to be included in this category (including, but not limited to)**
Medium / High Risk Exposure **Tier I** **Inclusion in ISN Program is Required**	Physical Work, activity, or service that is performed on National Grid property site or is performed off-site where Owner Client has responsibility and is liable for work performed. Includes, but is not limited to, any activity requiring confined space entry, elevated work, work on operating systems involving hazardous energy, work on contaminated sites, and most work requiring a general work permit, hot work permit, or confined space permit.	Work, activity, or service having: • A potential for causing a catastrophic operational incident; • Access to operations; and/or • A direct role in site operations or maintenance, where failure could result in serious harm to employee or public well-being, company assets, or the environment Also includes any Contractor personnel's job function which has no direct or very limited supervision for operational checks.	• Maintenance, Construction and demolition contractors • Chemical cleaning, tank cleaning • Electricians and Instrumentation Technicians • Movers • Welding • Heavy equipment operations • Well drilling and testing • Environmental investigation, remediation, monitoring activities • Hazardous waste handling and/or transport • Excavation • Food service and handling • Equipment Inspection (e.g., X-ray & other NDT) • On-site sampling / gauging activities (not including escorted storm water sampling) • Common carriers transporting Owner Client-owned LNG or petroleum products • Landscaping services • Snow Removal • Janitorial services

			• Vacuum truck affecting/involving process operations • Oil Spill Response Organizations (OSRO) • Work conducted in a high-risk area (i.e. substations, LNG plants, etc.) • Working at elevations greater than 4 ft (includes, but is not limited to): ○ Working in buckets (includes technical advisors) • Working on ladders (straight ladders, extension ladders or step ladders taller than 4ft)
Low Risk Exposure **Tier II** **Inclusion in ISN Program is NOT Required**	Work that is office based such as: • Consultants that do not perform work or activities as described in the Medium/High Risk exposure category • Offsite services • On-site vendor pick-up/delivery and repair services • Work performed by public and private utilities	Work, activity, or service having an indirect role and no, or limited, access to operations or maintenance where failure could result in serious harm to employee or public well-being, company assets, or the environment.	• Mail/package/part delivery or pick-up (e.g. UPS, Fed EX, vendor-specific) • Samples pick-up by laboratory/courier • Office machine servicing (copiers, printer, computer, etc.) • Laboratory apparatus servicing • Storm water Sampling Labs/Contractors (When Escorted by Owner Client personnel) • Deliver/supply services (vending machine, bottled water, laundry) • Municipal waste pick-up • General trash removal services • Off-site repair/fabrication shops (such as pump, safety valve, piping, vehicle)

	• Personnel on-site with Visitor Status, when escorted		• Telephone, electric, local municipal utility services • Regulatory representatives • Technical representatives • Engineering services (when escorted by Owner) • Auditors
A SHE VP can require any contractor to be part of ISN when deemed as a potential risk to National Grid			

Appendix B

Community Air Monitoring Plan

Community Air Monitoring Plan
Williamsburg Works Site Parcels 3 and 4

In accordance with NYSDEC and NYSDOH requirements for a Community Air Monitoring Plan (CAMP), a perimeter air-monitoring plan will be implemented at the site during each phase of the field activities. The objective of the perimeter air-monitoring plan is to provide a measure of protection for the downwind community (i.e., off-site receptors, including residences and businesses and on-site workers not involved with the site field activities) from potential airborne contaminant releases as a direct result of field activities. The perimeter air-monitoring plan is a stand-alone document and will be available on site. The VOC Monitoring, Response Levels, and Actions are presented as follows.

Air Monitoring Response Levels and Actions

VOCs

Response Level	Actions
>5 parts per million (ppm) above background for 15-minute average	▪ Temporarily halt work activities ▪ Continue monitoring ▪ If VOC levels decrease (per instantaneous readings) below 5 ppm over background, work activities can resume
Persistent levels >5 ppm over background <25 ppm	▪ Halt work activities ▪ Identify source of vapors ▪ Corrective action to abate emissions ▪ Continue monitoring ▪ Resume work activities if VOC levels 200 feet downwind of the property boundary or half the distance to the nearest potential receptor is <5 ppm for a 15-minute average ▪ If VOC levels are >25 ppm at the perimeter of the work area, activities must be shutdown

Particulates

Response Level	Actions
>100 µg/m^3 above background for 15-minute average or visual dust observed leaving the site	▪ Apply dust suppression ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving site
>150 µg/m^3 above background for 15-minute average	▪ Stop work ▪ Re-evaluate activities ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 µg/m3 above upwind levels and no visual dust leaving site

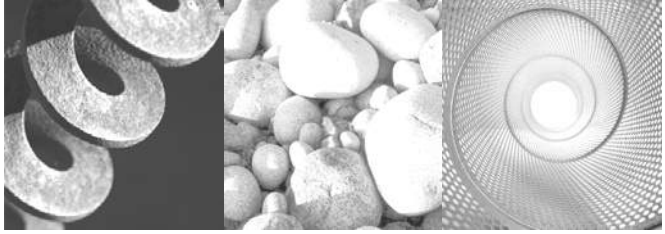
Sources:

New York State Department of Health Community Air Monitoring Plan, June 20, 2000

New York State Department of Environmental Conservation Division Technical and Administrative Guidance Memorandum – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 27, 1989.

Appendix C

Field Sampling Plan



GEI Consultants

Consulting
Engineers and
Scientists

Field Sampling Plan
Parcels 3 and 4 Portion of the Williamsburg Works Site

Brooklyn, New York
AOC Index No. A2-0552-0606
Site #: 224055

Submitted to:
National Grid
One MetroTech Center
Brooklyn, NY 11201

Submitted by:
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July 2021
Project 093060

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Section 1

Introduction

STANDARD OPERATING PROCEDURE

1. Introduction

This document presents the Standard Operating Procedures (SOPs) for the Atlantic and New England Regions of GEI Consultants, Inc. (GEI). The primary intent of the document is to promote consistency in application of Standard Operating Procedures (SOPs) for environmental field and some office operations. Application and use of SOPs will be considered and may be discussed in annual staff reviews.

This SOP document encompasses a broad range of activities to improve the planning, implementation, and documentation of most environmental field and some office operations. The methodologies presented in this manual may not be applicable to site-specific situations. If you are uncertain about a procedure, confirm its adequacy with the project manager, client, and/or regulatory bodies to confirm that procedures are consistent with their expectations.

The document is organized according to the chronological sequence of typical work flow proceeding from project setup to field activities, data collection, and report preparation tasks.

Two types of documents are contained herein:

- General Guidance Procedures – Documents intended to be informative and not prescriptive. These documents are designed to provide necessary background information to adequately understand the process.
- Standard Operating Procedures – Documents intended to describe standard procedures and limitations.

2. SOP Layout Design

2.1. Header Information

- Each SOP contains within its name a two letter abbreviation of the general category in which it belongs (i.e. RE-001 means it is in Site Reconnaissance). The table of contents provides the definition for each abbreviation. The SOP name and number is provided in the header and footer of the document. The revision number is provided in the header of each SOP.
- The effective date is provided in the header of each SOP. The effective date provides the date when the revisions to the SOP are in effect and provides information as to the last time the SOP was updated. Each SOP should contain the most up-to-date version and effective date.

2.2. Footer Information

- Each footer contains the page number and total page numbers as well as a second reference to the SOP name. This should help organize and collate pages.

2.3. Body of Text

- Limitations are provided to describe precautions or common issues associated with the performance of the procedure.
- References provide sources consulted for development of the SOP.
- Attachments provide reference to external documentation that should be reviewed in conjunction with the SOP.
- At least one contact person is provided at the bottom of each SOP. These people should be contacted with any questions or comments on the particular SOP. The contact can clarify the SOP or edit as necessary.

2.4. Process for editing/updating SOPs

Should you need to make a global change to an existing SOP, the current .pdf version can be found on the Intranet.

In order to make your changes, you will need to request a WORD copy of the SOP from Andrea Hippler or Ryan Hoffman. Once you have made your changes, the SOP should be e-mailed to Andrea Hippler and Ryan Hoffman with a note as to what changed.

This document has been provided to all staff performing environmental field tasks for GEI's Atlantic and New England Regions.

3. Attachment

Attachment A – Acronym List

STANDARD OPERATING PROCEDURE

Abbreviations and Acronyms

AOC	Area of Concern
ASTM	American Society for Testing and Materials
BOD	Biological Oxygen Demand
BTEX	Benzene, Toluene, Ethyl Benzene, Xylenes
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Cleanup, and Liability Act
CFR	Code of Federal Regulations
COC	Chain of Custody
DL	Detection Limit
DNAPL	Dense Non-Aqueous Phase Liquid
DO	Dissolved Oxygen
DQO	Data Quality Objectives
EC	Engineering Controls
EIS	Environmental Impact Study
EPA	Environmental Protection Agency
FID	Flame Ionization Detector
FS	Feasiblity Study
FWRIA	Fish and Wildlife Resources Impact Analysis
GAC	Granular Activated Carbon
GC/MS	Gas Chromatograph/Mass Spectrometer
GFAA	Graphite Furnace Atomic Absorption Spectrometry
GIS	Geographic Information Systems
GPR	Ground-penetrating Radar
HASP	Health and Safety Plan
HOC	Halogenated Organic Compound
HDPE	High Density Polyethylene
HPLC	High Pressure Liquid Chromatography
HSO	Health and Safety Officer
IC	Institutional Controls
ICP	Inductively Coupled Plasma Atomic Emission Spectrometry
IDW	Investigation Derived Waste
LEL	Lower Explosive Limit
LNAPL	Light Non-Aqueous Phase Liquid
MCL	Maximum Contaminant Level (for EPA Drinking Water Standards)
MDL	Method Detection Limit
MGP	Manufactured Gas Plant
MSDS	Material Safety Data Sheet
NAPL	Non-aqueous Phase Liquids

NCP	National Contingency Plan
NPL	National Priority List
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
QHHEA	Qualitative Health and Human Exposure Assessment
RAO	Remedial Action Objectives
RAP	Remedial Action Plan
RCRA	Resource Conservation Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RFP	Request For Proposal
RP	Responsible Party
SARA	Superfund Amendments and Reauthorization Act
SCGs	Standards, Criteria, and Guidance
SMP	Site Management Plan
SOP	Standard Operating Procedure
SOW	Scope of Work or Statement of Work
SPLP	Synthetic Precipitate Leaching Procedure
STEL	Short-Term Exposure Limit
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Indentified Compound from Mass Spectrometry
TOC	Total Organic Carbon
TOSCA	Toxic Substance Control Act
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
USGS	United States Geologic Survey
VOC	Volatile Organic Compounds
WP	Work Plan
XRF	X-Ray Fluorescence

MEASUREMENTS

ppm	Parts per million
ppb	Parts per billion

ppbv	Parts per billion by volume
ppmv	Parts per million by volume
bgs	Below Ground Surface
msl	Mean Sea Level
ppbv	Parts per billion by volume
µg/L	Microgram per liter
µg/Kg	Microgram per kilogram
µg/m3	Microgram per cubic meter
mg/L	Milligram per liter
mg/kg	Milligram per kilogram
Mf/L	Million fibers per liter

Section 2

Pre-Mobilization Activities (PM)

STANDARD OPERATING PROCEDURE

PM-001 Utility Markout and Clearance

1. Objective

Describe typical utility markout/clearance procedures prior to and during excavation. All markout procedures should be performed in accordance with local and state regulations.

Many states, by law, require that utility companies are notified before excavation begins. Actual procedures and requirements differ by state. City/state government may have additional requirements for utility markout procedures. Check the requirements in the locality before beginning. Also check with the GEI project manager to determine whether it is most appropriate for GEI or the drilling/excavation subcontractor to handle mark out and clearance.

2. Execution

Public Utility Markouts

- The drilling/excavation locations should be marked with white paint, stakes, or flags.
- The contractor should call the appropriate one call communication network for the state the work is being conducted in. Refer to the Reference section in this SOP for contact information. Contractors shall provide all necessary information to the one call system. Sample location maps may be provided to clarify sampling locations. The contractor shall provide GEI with the utility clearance ticket number.
- If necessary, contact the municipalities or other utility owners to mark their water, sewer, or other lines if they do not belong to the one call system. The contractor should keep a record of these calls.
- Utility plans, if available, should be obtained from the property owner or municipal offices.
- Prior to excavation, a visual check should be made that all utilities companies and municipalities have marked their locations. This includes looking for signs that a utility exists, and verifying that the markings agree with a visual check. If they do not, contact the appropriate utility to remark their locations.
- Utilities will generally only markout and clear utilities in roadways or other public property up to the property boundary. Owners of fiber optic cables, natural gas pipelines, and other high hazard utilities will often markout on private property if requested. The contractor should request this. See section on private utility clearance below.
- Public agencies, utilities, contractors, other associations, manufacturers and all others involved in excavation should adopt the American Public Works Association (APWA) Uniform Color Code using ANSI standard Z535.1 Safety Colors for temporary marking and utility identification, as follow:

The APWA Uniform Color Code

1. **White** – Proposed Excavation
2. **Pink** – Temporary Survey Markings
3. **Red** – Electric Power Lines, Cables, Conduit and Lighting Cables
4. **Yellow** – Gas, Oil, Steam, Petroleum & Gaseous Material
5. **Orange** – Communications, Alarm or Signal Lines, Cables or Conduit
6. **Blue** – Potable Water
7. **Purple** – Reclaimed Water, Irrigation and Slurry Lines
8. **Green** – Sewers and Drain Lines

However, not all organization do use these colors. Make sure the color scheme is understood.

- The excavator/contractor and consultant begins work on the scheduled work date and time (if all the facility operators have responded) taking care to find and preserve any markings that have been made.
- If markings may be disturbed during work, establish offset marks to create reference points for the underground utilities. Take photographs of the markings before starting work.
- When digging near a buried utility, the excavator/contractor and consultant should be aware of their proximity to the utility and use caution.
- If there is uncertainty about the accuracy of the markings or there are too many utilities in a given location to excavate or drill safely, consideration should be given to hand-digging the first few feet, vacuum excavation, or use of a utility location company as detailed below in Private Utility Markouts.
- Some clients may require hand or vacuum clearance to a minimum depth. Check with the GEI project manager.
- If exposing a utility, the excavator/contractor should provide proper support and protection for the utility to prevent damage. Contact the utility operator for support, guidance, or assistance.
- When the excavation is complete, the excavator/contractor should provide proper backfill for any utilities that have been exposed.

Private Utility Markouts

- Utility markouts on private property should follow the steps outlined above in public utility markouts with the additions below.
- If work is conducted on private property where public utilities may not provide markouts and the property owner cannot provide accurate utility plans, it is

recommended to use a company to determine the utility locations using one or more of the following technologies:

i. Electro-Magnetic (EM) device: This technology uses an electro-magnetic field in the subsurface to accurately locate metallic lines or non-metallic lines incorporating a metallic trace wire along their surface. The field is created either by direct contact to the pipe or tracewire, or by an induced current via radio waves.
ii. Sewer Sonde: For non-metallic lines where internal access is possible (such as clean-out ports in a sewer), a beacon or 'sonde' that emits a signal to the surface receiver as it is snaked through the pipe provides the same accuracy as the EM detector. If the internal condition of the pipe is desired, a camera can be deployed instead of a simple sonde.
iii. Ground Penetrating Radar (GPR): This technology involves radar waves reflecting to a surface receiver which provides a visual real-time map of the subsurface by which anomalies (such as pipes or tanks) may be detected. It has limitations in clay or wet soils and requires a skilled operator for interpretation. GPR should be considered for high risk utilities (e.g. PVC natural gas lines without trace wire) where line-of-sight project from site entry point to a kiosk or other building is uncertain.

- Utility markout on private property should include clearance for other types of underground structures such as underground storage tanks, septic systems, utility or access tunnels, and in-ground irrigation systems.

3. Limitations

- Markout notification time usually does not include holidays. Make sure holidays are considered and markout time is scheduled accordingly. Do not conduct excavation or drilling prior to the required wait time. Do not mark excavation locations using spray paint if it is raining or snowing enough so that the paint markings will be washed away. Consider using long stakes instead of paint if snow is predicted. Excavations within the tolerance zone should be performed with non-powered hand tools until the marked utility is exposed. The tolerance zone may be determined by the utilities, law or codes.
- When excavating close to an underground utility, it is good practice for the contractor/excavator to have a spotter assist and guide the machine operator.
- Take care not to damage the conduit or protective coating of a utility. If the excavator/contractor damages this, leave the damaged utility exposed and immediately call the utility owner.
- If contact to a gas utility occurs, notify police, fire, and emergency personnel, and evacuate employees and general public. No attempt should be made to tamper with or correct the damaged utility.

4. References

Connecticut
Name: Call-Before-You-Dig (CBYD)
Telephone: 811 or 1-800-922-4455
Website: www.cbyd.com
Wait time after notification: 2 business days (excluding holidays)
Expiration of markout: 30 days

Massachusetts, Maine, New Hampshire, Rhode Island and Vermont
Name: Dig Safe
Telephone: 811 or 1-888-DIG-SAFE
Website: www.digsafe.com
Wait time after notification:
MA, ME, NH, and RI: 3 business days (excluding holidays)
VT: 2 business days (excluding holidays)
Expiration of markout: 30 days

New York State
Name: Dig Safely New York
Telephone: 811 or 1-800-962-7962
Website: www.digsafelynewyork.com
Wait time after notification: 2 business days (excluding holidays)
Expiration of markout: 30 days

New York City/Long Island
Name: New York City One Call Center
Telephone: 811 or 1-800-272-4480
Website: www.nycli1calldsi.com
Wait time after notification: 2 to 10 days (excluding holidays)
Expiration of markout: 30 days

New Jersey
Name: New Jersey One Call
Telephone: 811 or 1-800-272-1000
Website: www.nj1-call.org
Wait time after notification: 2 business days
Expiration of markout: 45 days

5. Attachment

Attachment A – Standard Utility Color Codes

6. Contact

Anne Leifer

SOP PM-001

Attachment A – Standard Utility Color Codes

Color Code	Utility Description
Red	Electric
Yellow	Gas-Oil
Orange	Communications
Blue	Water
Green	Sewer
White	Proposed Excavation

Section 3

Field Documentation (FD)

STANDARD OPERATING PROCEDURE

FD-001 Field Notebook

1. Objective

Describe methods for documentation of field activities.

Documentation of site activities is a crucial part of the field investigation process. The field notebook serves as the record of field activities performed or observed during the project. It provides a factual basis for preparing field observation reports, if required, and reports to clients and regulatory agencies. Example field notes are provided in Attachment A.

2. Execution

- Use a separate all-weather bound notebook for each site/location/project number. Spiral notebooks should not be used because pages can be easily removed.
- Write neatly using black or blue pen, preferably a waterproof pen. Use of pencil is also acceptable only with approval of the project manager, such as in but not limited to, certain field conditions [e.g., cold or wet weather].
- Write the project name, project number, book number (i.e., 1 of 3), and date on the front cover. On the inside cover, identify the project name, project number, and "Return Book To:" the office address of the project manager.
- Number all of the pages of the field book starting with the first entry.
- Record activities as they occur. Record only facts and observations, regardless of whether they appear to be relevant at that time.
- Identify conditions or events that could affect/impede your ability to observe conditions (e.g. snow-covered ground surface, inability to access areas of interest).
- Neatly cross out mistakes using a single line and initial them. Erasures are not permitted.
    - If an error is made on an entry in the field notebook, the individual who made the entry should make the corrections. The corrections must be initialed and dated by the person making the correction.
- Sign or initial and date the bottom of every page with an entry if the project requires such documentation.
- Place a diagonal line through unused portions of a page.
- Record the following information upon each arrival at the site:
    - Date/time/weather.
    - GEI personnel.
    - Purpose of visit/daily objectives.
    - People (client, contractor, landowners, etc.) present upon GEI arrival.

- Record the following information during the course of the day:
  - Conversations with contractors/subcontractors, clients, visitors, GEI staff, landowners (site or abutters). If possible, record complete names, titles, and affiliations.
  - Time of arrival and departure of individuals.
  - Activities as they occur.

- Additional examples of observations to record may include and are not limited to:
  - Type and quantity of monitoring well construction materials used.
  - Use of field data sheets or electronic logging equipment (e.g. boring logs, monitoring well sampling logs, etc.).
  - Ambient air monitoring data.
  - Field equipment calibration information.
  - Locations and descriptions of sampling points.
  - Contractor/Subcontractor progress.
  - Sample media (soil, sediment, groundwater, etc.).
  - Sample collection method.
  - Number and volume of sample(s) collected and sample bottle preservatives used.
  - Sample identification number (s) and date and time of sample collection.
  - Approximate volume of groundwater removed before sampling.
  - Any field observations made such as pH, temperature, turbidity, conductivity, water level, etc.
  - References for maps and photographs of the sampling site(s).
  - Information pertaining to sample documentation: bottle lot numbers/ dates, method of sample shipments, chain-of custody record numbers, and overnight shipping numbers.
  - Surveying data (including sketches with north arrows).
  - Changes in weather.
  - Rationale for critical field decisions.
  - Recommendations made to the client representative and GEI Project Manager.
  - Site sketch of conditions at the end of the day.
  - Summary of work completed/work remaining.
  - Allow time at the end of the day to complete entries in the notebook.

3. References

New Jersey DEP Field Sampling Procedures Manual, August 2005.

ASFE Daily Field Report for Geotechnical Field Observation, 2nd Edition (2001), ASFE, Inc.

4. Attachments

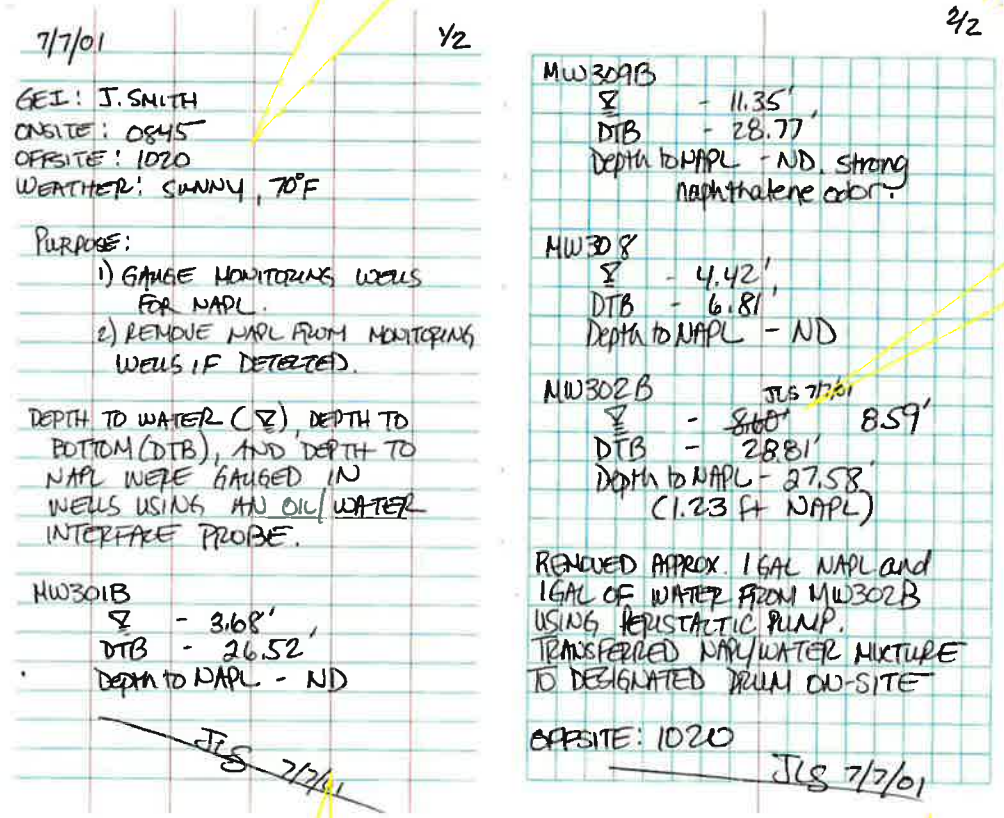
Attachment A - Example Field Notes

5. Contact

Melissa Felter
Leslie Lombardo

SOP FD-001

Attachment A – Example Field Notes



7/7/01 Y2

GEI: J. SMITH
ONSITE: 0845
OFFSITE: 1020
WEATHER: SUNNY, 70°F

PURPOSE:
1) GAUGE MONITORING WELLS FOR NAPL.
2) REMOVE NAPL FROM MONITORING WELLS IF DETECTED.

DEPTH TO WATER (▽), DEPTH TO BOTTOM (DTB), AND DEPTH TO NAPL WERE GAUGED IN WELLS USING AN OIL/WATER INTERFACE PROBE.

MW301B
▽ - 3.68'
DTB - 26.52'
DEPTH TO NAPL - ND

JLS 7/7/01

2/2

MW309B
▽ - 11.35'
DTB - 28.77'
DEPTH TO NAPL - ND. Strong naphthalene odor.

MW308
▽ - 4.42'
DTB - 6.81'
DEPTH TO NAPL - ND

MW302B JLS 7/7/01
▽ - ~~8.60'~~ 8.59'
DTB - 28.81'
DEPTH TO NAPL - 27.58'
(1.23 ft NAPL)

REMOVED APPROX. 1 GAL NAPL and 1 GAL OF WATER FROM MW302B USING PERISTALTIC PUMP. TRANSFERRED NAPL/WATER MIXTURE TO DESIGNATED DRUM ON-SITE

OFFSITE: 1020

JLS 7/7/01

Start of each day includes:
- **Date**
- **Project Number**
- **People on site**
- **Purpose of Work**
- **Weather Conditions**

Each page is numbered

Errors are single line crossed out and initialed

Blank Space crossed out and initialed

Bottom of each page signed and dated

GEI Consultants

STANDARD OPERATING PROCEDURE

FD-002 Field Observation Report

1. Objective

Describe methods to generate a Field Observation Report.

The Field Observation Report is used to record a summary of activities, observations, and decisions made during the day's field work. The daily field observation report serves as a permanent record of the day's activity for the Project Manager (PM), In-House Consultant (IHC), and/or client.

2. Execution

- If required, at the close of the day's field work, a Field Observation Report should be prepared by the individual responsible for the field notebook. This report should be completed before leaving work for the day. Contents of the report should include, at a minimum, the following information:
    - A record of person(s) present at the site, time of arrival, departure times (e.g., GEI, contractor(s), client, etc.).
    - A record of the daily objective(s) and the activities performed (e.g., drilled five borings in the overburden).
    - A summary of deviation(s) from the field plan or objectives.
    - A summary of field decisions made, who made them, and the basis for such decisions.
    - A diagram, sketch, and/or map showing the location and extent of the work or other significant observation(s) made during the day.
    - Recommendations that may result from field observations and actions that may result from implementation of those recommendations.
    - A summary listing and field sketch showing location(s) of field activity.
- Submit a draft report to the PM/IHC for review. Complete any editorial changes, sign, date, and submit the report to PM/IHC for approval/signature. Field Observation Reports should be written neatly. They are not required to be typed unless specifically requested by the PM.

3. Limitations

- The Field Observation Report is not a substitute for the field notebook.
- Not all projects require daily Field Observation Reports.
- The Field Observation Report should be based primarily on factual information. Opinions, if necessary, should be identified as such. Any speculation should be clearly noted in the report as such.

- The Field Observation Report should never be released to anyone other than the PM/IHC prior to review and sign-off unless explicitly authorized by the PM/IHC.

4. References

New Jersey DEP Field Sampling Procedures Manual, August 2005

ASFE Daily Field Report for Geotechnical Field Investigations, 2nd Edition (2001), ASFE, Inc.

5. Attachments

Attachment A - Example Field Observation Report

6. Contact

Melissa Felter
Leslie Lombardo

FIELD OBSERVATION REPORT

Project :	Guard Booth Upgrades	**Date:**	November 8, 2006
Client :	ACME Industries	**Report No.**	1
Contractor:	ABC Contracting	**Page:**	1 of 2
Subcontractor:	NA	**GEI Proj. No.**	99999-0

SOP FD-002 - Attachment A – Example Field Observation Report

Time of Arrival: 0700 **Departure: 1440** **Weather: Overcast, Raining, 55^{0}F**

Persons Contacted, Company
Jane Doe, ABC Contracting

GEI Representatives
Bill Smith

Purpose of Site Visit: To observe excavation of soils for new guard booth and sidewalk.

Observations:

1. **Excavation**
   a. Areas for guard booth and sidewalk were laid out by ABC with stakes, string, and spray paint. Locations were between the pavement and wetland area; no excavation occurred in the wetland area.
   b. Staging area for soil stockpile was located to the west of the excavation, along the fenceline; polyethylene sheeting was placed beneath the pile.
   c. HDPE membrane delivered to site; stored in garage area through the inside fence.
   d. ABC crew began hand digging area for sidewalk and guard booth. Sidewalk area measured 22 feet long by 4 feet wide by 4 inches deep. Guard booth area measured 12 feet long by 10 feet wide by 9 inches deep. Utility pole and bollard locations started today.
   e. Rain continued to get worse in the afternoon; ABC covered the entire excavation and soil stockpile with poly sheeting and secured the sheeting with grade stakes.

2. **Subgrade Preparation**
   a. Subgrade preparation for the sidewalk and guard booth areas at the site is complete.

3. **Dewatering**
   a. No dewatering occurred today.

4. **Air Monitoring**
   a. During excavation, I monitored the breathing zone of the workers with an organic vapor meter (OVM). No headspace readings were measured in soil samples S-1 through S-8.

GEI

FIELD OBSERVATION REPORT

Project :	Guard Booth Upgrades	**Date:**	November 8, 2006
Client :	ACME Industries	**Report No.**	1
Contractor:	ABC Contracting	**Page:**	2 of 2
Subcontractor:	NA	**GEI Proj. No.**	99999-0

Picture 1: Sidewalk excavation and bollard layout

By: Bill Smith	**Reviewed By:**

GEI

STANDARD OPERATING PROCEDURE

FD-003 Sample Management and Chain of Custody

1. Objective

Describe methods to label sample containers, manage the samples, and prepare Chain of Custody documentation for the samples. Sample transport is also addressed.

2. Project Setup

When setting up a sampling event, inform the recipients of the samples (laboratories) and recipients of laboratory results (data group and project managers). Discuss with the laboratory the sampling media, turnaround times, and reporting limits for appropriate regulatory criteria for the site. Include the data group on correspondence so that turnaround times, data validation, and project deliverable schedules can be tracked successfully.

- Laboratory - Number of samples, analyses needed: bottle orders and holding times, turnaround times needed, reporting limits needed for regulatory criteria.
- Data group - Number of samples, analyses requested, turnaround times and reporting limits requested, data validation needed, regulatory criteria to use for tabulating results, deliverables needed, and project name and number.
- Schedule - Inform the laboratory and Data Group of schedule delays, changes to analyses, and expediting.

3. Sampling Execution

- Review the work plan prior to sampling to determine the following:
  - Sample matrix and sampling method.
  - Required analysis and sample volumes.
  - Sample container type and preservative requirements.
  - Required analysis methods and/or report formats.
  - The turnaround time required by the project.
  - If the data will be sent directly from the laboratory to the data validator, Project Manager, or Data Group.
  - Holding time restrictions for sampling media and analytical methods.
  - Sample naming convention used for this project site.
- Sample labels should be filled out using a waterproof or permanent marker or pen. Required information includes:
  - Sample ID.
  - Date and time (military time) of sample collection.
  - Project number.
  - Sample preservatives.
  - Sampler's initials.
  - Laboratory analytical methods.

- Place the label on the jar or bottle, not on the cap. Sample custody begins at this time.
- Record the above information in the field notebook.
- Individually wrap sample jars with packing material, if needed. See SOP SC-002 for guidance on packaging samples for shipment to the laboratory by way of common carrier. Place samples in a cooler with bagged ice or freezer packs (blue ice) immediately after collection. Add sufficient ice or freezer packs to cool samples to approximately 4°C.
- Complete a chain of custody (COC) for the samples as described below. GEI or laboratory COCs may be used as long as they contain fields for all required sample information as described in Section 2.1.

3.1. Chain-of-Custody (COC) Completion

- Fill out COC neatly and in permanent ink. Alternatively, an Excel version of the GEI COC is available and can be filled out electronically.
- Certain analyses (i.e. air analysis by TO-15) require specialized, laboratory issued COCs. Make sure any specialized COCs are available before sample collection.
- Record the project name and number, the sampler's name(s) and the state where the samples were collected.
- For each sample, enter the sample identification number, date and time (military time) collected, the number of sample containers, and any additional information to fulfill project, client or regulatory requirements.
- Record the type of analysis (including laboratory method; e.g. EPA-SW846 Method XX) requested and the preservative (if appropriate) in the vertical boxes.
- Field duplicates should be anonymous to the laboratory, but must be recorded for use by the Data Group. To keep track of this information, link the field duplicate with the proper sample in the field notebook. If required by the Project Manager or Data Group, also document this information on or attach a note to the GEI copy of the COC.
- Trip blanks for large sites should be named similar to the samples they are collected with so that there are not two of the same sample name for the same site. For example, "OU1TB-122509" and "OU3TB-122509" would avoid any mistakes.
- Strike incorrect entries on the COC with a single line, followed by the initials of the person making the correction, the date, and the correct entry.
- When sample custody is ready to be relinquished, complete the bottom of the form with date and time (military time) and signatures of relinquisher and receiver of samples as indicated. The sample collector is always the first signature while the analytical laboratory is the final signature. Theoretically, all individuals handling the samples between collection and laboratory should sign the form; however, if a common carrier (i.e., Federal Express, UPS) is used for shipping, GEI must identify the carrier in the 'Received by' box on the

COC. If the sampler hand delivers the samples to the laboratory, the received box must be signed by the laboratory.

- If the samples are placed in a designated secure area (e.g. GEI sample fridge), note this location in the "Received by" box on the COC.
- GEI uses both single sheet and triplicate COCs. If using the triplicate COCs (white, yellow, and pink copies), the pink copy should be retained by the sampling personnel and provided to the Data Group for proper filing. The white and yellow copies should accompany the samples to the laboratory.
- If you are using the single sheet COC, make a copy of the COC after it has been signed by the lab courier and forward it to the Data Group.
- Prior to sample shipment by common carrier, the COC must be placed inside the cooler in a Ziplock bag or other watertight package.
- If a common carrier such as FedEx is used to transport the samples to the laboratory, include the carrier tracking number and identify the carrier in the "Received by" box on the COC.
- If a courier is used to transport samples to the laboratory (lab courier or GEI personnel), the courier signs the COC in the "Received by" box.
- Place a custody seal on the cooler if shipping via common carrier.
- Transport samples to the laboratory as soon as possible. It is preferable to transport the samples directly to the laboratory from the field. Samples brought back to the office for storage prior to submission to the laboratory must be kept cold (4° C).
- Unused sampling containers/media that are sent back to the lab should be included on a separate COC.
- After the samples are sent to the laboratory, the GEI copy of the COC must be forwarded to the Data Group: datagroup@geiconsultants.com.

4. Limitations

- Keep the number of people involved in handling samples to a minimum.
- Where practical, only allow people associated with the project to handle the samples.
- Always document the transfer of samples from one person to another on the COC.
- The COC should always accompany the samples.
- Give samples positive identification at all times that is legible and written with waterproof or permanent ink.
- When sending samples via a common carrier, use one COC per package.
- Where practical, avoid sending samples from more than one site with separate COCs in a single package.

5. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

Connecticut Department of Environmental Protection, Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory

6. Attachments

Attachment A - Example Chains of Custody
Attachment B - Shipping Info Pics

7. Contact

Leslie Lombardo

Chain of Custody Record

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484
Tel: 203-929-8140

Example COC

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: GEI	Project Manager: Dave Terry	Date: 12-31-07	Chain of Custody Number: 00452
Address: 455 Winding Brook Dr	Telephone Number (Area Code)/Fax Number: 860 368 5300 / 860 368 5307		Lab Number:
City: Glastonbury / State: CT / Zip Code: 06033	Site Contact: M. Felter	Lab Contact: Paul Hobart	Page 1 of 1
Project Name and Location (State): Carroll Gardens NY	Carrier/Waybill Number: FedEx 9383 7603 0879		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Analysis: VOC 8260B	SVOC 8270C	TO-15 + NAPHTHALENE	Special Instructions/ Conditions of Receipt
CGSB-01 (0-2)	12-31-07	1130				X	X						X	X		
CGSB-02 (3-4)	12-31-07	1250				X	X						X	X		
CGSB-02 (3-4) MS	12-31-07	1250				X	X						X	X		
CGSB-02 (3-4) MSD	12-31-07	1250				X	X						X	X		
CGSB-XX (5-6)	12-31-07	0800				X	X						X	X		
CGTB-123107	12-31-07	1400				TB				X			X			
CGGW-01	12-31-07	1430		X			X			X			X	X		
CGSG-01	12-31-07	0700-1500	X												X	CANISTER# 2613 REGULATOR# 779

BY NEW JERSEY: "CLP data package deliverables"

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other See Contract

QC Requirements (Specify): NYS Cat B ASP deliverable send to Lorie Mackinnon Send EDD to datagroup@geiconsultants.com

1. Relinquished By: Melissa J Felter	Date: 12-31-07	Time: 1600	1. Received By: FedEx Waybill 923117-4432	Date: 12-31-07	Time:
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: USED FLOW CONTROLLER FOR AIR SAMPLE INCLUDED

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

EXAMPLE COC

Chain-of-Custody Record

Laboratory: Accutest

Laboratory Job # (Lab use only)

GEI Consultants
400 Unicorn Park Dr.
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: MWRA - Low Service Storage Tank

Project Location: Stoneham, MA

Project Number: 093400

Project Manager: D. Aghjayan

Send Report to: rseigener@geiconsultants.com

Send EDD to: labdata@geiconsultants.com

MCP PRESUMPTIVE CERTAINTY REQUIRED – YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

If Yes, Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	GEI Sample ID	Collection Date	Collection Time	Matrix	No. of Bottles	Sampler(s) Initials	Preservative	PCBs	VPH Fractions Only	EPH Fractions Only	SVOCs	VOCs, % Solids**	Conductivity	RCRA 8 Metals*	TPH by GC/FID DRO
								None	MeOH	None	None	MeOH	None	None	None
	093400-LS6-S5(19'-21')	12/29/2009	9:30	SO	3	JMR			x			x			
	093400-LS6-COMP (FILL)	12/29/2009	9:30	SO	1	JMR		x		x	x		x	x	x
	093400-LS6-COMP (NATIVE)	12/29/2009	15:00	SO	1	JMR		x		x	x		x	x	x
	093400-LS8-COMP	12/29/2009	14:00	SO	1	JMR		x		x	x		x	x	x
	093400-LS9-S4 (8'-8'-5")	12/30/2009	14:30	SO	3	JMR			x			x			
	093400-LS9-COMP	12/30/2009	15:00	SO	1	JMR		x		x	x		x	x	x

Sample Handling

Samples Field Filtered
YES NO NA

Sampled Shipped With Ice
YES NO

Sample Specific Remarks

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
1. Joseph M. Pigeon	12/30/09	16:30	1. GEI FRIDGE
2. GEI FRIDGE	1/4/10	1310	2. Naomi Gleyzer
3. Naomi Gleyzer	1/4/10	1310	3. [illegible]
4.			4.

Turnaround Time (Business days):

Normal _X_ Other ____

10-Day ____ 7-Day ____

5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Please use MA Landfill List

* Please run TCLP analysis for RCRA 8 Metals results that exceed the 20 times rule.

** Please use % solids sample for VOC and VPH analysis of 093400-LS6-COMP (FILL), 093400-LS6-COMP (NATIVE), 093400-LS8-COMP, and 093400-LS9-COMP

Chain-of-Custody Record

Laboratory:

Laboratory Job # (Lab use only)

GEI Consultants
455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033
PH: 860.368.5300
FX: 860.368.5307

Project Information

Project Name/Number:

Project Location:

Project Contact:

Phone Number:

Page __ of __

Send Report to:

Send EDD to: datagroup@geiconsultants.com

Preservative

Analysis

Sample Handling

Samples Field Filtered

YES NO NA

Samples Shipped With Ice

YES NO

Deliverables:

If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	Sample Specific Remarks
		Date	Time				

Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)
1.			1.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2.			2.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3.			3.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4.			4.

Turnaround Time (Business days):

Normal ____ Other ____

10-Day ____ 7-Day ____

5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PACKING SAMPLES FOR SHIPMENT BACK TO THE LABORATORY

A. Line cooler with bubble wrap and large plastic bag. Use absorbent pad inside the bag if bottles contain preservatives.

B. Wipe outside of bottles and put glass in individual bubble bags & seal. Place bottles & the temperature blank into cooler. Leave room for ice in between bottles & on top.

C. Place double bagged or loose ice randomly around bottles throughout the cooler.

D. Place large bag of ice or loose ice on top of the bottles. In warm weather, the cooler should be packed with as much ice as possible.

E. Close outer bag, compress excess air out of bag, twist top and knot. If necessary, use more bubble wrap to fill the dead air spaces. Place chain of custody (COC) and other paperwork in plastic bag and seal. Place on top of cooler.

F. Close cooler, place signed and dated Custody Seals over opening. Tape over the Custody Seal and seal cooler securely. Fill out overnight shipping waybill and attach to the top or handle of the cooler. Attach Saturday delivery stickers if needed. Ship according to DOT regulations.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

PACKING SAMPLES FOR SHIPMENT BACK TO THE LABORATORY

A. Line cooler with bubble wrap and large plastic bag. Use absorbent pad inside the bag if bottles contain preservatives.

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F. Close cooler, place signed and dated Custody Seals over opening. Tape over the Custody Seal and seal cooler securely. Fill out overnight shipping waybill and attach to the top or handle of the cooler. Attach Saturday delivery stickers if needed. Ship according to DOT regulations.

STANDARD OPERATING PROCEDURE

FD-004 Photo Documentation

1. Objective

Describe methods to document and retain photographic records.

Keeping a record of photographs taken is crucial to their validity as a representation of existing conditions.

2. Execution

- Photographs of a site, individual samples, or other observations should be taken using a digital camera.
- Set the camera to record the time and date for each photograph.
- All photographic records, along with the following information, should be recorded in the field notebook (SOP FD-001).
    - If applicable, the compass direction describing the direction the photograph was taken (e.g. looking southeast). This may not apply to photographs of individual samples.
    - Brief description of what the photograph is intended to show.
- The field notebook should note who took the photographs.
- The photographs should be electronically backed up on a computer or other data storage device.
- If photographs will be used in a report, memo, or letter, they should be placed on a photograph record template and the relevant information describing the photograph should be inserted into the caption section for each photograph.

3. Limitations

- Some clients and regulatory agencies require photographs of every subsurface soil sample collected. These photographs typically include a "whiteboard" which indicates the site, the boring ID, and the depth of the sample, while logging details are recorded in the field notebook. Under these circumstances, it is not necessary to include compass directions or descriptions.

4. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

5. Attachments

Attachment A – Example of Photo Documentation Template

6. Contact

Melissa Felter
Leslie Lombardo

Attachment A – Example of Photo Documentation Template
GEI Consultants, Inc.

Project: Project Name

Location: Project Location

Photographer: K. Barber
Date: 10/25/07
Photo No.: 1
Direction: N

Comments:
Entrance of site with tree mulching operations.

Photographer: K.Barber
Date: 10/25/07
Photo No.: 2
Direction: W

Comments:
On-site building built in 1936.

STANDARD OPERATING PROCEDURE

FD-006 Handheld Global Positioning Receiver Operation

1. Objective

Use handheld global positioning system (GPS) receivers to locate sample points and site features with "Mapping-Grade" accuracy.

Use handheld GPS receivers to "stake out" proposed sample point locations within the limits of "Mapping Grade" accuracy.

2. Execution

- Handheld GPS receivers provide a low-cost and user-friendly method for locating sample points and site features with a fair degree of horizontal accuracy.
- In simplistic terms, GPS works by measuring the distance from numerous orbiting satellites to a point on the earth surface. Individual satellites broadcast their real-time location in terms of x,y and z coordinates, and the distance from each satellite is measured as a function of the length of time that a time-stamped signal takes to reach the receiver. Built-in GPS software derives new points by intersecting the distances from known orbital locations – in much the same way that points are located by intersecting tape-measured distances from building corners or other pre-existing site features.
- Late-model handheld GPS receivers utilize a real-time differential correction technique called WAAS (Wide Area Augmentation System). This system was designed to provide greater confidence and reliability in using GPS data for commercial aircraft landing approaches, and the additional correction improves all GPS operations.
- Handheld GPS receivers display navigational information on a variety of standard pages. Although each manufacturer uses slightly different formats, all receivers toggle back and forth between the following visual presentations:
- A "satellite" page displays the relative orbital location of all GPS satellites that are currently being tracked by the receiver. The display may include information on the real-time geometrical strength of the solution: satellite intercepts that cross at right angles provide more accurate solutions than intercepts that cross at acute or obtuse angles.
- A "track" page that displays the travel path of the receiver while it is turned on, along with the relative location of recorded points. Many GPS models have a "track-back" function that will guide the user on the same path back to the starting point
- A "navigation" page that displays instantaneous location and the real-time direction and velocity of travel. Some units provide two pages to display this information in different formats. Most units will report the overall "course

made good" (straight-line bearing and distance from the starting point) at any point.

- A "waypoint" page that allows users to "Go To" a created point or previously recorded point by providing a straight-line bearing and distance to the point. The information is instantaneously updated as the user moves along; some units display a pointing arrow that directs the user to the direction of travel. Be careful of go-to lines that lead through swamps or over cliffs – if you will be travelling in difficult terrain have a paper copy of the USGS quadrangle and a compass on hand for navigation.
- Signal strength degrades significantly next to buildings and underneath tree canopy. Most GPS receivers have an "averaging" function to improve the accuracy of shielded locations. GPS users can also improve precision by locating points three times, at different times of the day. Two of the solutions will generally be closer to each other than to the third and can be averaged for a more reliable fix.
- Most GPS receivers default to latitude and longitude, but data is more accurate and easier to input and when expressed in UTM coordinates to the nearest meter. The handheld GPS setup will have a function somewhere to change to UTM. Most of Connecticut is in UTM Zone 18 but the easternmost parts are in Zone 19.
- Consult "Corpscon" the datum translator available from the National Geodetic Survey website. Corpscon translates instantly from latitude/longitude to UTM coordinates to state plane coordinates and provides tools to identify UTM Zones. Also consult the Trimble, Garmin and Magellan websites for technological improvements and discussion of advanced techniques.

3. Limitations

- Handheld GPS receivers operating in unobstructed locations are currently reckoned to provide 2-5 meter accuracy, meaning that the true location of measured points lie within an "error ellipse" with axes of 2-5 meters centered on the measured location. In other words, even under the best of conditions a real-time GPS solution may be as much as 20 feet off the true horizontal location of a point.
- Due to geodetic restrictions, vertical locations (elevations) have less than half the accuracy of horizontal locations, meaning that even under the best of conditions, a surface elevation displayed on a handheld GPS receiver may be off by more than 50 feet.
- Horizontal and vertical data derived from handheld GPS receivers should never be considered more than relatively accurate, and this level of uncertainty should be identified in any discussion of positional tolerance.

4. References

Trimble Website: .trimble.com
Garmin Website: .garmin.com

Magellan Website: .magellangps.com
National Geodetic Survey: ://www.ngs.noaa.gov/

5. Contact

Matt O'Neil

Section 4

Drilling Methods (DM)

STANDARD OPERATING PROCEDURES

DM-001 General Guidance on Determination of Appropriate Drilling Methods

1. Objective

There are multiple drilling methods which can be employed based on the type of stratum (e.g. overburden or bedrock) and the end use of borehole. End uses include geotechnical investigation, subsurface soil sampling, and monitoring well installation or a combination thereof.

The following text describes different methods of drilling with considerations for their use to collect groundwater and/or subsurface soil samples. Profiles of subsurface conditions encountered and well installation details must be recorded on logs. Procedures for field documentation are provided in Section 4 - Field Documentation.

2. Hollow-Stem Augers (HSAs)

Borings can be installed in unconsolidated formations using solid-stem or hollow-stem augers (HSAs). The augers are advanced by rotation and the drill cuttings are brought to the surface by travelling up the outside of the auger flights in a screw-like manner. HSAs have the advantage of allowing the well to be installed inside the hollow stem of the auger, which prevents the borehole from collapsing. Upon reaching the planned well depth, the casing and screen are placed inside the HSAs and the flights are individually removed while the annular space around the well is filled with the filter pack and grout, as appropriate. Conversely, solid-stem augers must be completely removed from the borehole before well installation, which can lead to collapse of the borehole. For this reason, solid stem augers are seldom used for installation of monitor wells.

HSAs come in a variety of sizes and allow collection of soil samples utilizing split spoons or Shelby tubes. Samples are collected ahead of the augers for determining soil/sediment type, stratigraphy, depth to the water table, and for collecting soil samples for chemical analysis. During this process, the standard penetration test (SPT, ASTM Method D 1586) can also be performed. The HSA method also has an advantage over mud-rotary drilling techniques in that drilling mud is not used. Drilling mud can contaminate the soil samples and potentially reduce the yield of the wells.

A disadvantage of the method is that HSAs cannot be used to drill into competent bedrock or through large boulders. Also, "heaving or running sands" can be forced up inside the augers as a result of strong vertical groundwater gradients, which can hamper efforts to collect soil samples or complete well installation. Furthermore, the maximum depth achievable using HSAs, which is generally shallower than other methods, is dependent not only on the ability of the rig (e.g., horsepower, rig-torque, weight of augers etc.), but also the lithology of the material drilled.

3. Rotary Drilling

Rotary drilling methods include both direct rotary and reverse-circulation rotary. Direct rotary is more commonly used in environmental investigations, whereas reverse-circulation rotary is used in drilling large-diameter water supply wells. In direct rotary drilling the borehole is advanced by rotating the drill pipe (rods) and bit to produce a cutting action. The cuttings are removed from the borehole by continuous circulation of a drilling fluid. The fluid or "mud" is pumped down the inside of the drill pipe and is circulated back to the surface on the outside of the pipe. The fluid removes the drill cuttings from the borehole and cools and lubricates the bit. Mud used during direct rotary consists of additives (e.g., bentonite), water, or air.

Reverse-circulation rotary drilling is similar to direct rotary except the drill rigs are larger and the flow of the drilling fluid is reversed. The drilling fluid moves upward inside the drill pipes and circulates back to the borehole via settling pits. The drilling fluid returns to the borehole via gravity and moves downward in the annular space between the drill pipe and borehole wall. Drilling fluids for reverse-circulation rotary are generally water and any suspended particles picked up from the surrounding formations.

Mud-rotary methods can be used to drill in both unconsolidated and consolidated (bedrock) formations. In addition, drilling mud stabilizes the borehole and limits the potential for borehole collapse. Disadvantages of using the mud-rotary method include the difficulty in determining the depth to the water table, the potential for drilling mud to impact soil samples and dragging of contamination into deeper zones since the drill cuttings are re-circulated in the borehole. Wells installed using this method typically take longer to develop than wells installed using the HSA or air-rotary methods due to the invasion of mud filtrate into the formation.

In air-rotary drilling, compressed air is directed down the inside of the drill pipe. As in mud-rotary drilling, air removes the cuttings and lubricates the bit. However, since air has no viscosity, it cannot be used to stabilize a borehole therefore, casing must be advanced in unconsolidated formations to keep the borehole open. This is why air rotary methods are best suited for drilling in bedrock formations. The percussion-type air-rotary "hammer" bit provides the best penetration rate when drilling bedrock consisting of crystalline rock. However, when drilling above the water table, an air-rotary bit can grind the soil and bedrock to a fine powder which is blown out of the hole with air and which has the potential to be inhaled. Therefore, drilling above the water table using air-rotary methods requires the addition of potable water to the borehole for dust control. In addition, the air compressor should be of the oil-less variety, or have a filter to prevent any oil from entering the borehole.

A disadvantage of using rotary methods while drilling in unconsolidated formations is the requirement of pulling the drill pipe out of the hole each time a split-spoon soil sample is collected (and the SPT is performed). This adds up to considerable amounts of time when deep wells are being installed or when continuous split-spoon

sampling is being performed. As stated above, split-spoons used to collect soil samples can become contaminated when they are advanced down a mud-filled borehole.

A special type of rotary drilling is bedrock coring, wherein a special core bit and barrel are used to retrieve relatively undisturbed core samples of the bedrock. Coring allows better characterization of bedrock lithology and other features including orientation of fractures and bedding planes, which can control contaminant migration. Core barrels can either be unoriented or oriented. An oriented core is scribed with respect to magnetic north. Although more expensive than collecting an unoriented core, this method gives the true orientation of the features encountered in the core.

Drilling fluids are generally air (air-rotary) or bentonite and/or water (mud-rotary). Water added to a borehole must be of potable quality. The source of the potable water used during the installation (and development) of monitor wells should be documented (e.g., in the Remedial Investigation Report).

Bentonite is high swelling clay with sodium montmorillonite as its primary clay mineral. Bentonite is added to water to increase the viscosity of the drilling fluid so that drill cuttings can be removed from the borehole more effectively. At the same time, the viscosity must be low enough to allow cuttings and coarse-grained particles to settle out once they are circulated out of the hole. Bentonite also adds weight to the drilling fluid, which helps to maintain borehole stability.

4. Sonic Drilling

The method involves driving a core barrel using vibration, rotation, and a downward force to collect soil samples. A sonic drill rig looks and operates very much like a conventional top-drive rotary or auger rig. The main difference is that a sonic drill rig has a specially designed, hydraulically powered drill head or oscillator, which generates adjustable high-frequency vibrational forces. The oscillator uses two eccentric, counter-rotating balance weights or rollers that are timed to direct 100 percent of the vibrational energy at 0 and 180 degrees. There is an air spring system in the drill head that insulates or separates the vibration from the drill rig itself. The sonic head is attached directly to the drill pipe or outer casing, sending the high-frequency vibrations down through the drill pipe to the bit.

A core barrel is advanced using vibration, rotation, and downward force to collect continuous soil cores up to 20 feet in length. The bit at the end of the core barrel contains carbide teeth allowing the core barrel to be advanced through most overburden, soft bedrock, and minor obstructions such as bricks and boulders. Once the core barrel has been advanced, a secondary or "over-ride" casing is advanced down to the same depth as the inner core barrel. The over-ride casing keeps the borehole from collapsing while the inner core barrel is removed. Once the core barrel is removed, the soil core is pushed out of the core barrel through the use of

vibration and either air or water pressure. Soil core diameters are dependent on the size of core barrel used and range from 3 to 12 inches. The use of multiple over-ride casings of increasing diameter allows the borehole to be telescoped down through multiple confining units. The setup used in sonic drilling makes this drilling method amendable to collecting soil cores and installing wells in angled boreholes. With only the bottom of the inner and outer core barrel exposed to the aquifer at any given time, determining the location of the water table can be difficult.

While this drilling method has the capability of drilling through and providing samples of coarse gravels, boulders, and tight clays, these situations will result in slow drilling or advancement of the core barrel. The result is a hotter core barrel and a longer contact time between the core barrel and the encased soil core. The aforementioned conditions will increase the probability that the sonic method will raise the temperature of the soil core and facilitate VOC and SVOC loss.

The ability to quickly install deep borings and wells, while generating a large-diameter continuous soil core, makes this drilling technique invaluable when continuous soil sampling is needed to assess deep or complex geological situations. However, sonic drilling's high cost, relative to other drilling methods, may be prohibitive for small projects or shallow boreholes. The higher cost of the drilling method should be weighed against the cost savings incurred due to its faster drilling rate and high quality of the soil core produced.

5. GeoProbe®-Direct Push

The method involves hydraulically pushing hollow rods into the subsurface for the purpose of collecting soil and/or groundwater samples (e.g., Geoprobe®). The method can be used to collect discrete soil samples or install small-diameter wells used to collect groundwater samples.

Advantages of the direct-push method include the relatively quick collection of groundwater samples and, when used along with a mobile laboratory, collection of data in “real” time. The method allows for collection of multiple samples in a day with the potential for achieving contaminant delineation in one mobilization of the field equipment. The data can also be used to select locations of permanent monitor wells.

Disadvantages of the method include the fact that the data quality achieved is often suitable only for screening purposes. Direct-push methods typically result in very turbid samples since an oversize borehole is not produced and a filter pack is not used. Turbid samples can produce higher metal concentrations in groundwater samples since metals are typically adsorbed onto soil particles. Use of direct-push methods can also cause cross-contamination since contamination from shallow zones may be driven down to deeper zones. Due to the narrow diameter of the direct-push rods, samples are often collected with peristaltic pumps. When samples are collected for volatile organic compounds (VOCs) using peristaltic pumps, some

of the volatiles may be lost due to the pressure drop produced by the suction lift. In such cases, the VOC data must be qualified accordingly. For this reason, use of the peristaltic pump for collecting groundwater samples for VOC analysis is not recommended and approval for its use should first be obtained from the project manager or geologist.

Another disadvantage of using direct-push technology for collecting groundwater samples is the potential to breech confining units. To prevent this, soil sampling using direct-push technology or conventional split-spoon sampling techniques should first be performed to identify the presence, depth and lateral extent of confining units. Pushing through confining units should be avoided if the presence of dense, non-aqueous-phase liquid (DNAPL) or very soluble compounds such as Methyl Tertiary Butyl Ether (MTBE) are suspected or the contaminant plume appears to be diving in the aquifer.

6. Contact

Matt Glunt
Cathy Johnson

STANDARD OPERATING PROCEDURE

DM-002 Hollow-Stem Auger

1. Objective

Describe standard operating procedures for drilling of overburden soil borings using hollow-stem augers.

2. Execution

- Confirm that the appropriate measures have been taken for clearance of potential subsurface utilities. The responsibility for clearance may vary, depending on the client.
- Inspect the drilling rig to make sure it is clean and that the down-hole equipment has been steam-cleaned or pressure-washed. Record observations in the field notebook (See SOP FD-001).
- Observe that the augers are vertical when the first section is advanced into the ground.
- Use a 140-lb hammer to drive the sampler, unless conditions necessitate using a 300-lb hammer (see SOPs SM-001, *Split-Spoon Sampling* and SM-0003, *Soil Classification,* for details). Count and record the number of blows per 6-inch increments, confirming blow counts with driller if necessary).
- Decontaminate the split-spoon sampler after each use (see *Equipment Decontamination,* SOP QA-001) or use another decontaminated split-spoon sampler.
- Ensure that the drillers advance the augers only after they have inserted the auger plug (to prevent soil from entering the augers while advancing to the next sample interval).
- Request that the drillers remove the auger cutting bit/plug and insert the split-spoon sampler into the interior of the augers. Measure the stick-up of the rods attached to the sampler to ensure that the nose of the spoon is in virgin soil below the augers.
- Watch for signs of a soil strata change at depth during drilling (i.e., change in blow counts, change in soil color, soil wetness, soil contamination, bouncing of the drill rig, etc.). If important to the investigation, stop drilling and collect a soil sample.
- If subsurface soil samples are being collected with split-spoon samplers, ensure that the drillers use a 30-inch drop of the 140-pound hammer. The number of blow-counts for each 0.5 foot penetration provides important geotechnical data.
- Repeat until the borehole has been drilled to the desired depth.
- If a monitoring well is not installed in the soil boring, fill the boring with either cement/bentonite grout or properly-tamped and hydrated bentonite. Check with Project Manager and/or the appropriate regulatory personnel before using drill cuttings to backfill the boring.

- If a monitoring well will be installed, refer to SOP DM-007.
- Complete boring log and, if necessary, well installation logs (SOP SM-003, *Soil Classification*).
- Record boring locations on a site map and in a field notebook sketch. If the boring location will not be surveyed, measure each location from on-site reference points and record the information in the field notebook so that the location can be plotted on site figures.

3. Limitations

- In areas of significant soil contamination, hollow-stem augers may cross-contaminate upper soil layers as contaminated cuttings move up the auger flights. The potential also exists for contaminated augers to carry contamination to deeper soil strata
- If significant unanticipated contamination is encountered during drilling, stop drilling to confer with the project manager and evaluate health and safety conditions. If the borehole is to be advanced below the contaminated strata, use telescoping techniques (see SOP DM-008 *Monitoring Well Telescoping Techniques*) to avoid cross-contaminating underlying geologic strata.
- When drilling below the groundwater table in fine to medium sands, the potential exists for the phenomenon of "running sands" or "blow in" to occur. Frequent measurements inside the hollow-stem augers after the drill bit/plug is removed will indicate if running sands are present. If sands start to flow into the auger, pour clean water into the augers and keep the augers filled during sampling.
- If necessary, arrange for the storage of contaminated soil cuttings and water in drums or other appropriate containers in a secure place at the site. Containers should be labeled.
- Plan the drilling program to drill borings from the least- to most-contaminated areas. Be prepared in advance and know where alternative drilling locations are in the event that problems are encountered at each planned soil boring location. Alternative locations will need to have utility clearance.
- Down-hole drilling equipment should be steam cleaned or pressure-washed between holes unless otherwise directed by the project manager.
- Record when standard operating procedures are deviated from. The drilling inspector should also record any detected odor from the boring and depth encountered.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91

5. Attachments

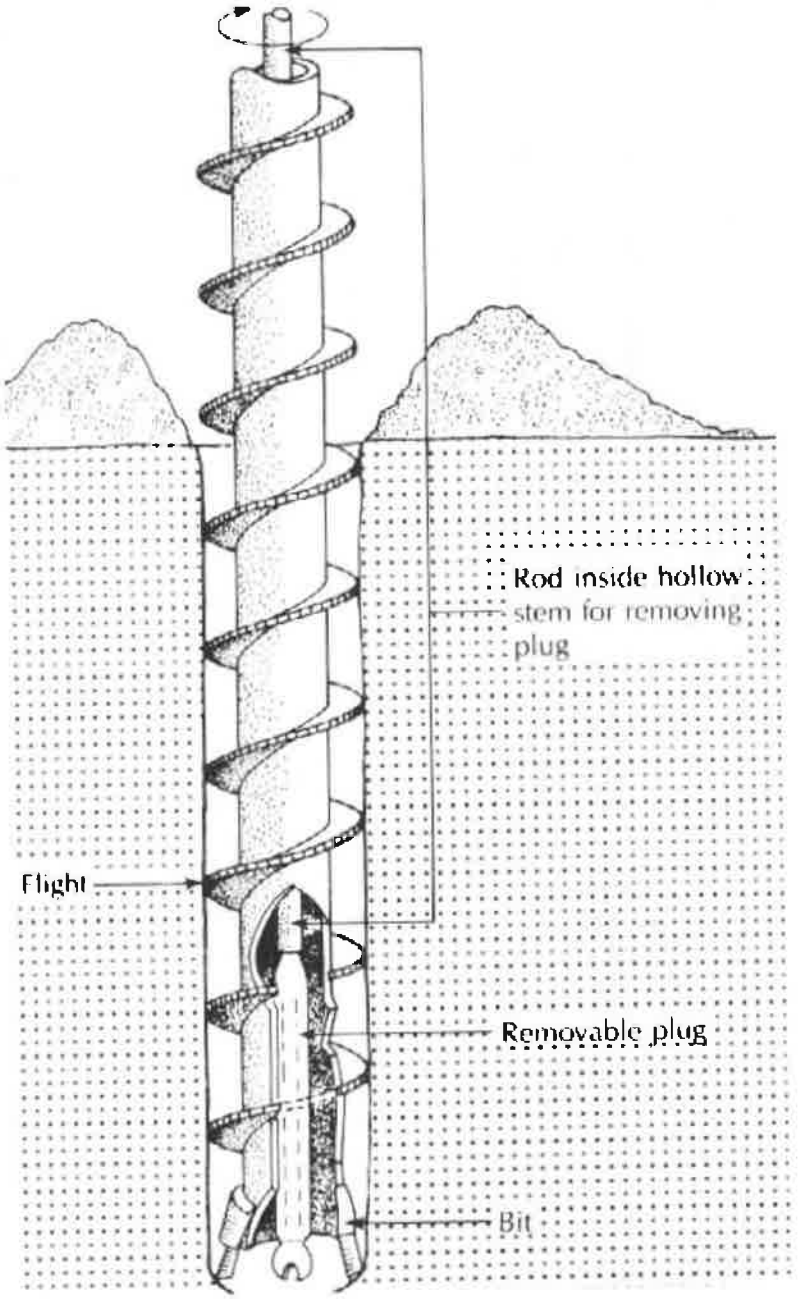
Attachment A – Hollow-Stem Auger

6. Contact

Cathy Johnson

SOP DM-002

Attachment A – Hollow Stem Auger



GEI Consultants

STANDARD OPERATING PROCEDURE

DM-004 Sonic Drilling

1. Objective

Describe common sonic drilling procedures.

Prior to drilling confirm that utility clearance has been completed and that the drilling rig has been appropriately decontaminated.

2. Execution

- Collect soil cores in runs of 5 to 10 feet. Some sonic rigs can collect a 20 foot sample, but the process generates a significant amount of heat that may degrade sample quality.
- Classify and sample the soil located within the liner.
- Excess soil should be placed in a 55-gallon drum for disposal.
- The core barrel should be cleaned with tap water following each use.
- The core barrel is then advanced within the isolation casing to collect the next soil core interval.
- Add water between the inner core barrel and the outer override casing. This will reduce friction between the casings and adsorb heat.
- Maximize drilling advance rate. The faster the core barrel is advanced, the less likely the core barrel will heat up. Drilling with a 3-inch diameter core barrel and a 5-inch diameter override casing, instead of the standard 4-inch core barrel and 6-inch over-ride casing, may increase advance rates and reduce the potential for soil core heating.
- If a significant decrease in drilling advance rate is observed, stop drilling and remove soil that has accumulated in the core barrel. Resume drilling through the resistant material (gravel, boulder, hard clay, etc.). When the resistant material has been penetrated and the drilling advance rate increases, stop drilling and remove what material has accumulated in the core barrel.
- Wash down the core barrel with cool water to cool the core barrel and associated casing, and resume drilling.
- If a well is to be installed in the borehole, the sandpack and grout are placed as the core-barrel and over-ride casing(s) are selectively vibrated out of the ground. The vibratory action should facilitate settlement of the sandpack and grout. Upon completion, no casing is left in the ground other than the well casing and screen.

3. Limitations

- Disturbance of the soil core is most likely to occur during removal of the soil core from the core barrel. The soil cores are usually vibrated out of the core barrel into plastic bags approximately 5 feet in length. As the plastic bags are

a little larger than the soil core itself, fragmentation of the soil core may occur as the core is extruded into the bag or while the bagged core is being moved in an unsupported manner. Soil conditions that are prone to disturbance include wet or dry zones that contain little or no fines, and well graded sands that contain significant volumes of water.

- If integrity of the soil core is of concern, the following procedures should be implemented:
    - Measures should be taken to ensure that the core, from the time it is extruded from the core barrel, is rigidly supported through the use of some type of cradle or carrying device.
    - The core should not be removed from its cradle until all sampling of the core has been completed. Acrylic liners are available for some core sizes and can be used to hold the core together upon removal from the core barrel.
    - If the soil is to be sampled for volatile organic compounds (VOCs), acrylic liners must be used.
    - Sampling of the soil core for VOCs or semi-volatile organic compounds (SVOCs) must be approved on a case by case basis. Proposals for VOC or SVOC soil core sampling must include provisions to minimize core fragmentation and heat generation, such as:
        - Acetate liners in the core barrel so that the soil core does not have to be extruded out of the core barrel.
        - Limit the length of soil core generated during a given downhole run.
        - Implement practices to reduce the residence time of the soil core in the core barrel.
- For the analysis of SVOCs, the use of the acetate liners is not required.
- The large diameter of the core barrel enables ground water sampling equipment to be placed inside the core barrel so that discrete depth groundwater samples can be collected during borehole advancement.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

5. Contact

Melissa Felter

STANDARD OPERATING PROCEDURE

DM-006 Geoprobe® Direct Push Boring

1. Objective

Describe standard operating procedures (SOP) for drilling of overburden soil borings using Geoprobe® and MacroCore® technologies.

2. Execution

- Confirm that appropriate measures have been taken for clearance of potential subsurface utilities. The responsibility for clearance may vary, depending on the client.
- Inspect the drilling rig to make sure it is clean and that the down-hole equipment has been decontaminated (QA-001). Record condition of all down-hole drilling equipment.
- Make sure the sampler is fitted with a piston rod assembly to block the sample tube until the desired subsurface sample interval is attained. Upon reaching the target sample depth, the piston tip will be released and the discrete sampler device is then advanced to collect the representative sample. This reduces the volume of slough that is collected.
- When the sampler is brought to the ground surface, it should be opened immediately, and the length of recovery should be measured and recorded.
- Log the soil sample using USCS procedures (SOP SM-003). Collect analytical samples if necessary (SOP SM-001).
- Decontaminate the cutting shoe if necessary (SOP QA-001 Equipment Decontamination) and have driller reassemble the parts with a new liner.
- Repeat the procedure described above until refusal or the boring is terminated.
- Periodically verify that depths cited by drillers are accurate.

3. Limitations

- If significant unanticipated contamination is encountered during drilling, stop drilling to confer with the project manager and re-evaluate health and safety conditions.
- Arrange for the storage of contaminated soil cuttings and water in drums or other appropriate containers in a secure place at the site (see SOP SC-003, *Investigation Derived Waste Management*).
- If possible, plan the drilling program to drill borings from the least to most contaminated areas. Be prepared in advance and know where alternative drilling locations are in the event that problems are encountered at soil boring locations. These locations must also have been cleared by the state or local utility service prior to drilling.

4. References

ASTM D6001-05 Guide for Direct Push Water Sampling for Geoenvironmental Investigations, April 2005

Geoprobe Systems, "Geoprobe MacroCore MC-5 1.25-inch Light Weight Center Rod Soil Sample System SOP", Technical Bulletin No. MK 3139, November 2006

5. Attachments

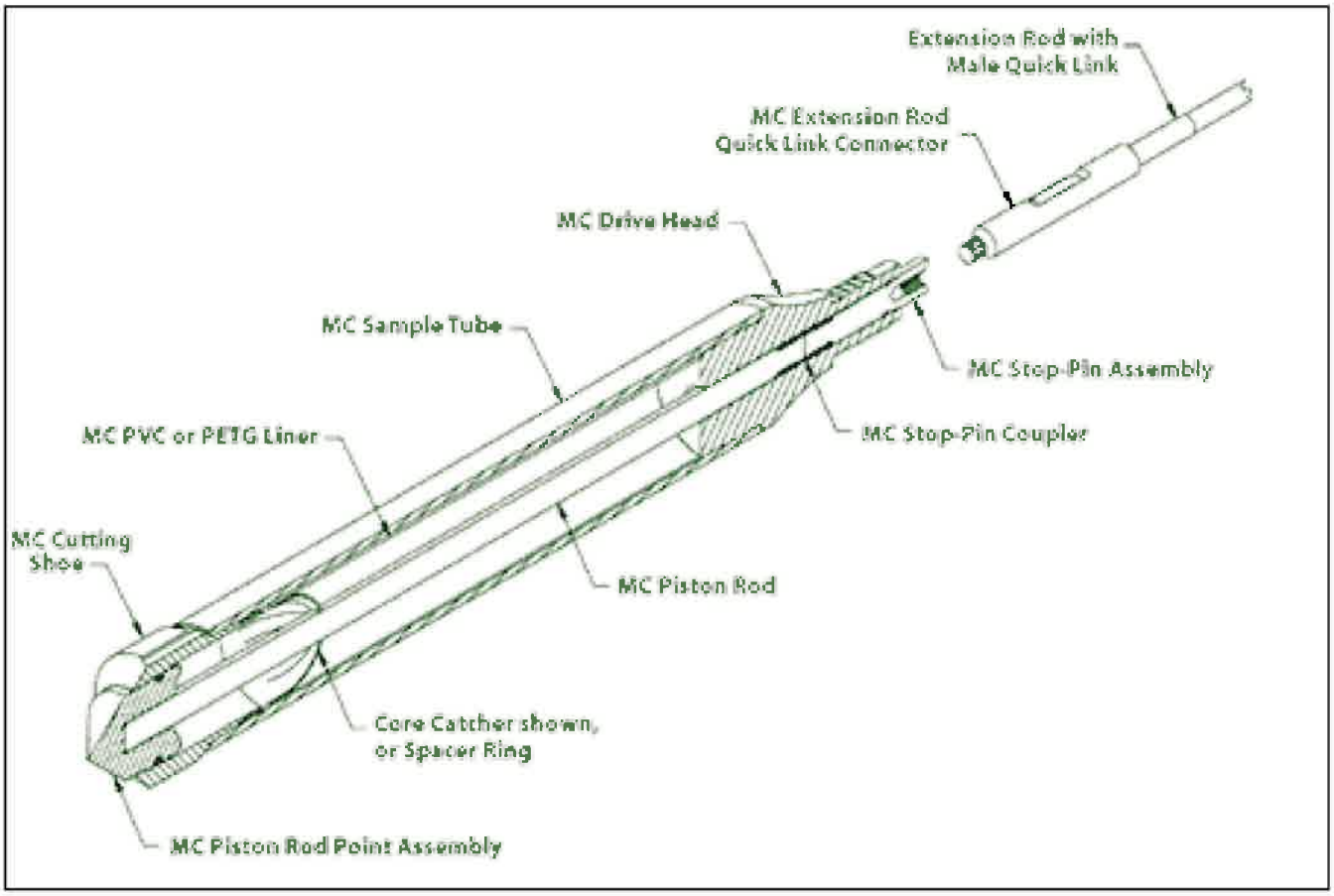
Attachment A – Geoprobe® with Macrocore® Sampler Assembly

6. Contact

Melissa Felter
Cathy Johnson

SOP DM-006

Attachment A – GeoProbe® with Macrocore® Sampler Assembly



Above: Diagram of a Macrocore® sampler

Right: A track-mounted GeoProbe ® Rig

GEI Consultants

STANDARD OPERATING PROCEDURE

DM-007 Monitoring Well Construction and Installation

1. Objective

Describe installation procedures for overburden monitoring wells screened across or below the groundwater table.

Well dimensions (well diameter, screen length, and screen slot-diameters) will be specified in the Work Plan. This SOP assumes the monitoring wells will be constructed of flush-joint PVC pipe and the screened section will have factory-slotted openings.

2. Execution

Attachment A provides a diagram of typical shallow, intermediate, and deep groundwater monitoring well construction detail. A Groundwater Monitoring Well Installation Log is in Attachment B.

- Measure and record the depth of the completed soil boring before beginning the well installation.
- If possible, measure the depth to groundwater in the borehole over a 10 to 15 minute period to ensure that the groundwater elevation has approximately stabilized. Compare the saturated soil depth estimated from split-spoon samples to the measured water level in the borehole. If drilling water has been used during boring advancement, pump the water out of the borehole to the static water depth, based on examination of the soil samples, and monitor the recovery of groundwater until the level has stabilized.
- If it is not possible to accurately measure the depth to groundwater in the borehole due to low permeability in the formation, use the saturated soil depth observed in the collected samples or measured water depth in a nearby existing monitoring well to estimate the depth to water in the borehole.
- For shallow monitoring wells, select the monitoring well screen and riser lengths so that the slotted section of the screen intersects the groundwater table. Screen lengths of 15 feet or less are preferred and 10 foot screens are most common. If the water table is seasonally high or low or if the well is in a location where the water table is likely to be tidally influenced, appropriately place the screened section to allow for the screen to intersect likely future water tables.
- For intermediate or deep wells screened entirely below the water table, select the monitoring well screen and riser lengths as described in the Work Plan. Screen lengths of 10 feet or less are preferred.
- If the borehole is deeper than the desired well depth or the bottom of the well is close to a change in soil strata, then fill the base of the borehole with bentonite. Keep in mind that bentonite swells when hydrated, and that filter

sand should be placed at the bottom of the borehole above the bentonite before installing the well.

- Prevent well materials from contacting foreign substances during installation. Precautions may include requiring the driller to wear clean gloves while handling well materials and requiring that well materials not be placed onto the ground or pavement without a protective barrier such as polyethylene sheeting being present
- Confirm that the driller installs a minimum one-inch sump with a bottom cap to the bottom of the well screen. See the Work Plan for locations that may require larger sumps.
- Monitoring wells can be constructed of either 1, 1.5, 2 or 4 inch inner diameter (ID) Schedule 40 threaded flush-jointed PVC. Refer to the work plan for the site-specific requirements. Flush-threaded well materials should be used. Do not allow the driller to use glues, as they typically contain solvents that could affect on groundwater quality.
- Stainless steel well materials may be used if required in the Work Plan. Select slot size based on grain size of the formation and on requirements in the Work Plan.
- Confirm that the driller places at least 12 inches of clean uniformly graded medium quartz filter sand pack into the base of the borehole, if required in the Work Plan.
- The driller should remove the drilling casing/augers from the borehole slowly, at a maximum of 2-foot intervals, at the same time that filter sand is added. The drillers should take frequent measurements of the depth to sand.
- Confirm that the driller has added adequate sand to surround the area around the slotted section. The filter sand should extend at least 2 feet above the top of the slotted section.
- The driller should place a bentonite seal above the filter pack. If the seal is above the water table, use at least 5-gallons of potable water to hydrate the bentonite before grouting the remaining annular space, or otherwise backfilling the remaining annular space as discussed with the Project Manager. Tamp seal. It should extend 1 to 2 feet above the filter sand.
- If required by the Work Plan, the driller should use bentonite-cement and grout the annular space from the top of the bentonite seal to the ground surface. Bentonite cement grout should be placed using tremie methods. Grout should be mixed in approximately the following proportions: 7.5 gallons water to one 94-lb bag of cement to 2-4 lbs of pulverized bentonite. The grout must be mixed using a pump (such as one on the rig) to ensure proper mixing.
- The drillers should cut the monitoring well riser at an angle or make "V"-notch in the riser pipe as a benchmark for surveying and groundwater measurements. The driller should cut the well riser so that the top of the well will be approximately 3 inches below the top of protective casing. The top of

the riser should be close enough to the top of the surface casing to allow reading of depth markings on a water level indicator tape.

- The protective surface casing is either a flush-mounted roadbox or a steel "stick up" pipe. The base of either type of casing should extend at least 1 foot into the grout below the ground surface (below the frost line) whenever possible.
- The protective casing should be set by placing cement in the annular space between the protective casing and the borehole up to the ground surface. If possible, the driller should slope the cement radially away from the protective casing at the ground surface to promote surface water runoff.
- In areas of high traffic or areas of parking lots and/or roadways where plowing occurs, set the roadbox flush with the ground surface to avoid damage to the well.
- If the well is installed in a high-traffic area and is completed with a steel "stick up" pipe, additional protection such as steel pole bumpers around the steel "stick up" pipe may be necessary.
- If possible a locking cap should be placed on the steel "stick up" pipe. If the surface casing is flush mounted, a locking expansion plug should be placed, if possible, inside the top of the well riser pipe.
- All well locations should be photodocumented in accordance with SOP FD-004 Photodocumentation.
- Label the outside of the protective well casing with a paint pen. If the well is not going to be surveyed, measure the location to nearby landmarks so that the well may be located in the future and plotted on figures. Make sure to enter this information in the field notebook). If possible, place a brightly colored stake or other identifier adjacent to the well.
- Develop the well (see SOP DM-009, *Monitoring Well Development*).

3. Limitations

- Do not screen across different hydrostratigraphic units (for example, outwash sands, confining layers or till) unless specified in the Work Plan or approved by the Project Manager.

- If the formation is composed of a material that is uniformly coarser than the filter sand, the grain size of the filter sand should be increased. Consideration should also be given to changing the slot size on the well screen. Differences in average grain size should generally not be greater than a factor of two to four times.

- Do not use drill cuttings to backfill during monitoring well installation unless specified by the work plan or project manager.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91.

5. Attachments

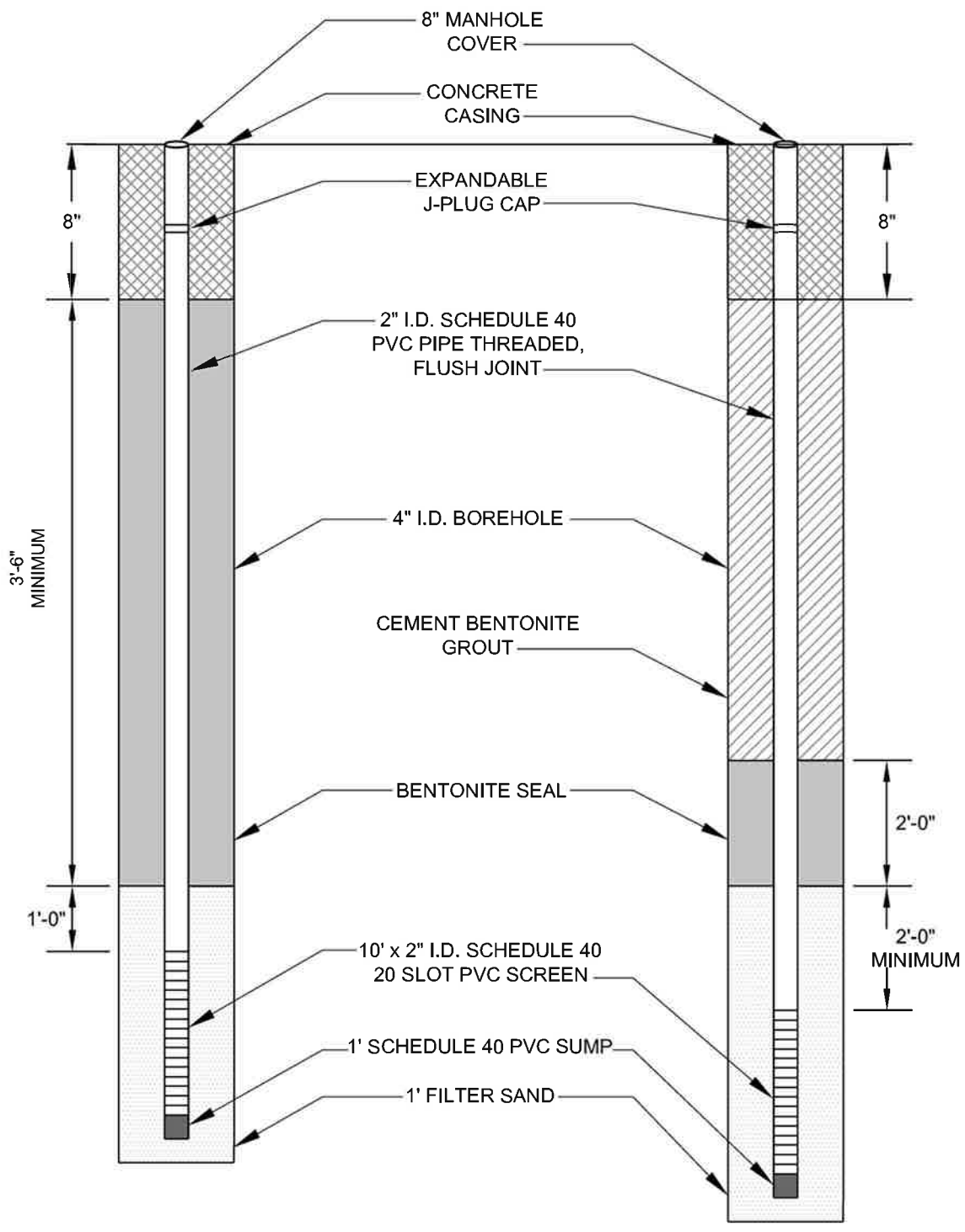
Attachment A – Typical Shallow, Intermediate, and Deep Groundwater Monitoring Well Construction Detail

Attachment B – Groundwater Monitoring Well Installation Log

6. Contact

David Terry
Anne Leifer

Attachment A - Well Detail



NOT TO SCALE

GEI Consultants

TYPICAL SHALLOW, INTERMEDIATE AND DEEP GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

June 2008

I:\GEI\SOPs\ Well Detail.dwg \Jun 10, 2008

Groundwater Well Installation Log

Well ID

Project _____ **GEI Proj. No.** _____

City / Town _____ **Location** _____

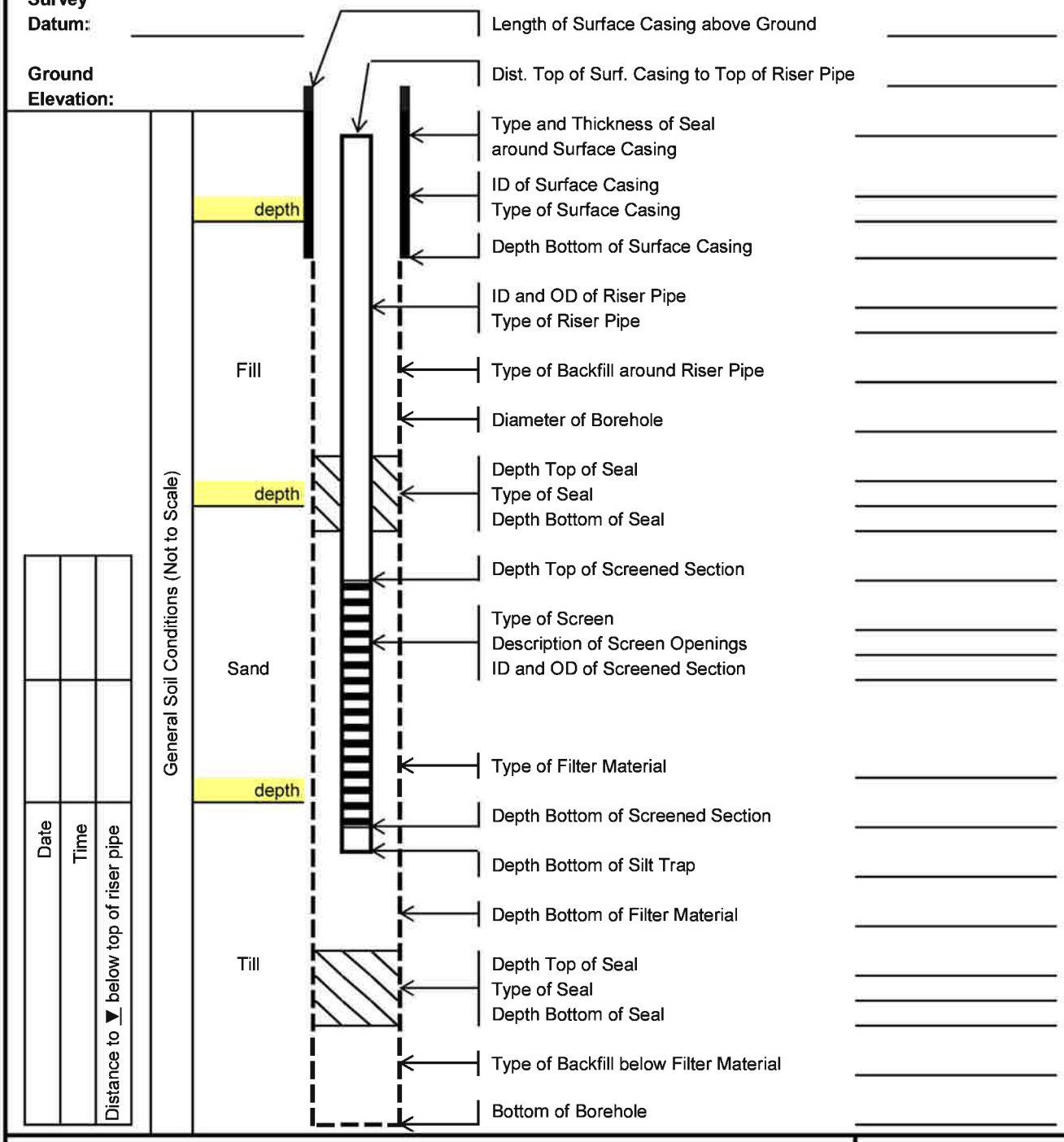
Client _____ N _____

Contractor _____ E _____

Driller _____ **GEI Rep.** _____ **Install Date** _____

Survey Datum: _____

Ground Elevation: _____



Notes:

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STANDARD OPERATING PROCEDURE

DM-009 Monitoring Well Development

1. Objective

Describe standard procedures to remove fluids from monitoring wells (introduced during drilling) and maximize the movement of groundwater into the well by removing fine particles in the well and sand pack around the screen.

2. Execution

To prevent cross contamination between monitoring wells, use dedicated equipment and/or appropriately decontaminated equipment to perform monitoring well development. See SOP QA-001 Equipment Decontamination and the Work Plan for more information.

For deep or large diameter monitoring wells, it may be necessary to use a re-usable pump system, such as a Grundfos pump, to develop monitoring wells.

- Calculate the volume of water in the monitoring well (one well volume) using the following table:

Well diameter (inches)	Volume (gal/ft)
1	0.04
1.5	0.09
2	0.16
3	0.36
4	0.65
6	1.50

The equation used to establish these volumes is presented in Section 4.

- Calculate or estimate the amount of water introduced to the borehole during drilling. At a minimum, this is the amount of water that should be removed during development. Removing less water than was introduced and allowing additional time for the surrounding formation to clear of injected drilling fluids may be considered as an alternative if the volume of introduced water was large.

- Record the volume of water purged in the field notebook or on the Monitoring Well Sampling Form (Attachment A).

- Collect a sample of water from the monitoring well with the selected submersible pump (e.g. 12-volt whale pump or Grundfos pump), a bailer, or a

Waterra system. Record the physical properties (color, turbidity, odors, etc.) of the sample.

- The volume of water that should be removed will depend on the work plan, local regulatory guidance, and/or the volume of water that was introduced during drilling and well installation. Typical guidance for the removal volume includes:
    - Ten well volumes.
    - The volume of fluid added during drilling.
    - The volume required to remove enough suspended particles so that the turbidity of the water is less than 50 nephelometric turbidity units.

If needed, pump the ground water into a 5-gallon pail so that the volumetric flow rate and total water volume from the pump or bailer can be calculated.

Measure the groundwater level in the well during development to assess if the pumping rate is sufficient to create a drawdown in the well.

Observe the groundwater every few well volumes during the pumping and record the physical properties (color and turbidity).

If required by the Work Plan, conduct surging in the monitoring well. See the Work Plan for the method of well surging to be used. If surging is necessary, do so only after initial pumping at the well has occurred and fine sediments have been removed.

Slowly move the surge block up and down in the well. Periodically remove the surge block and purge the groundwater until it is relatively clear again. Start at a slow pace and progress to a faster surging action through time.

3. Limitations

Always remove groundwater with fine particles from the well before surging. The fine particles may be forced into the well screen by the surging action. They may also damage the pump.

If the ground water in the monitoring well is contaminated, the water removed during well development may need to be placed in a properly-labeled drum and disposed of in accordance with local, state, and federal regulations (see SC-003 Investigation Derived Waste).

If the soils around the well screen are composed of fine-grained silts and clays, over-pumping and mechanical surging is not recommended since these more vigorous

techniques can cause mixing of the fines into the filter pack. To develop these wells, use of a bailer is recommended.

There are occasions when the turbidity of groundwater cannot be meaningfully reduced. On these occasions, a minimum of ten volumes should be removed, and the Project manager should be consulted.

Sampling of groundwater should generally not occur within one week after development. In some regions or regulatory jurisdictions, a minimum of two weeks may be required before sampling. If no water was introduced to the formation during drilling, this waiting period may be shortened if required by the project. See the Work Plan for additional information.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90.

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49.

"The Methods & Mechanics of Well Development, Part 2 of 5," National Drillers Buyers Guide, March 1993, p. 17.

Massachusetts Department of Environmental Protection, "WSC-310-91Standard References for Monitoring Wells, Section 4.5 Decommissioning of Monitoring Wells", January 1991

U. S. EPA Environmental Response Team Standard Operating Procedure SOP: 2044 ," Monitor Well Development" REV: 0.1, 10/23/01

5. Attachments

Attachment A - Monitoring Well Sampling Form

6. Contact

Anne Leifer

GEI Consultants

MONITORING WELL SAMPLING RECORD

PID Reading _____ Job Name _____

Job Number _____ By _____ Date _____

Location _____ Measurement Datum _____

Well Number _____

Pre-Development Information Time (start) _____

Water Level _____ Total Depth of Well _____

One Purge Vol _____ Three Well Volume _____

Water Characteristics

Color _____ _____ Clear _____ Cloudy

Odor _____ None _____ Weak _____ Moderate _____ Strong

Any films or immiscible material _____

Volume (gal)	Time	pH	Temp (°C)	Spec. Conductance (µS/cm)	Turbidity (NTU)	DO Conc. (mg/L)	ORP (mV)	TDS

Total Volume Removed (gal) _____ pH _____

Temperature (°C) _____ Specific Conductance (µS/cm) _____

DO Concentration (mg/L) _____ ORP (mV) _____

TDS _____

Post Development Information Time (Finished) _____

Water Level _____ Total Depth of Well _____

Approximate Volume Removed (gal) _____

Water Characteristics

Color _____ _____ Clear _____ Cloudy

Odor _____ None _____ Weak _____ Moderate _____ Strong

Any films or immiscible material _____

Comments

STANDARD OPERATING PROCEDURE

DM-010 General Guidance on Monitoring Well Abandonment

1. Objective

Describe methods to abandon a monitoring well.

The goal of monitoring well abandonment is to seal the borehole so it cannot act as a conduit for movement of contaminants or liquids from the ground surface to the water table or between aquifers.

General procedures for well abandonment are provided below but do not supersede state or local regulations. Make sure all well abandonment procedures adhere to appropriate regulations.

2. Execution

The following methods for abandoning unconsolidated (overburden) and consolidated (bedrock) monitoring wells should be performed by a licensed drilling contractor, if required by law or regulatory authorities. The following listed methods are general guidance for abandoning monitoring wells. The Work Plan and state and local requirements should be reviewed for additional requirements.

2.1 Unconsolidated (overburden) Monitoring Wells

Unconsolidated (overburden) monitoring wells should be abandoned in the following manner, see the Work Plan for additional requirements:

- Remove the protective casing and concrete pad.
- If possible, overdrill the monitoring well casing and sand pack using hollow-stem augers or casing to at least one foot below the depth of the boring/well as indicated in the soil boring log.
- If possible, remove the monitoring well riser, sand pack, bentonite seals and grout.
- Once the well materials have been removed, add cement/bentonite grout using tremie methods starting at from the bottom of the borehole as the augers or casing are removed.
- If the well materials cannot be removed by overdrilling, the riser should be cut off at a depth of between two and five feet below the ground surface and the remaining well materials may be filled with grout using tremie methods. The grout mixture will be as specified for the well installation (see SOP DM-001 General Guidance on Determination of Appropriate Drilling Methods)
- Add grout to the point where the riser was cut off or to a depth of approximately two feet below the ground surface. From that point up to ground surface, backfill with native soil material surrounding the boring/well.

2.2 Consolidated (bedrock) Monitoring Wells

Consolidated (bedrock) monitoring wells or open holes will be abandoned in the following manner. See the Work Plan for additional requirements:

- Remove the protective casing and concrete pad;
- Remove the monitoring well materials from the hole. If the materials cannot be removed, cut off the well riser between two feet to five feet below grade. If feasible, cutting off the riser at five feet is optimal.
- Add cement/bentonite grout via tremie methods from the bottom of the well up to the ground surface. The grout mixture should be as specified for the well installation SOP DM-001 General Guidance on Determination of Appropriate Drilling Methods
- Add grout to the point where the riser was cut off or to a depth of approximately 2 feet below ground surface. From that point up to ground surface, backfill with native soil material surrounding the boring/well.

3. References

Environmental Protection Agency, Region 4, "Environmental Investigation Standard Operating Procedures and Quality Assurance Manual, Chapter 6 – Design and Installation of Monitoring Wells," November 2001.

Massachusetts Department of Environmental Protection, "313 CMR 3.00, Registration of Well Drillers and Filing of Well Completion Reports".

Massachusetts Department of Environmental Protection, "Standard References for Monitoring Wells, Section 4.6 Decommissioning of Monitoring Wells", January 1991

New York State Department of Environmental Conservation, DEC Policy "CP-43: Groundwater Monitoring Well Decommissioning Policy", November 2009.

4. Contact

Anne Leifer

Section 5

Sample Collection and Field Screening (SC)

STANDARD OPERATING PROCEDURE

SC-001 Environmental Sample Types and Sampling Strategies

1. Objective

Describe types of samples and strategic approaches to sample locations.

Refer to Attachment A for guidance on compatible sampling materials.

2. Sample Types

Grab Samples

A grab (or discrete) sample is a single aliquot (part of the sampled media) collected from a single location at a specific time.

Surface soil samples are typically "grab" samples. Volatile organic samples are always grab samples because the least amount of sample disturbance is necessary.

Composite Samples

Composite samples are non-discrete samples composed of more than one aliquot collected from different sampling locations and/or at different points in time. Analysis of composite samples produces an average value.

Composite samples are frequently collected to characterize waste soil that has been stockpiled for eventual disposal. Several grab samples are collected from the stockpile and are blended together into a single sample.

Screening Samples

Screening samples may be grab or composite in nature. However, they offer potential advantages such as rapid results and low cost. The trade-off is that they may only provide results within a range and/or they may have elevated detection limits. Screening samples are most often used to evaluate presence/absence and/or indications of the potential magnitude of impacts.

3. Sampling Strategies

Generally, there are three sampling strategies: random, systematic, and judgmental sampling.

- Random sampling involves collection of samples in a non-systematic fashion from the entire site or a specific portion of a site.
- Systematic sampling involves collection of samples based on a grid or a pattern which has been previously established.
- Judgmental sampling is the collection of all other samples. This sampling might be from areas most likely to be contaminated, areas most likely to be clean, or areas where information is lacking.

Often, a combination of these strategies is the best approach depending on the type of the suspected/known contamination, the uniformity and size of the site, the level/type of information desired, etc.

4. Attachments

Attachment A - General Guidelines for selecting equipment

5. Contacts

Ryan Hoffman

General Guidelines for selecting equipment on the basis of construction material and target analyte(s)

[✔, generally appropriate for use shown; Si, silica; Cr, chromium; Ni, nickel; Fe, iron; Mn, manganese; Mo, molybdenum; CFC, chlorofluorocarbon; B, boron]

Construction material for sampling equipment		Target analyte(s)	
Material	**Description**	**Inorganic**	**Organic**
		Plastics[1]	
Fluorocarbon ploymers[2] (other varies available for differing applications)	Chemically inert for most analytes	✔ (potential source of fluoride)	✔ (Sorption of some organics)
Polypropylene	Relatively inert for inorganic analytes	✔ (not appropriate for Hg)	**Do not use**
Polypropylene (linear)	Relatively inert for inorganic analytes	✔ (not appropriate for Hg)	**Do not use**
Polyvinyl chloride (PVC)	Relatively inert for inorganic analytes	✔ (not appropriate for Hg)	**Do not use**
Silicone	Very porous. Relatively inert for most inorganic analytes	✔ (potential source of Si)	**Do not use**
		Metals	
Stainless steel 316 (SS 316)	SS-316-metal having the greatest corrosion resistance. Comes in various grades. Used for submersible pump casing.	✔ (Potential source of Cr, Ni, Fe, and possible Mn and Mo) **Do not use** for surface water unless encasted in plastic.	✔ Do not use if corroded[3]
Stainless steel 304	Similar to SS-316, but less corrosion resistant	**Do not use**	✔ Do not use if corroded[3]
Other metals: brass, iron, copper, aluminum, galvanized and carbon steels	Refrigeration-grade copper or aluminum tubing are used routinely for collection of CFC samples	**Do not use**	✔ Routinely used for CFCs Do not use if corroded[3]
		Glass	
Glass, borosilicate (laboratory grade)	Relatively inert. Potential sorption of analytes	✔ **Do not use** for trace element analyses. Potential source of B and Si	✔

[1]Plastic used in connection with inorganic trace-element sampling should be uncolored or white. Tubing used for trace metal sampling should be cleaned by soaking in 5-10 percent HCl solution for 8-24 hours, rinsing with reagent water (metals free) and allowed to air dry in mercury-free environment. After drying, the tubing is doubled-bagged in clear polyethylene bags, serialized with a unique number, and stored until used.

[2] Fluorocarbon polymers include materials such as Teflon™, Kynar™, and Tefzel™ that are relatively inert for sampling inorganic or organic analytes. Only fluoropolymer should be used for samples that will analyzed for mercury because mercury vapors can diffuse in or out of other materials, resulting in either contaminated or biased results.

[3] Corroded/weathered surfaces are active sorption sites for organic compounds.

STANDARD OPERATING PROCEDURE

SC-002 Environmental Sample Handling

1. Objective

Describe appropriate environmental sample handling procedures.

The procedures include collection and transport of environmental samples to a laboratory for chemical analysis. Appropriate sample handling should ensure that samples are properly:

- labeled and documented;
- preserved;
- packaged; and
- transported

2. Execution

- Prior to mobilizing to the field, select a shipper or arrange for a courier for sample delivery to the laboratory. If using a shipper (i.e., FedEx or UPS) determine the time constraints for pickup requests, the location and hours of the nearest shipping office, and any size/weight restrictions.
- A waterproof or permanent ink pen should be used for all labels. The label should have an adhesive backing and be placed on the jar or bottle, not on the cap. In addition, clear packing tape can be placed over the sample label to secure it to the bottle as moisture from the samples can loosen the label adhesive.
- Record the following information on the label and in the field notebook (See SOPs FD-001 and FD-003):
    - Project number
    - Sample identification (i.e. MW-201 or SS-2)
    - Date and time (military time) of collection
    - Sampler's initials
    - Analysis methods
    - Preservative, if present
- Pre-preserved laboratory jars are preferable and should be used whenever practicable. If sample jars are not pre-preserved, add preservative as appropriate.
- At each sampling location, samples should be collected in order of volatility, most volatile first. Samples collected for volatile analysis should be placed in sample containers immediately upon retrieval of the sample.
- Aqueous samples for volatile analysis should be collected without air bubbles.
- The collection and preservation method of soil samples for volatile analysis may depend on project, client, or state regulatory requirements. Check with your Project Manager and/or SOPs SM-001 and SM-002 where appropriate.

- Care must be taken to avoid getting soils on the threads of sample jars, which can cause a faulty seal.
- If compositing samples in the field, specify the basis for composite (i.e. volume, weight, spoon recovery, etc.) and record in the field book the procedure for compositing the sample.
- Once samples have been collected and labeled, place samples in a cooler with sufficient bagged ice or freezer packs (blue ice) (if allowed) to chill samples to 4°C. If using ice, use double-bagged ice.
- Complete the chain-of-custody (COC) (SOP FD-003).
- If transporting the samples by way of a shipper:
    i. The sample cooler should have water drains securely sealed with duct tape, both on the inside and outside of the cooler.
    ii. Place a layer of packing material on the bottom of the cooler as a cushion.
    iii. Individually wrap each sample bottle with bubble packing or suitable packing material and place the wrapped bottles upright in the cooler with sufficient packing material between samples to avoid breakage.
    iv. Methanol preserved samples for volatiles analysis should be packed so they remain upright with the soil completely covered by the methanol during transport.
    v. Place a layer of packing material on top of the sample bottles.
    vi. Place bagged ice or freezer packs on top of the packing material. Fill the remaining space in the cooler with packing material to eliminate the possibility of vertical movement of samples.
    vii. Place the completed and signed chain-of-custody form in a sealable plastic bag and place on top of the packing material in the cooler, or tape it to the inside lid of the cooler.
    viii. Fill out the appropriate shipping or courier forms and attach to the top or handle of the cooler. If necessary, place the proper shipping labels on the cooler. Have the courier sign the COC form (or write pickup by FEDEX, UPS, etc. with date and time). Place a signed and dated custody seal on the cooler.
- All samples should be submitted to the laboratory as soon as possible. In many cases, same day shipping will be required by the client or the project manager. Be clear on this before beginning the field work.
- A copy of the waybills should be kept by the field supervisor to track shipments if necessary.

3. Limitations

- If samples are shipped on a Friday, call the laboratory ahead of time to confirm that personnel will be at the laboratory to receive and log-in the samples.
- During warm weather, make sure to use plenty of ice in the shipping container.

- Field personnel should be aware of analyses which have short hold times and schedule sampling events and shipping accordingly. Shipment of samples for analyses with short hold times must be arranged for in advance. Refer to the project work plan, quality assurance project plan, or state/federal regulations for holding time and preservative information. Contact the laboratory ahead of time when shipping samples with short hold time to ensure the lab is prepared for these analyses.
- For glassware containing preservatives (e.g., HCl, HNO_3), take care not to overfill the container, thus flushing the preservative out of the bottle.
- Never composite samples for VOCs in the field. Collect individual aliquots and direct the laboratory to perform compositing, if needed.
- Collection of aqueous samples should not be performed over the opening of a monitoring well. Preservatives from overfilling, a marker pen or other objects could fall into the well.
- If the recharge volume for a monitoring well is low, completely fill all volatile vials and then collect the minimum sample volume required for each remaining analysis.
- During subsurface soil sampling, if the recovery from the split-spoon sample is inadequate, if appropriate, resample the bottom of the borehole to obtain proper sample volume.
- Laboratories will homogenize and test the contents of the sample container, unless directed otherwise. Samples should not contain rocks, twigs, leaves, etc… unless these materials are of interest.

4. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

Connecticut Department of Environmental Protection, Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory

Preservation Techniques for Volatile Organic Compound (VOC) Soil Sample Analyses, WSC#99-415. Massachusetts Department of Environmental Protection.

5. Contacts

Leslie Lombardo

STANDARD OPERATING PROCEDURE

SC-003 Investigation Derived Waste

1. Objective

Describe characterization and management of Investigation Derived Waste (IDW) resulting from site investigation activities.

IDW is solid and/or aqueous waste generated during environmental site investigations.

2. Execution

- Determine the suspected contamination type and impacted media based on previous investigations, available analytical data, and/or site history.
- Consider the following when selecting IDW management option(s):
    - Anticipated volume of IDW to be generated during on-site activities
    - Potential contaminants and their concentrations
    - Proximity to population centers and the potential for unauthorized site access
    - Potential exposures to workers
    - Potential for environmental impacts
    - Community concerns
    - Potential storage areas
    - Regulatory constraints
    - Potential on-site treatment options
    - Duration of storage
    - Client concerns or requirements
- Review IDW Management Options summarized in Attachment A for each media suspected of contamination.
- Select IDW Management Option(s) prior to the commencement of field activities that will generate waste materials.
- Include the selected IDW Management Option(s) in the Field Plan or other project documents.

Considerations and guidelines for IDW management for specific field tasks are provided below.

2.1. Test Pit Excavation

- Segregate contaminated soil from uncontaminated soil using visual and/or field screening methods.
- Use appropriate barrier (such as two layers of 6-ml plastic sheeting) for temporary stockpiling of contaminated soil adjacent to test pit.

- Backfill test pits with uncontaminated soil, unless otherwise directed by project manager.
- If directed by the Project Manager to return contaminated soil to the test pit, backfill soil in the same order as the soil was excavated from the test pit.

2.2. Boring/Monitoring Well Installation

- For auger borings, segregate contaminated soil (determined by visual and/or field screening methods) from uncontaminated soil during drilling. Segregate residual contaminated soil from split-spoon sampling.
- Auger cuttings or sediment generated by drive and wash may be spread around the ground surface at the boring location if it is acceptable to the client and the governing regulatory agency. If not, IDW may be placed in an appropriate area or container pending characterization and appropriate disposal. (A useful rule of thumb is to assume generation of one 55-gallon drum of cuttings for each 20 feet drilled with 7-¼-inch-I.D. augers).
- Segregate contaminated drilling fluid from uncontaminated fluid for rotary wash borings.
- Drilling fluid management options include pouring the drilling fluid on the ground near the boring location, if acceptable to the client and governing regulatory agency, or containerizing the fluid in drums or tanks.

2.3. Well Development/Sampling

Contaminated groundwater removed from wells by pumping or bailing for the purpose of well development and sampling may be poured on the ground near the well, if it is acceptable to the client and the governing regulatory agency. Otherwise, it should be containerized in drums or tanks.

2.4. Decontamination Fluids

Decontamination fluids may be poured on the ground in the vicinity of the well if approved by the project manager. Alternatively, the fluids may be containerized in drums or tanks.

2.5. Disposable Personal Protective Equipment

Disposable personal protective equipment (PPE) should be managed like any other IDW. However, with the clients' and project manager's approval, it may be removed from the site and disposed of as ordinary rubbish if it has not come into contact with contaminated materials.

3. Limitations

- The simplest IDW management option is to return the IDW to its source location.
- However, the selected IDW management options must meet state/federal regulations and have the client's approval. Consult with state/federal policies for IDW-related matters.

- The client is responsible for the disposal of IDW, should disposal be necessary.

4. References

Guide to Management of Investigation - Derived Wastes (April 1992), United States Environmental Protection Agency, Publication 9345.3-03FS.

Standard References for Monitoring Wells, Massachusetts Department of Environmental Protection, Publication No. WSC-310-91.

5. Attachments

Attachment A - Summary of Investigation Derived Waste Management Options

6. Contacts

David Terry
Leslie Lombardo

Attachment A: - SUMMARY OF IDW MANAGEMENT OPTIONS
GEI Consultants, Inc. Standard Operating Procedures
Management of Investigation - Derived Waste

Type of IDW	Generation Processes	Management Options	Remarks
Soil	Boring/monitoring well installation Test pit excavation Soil sampling	Return to source location immediately after generation	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Spread around boring, test pit, or original source location	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Containerize and temporarily store on site	Can temporarily store in stockpiles or covered containers (i.e. drums, roll-off containers). Stockpiles must be underlain by plastic sheeting and covered with plastic sheeting. Plastic sheeting must be secure. Storage consistent with state/federal regulations.
		Send to off-site, treatment or disposal facility within appropriate timeframes	Requires proper shipping documents (i.e. manifest, Bill of Lading, etc.), analytical characterization
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Store temporarily awaiting laboratory analysis.	Storage consistent with state/federal regulations. Can temporarily store in stockpiles or covered containers (i.e. drums, roll-off containers). Stockpiles must be underlain by plastic sheeting and covered with plastic sheeting. Plastic sheeting must be secure.
Sediment/Sludge	Sludge pit sampling Sediment sampling	Return to source immediately after generation	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Store temporarily on site.	Storage consistent with state/federal regulations.
		Send to off-site facility within 90 days	Requires manifests, analytical characterization
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)

Attachment A: - SUMMARY OF IDW MANAGEMENT OPTIONS
GEI Consultants, Inc. Standard Operating Procedures
Management of Investigation - Derived Waste

Type of IDW	Generation Processes	Management Options	Remarks
Aqueous liquids (groundwater, surface water, drilling fluids, other wastewater)	Well installation/development Well purging during sampling Ground water discharge - pump tests Surface water sampling	Pour onto ground close to well	Non-hazardous liquids only. Should not exhibit a sheen or separate phase product. Do not discharge to the ground up-gradient of the source location. Ensure that it is permissible by local, state, and Federal regulations Is acceptable to the client, the governing regulatory agency, and the project manager.
		Store temporarily on site	If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Send to off-site commercial treatment unit within appropriate timeframes	Refer to State regulations for appropriate timeframe. Requires appropriate shipping documents (i.e., manifest, Bill of Lading), analytical characterization
		Send to POTW	Obtain appropriate discharge permit(s)
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. Consistent with final remedial action
		Discharge to surface water	OK if it complies with state and federal regulations. Obtain appropriate discharge permit(s).
Decontamination fluids	Decontamination of PPE and equipment	Store temporarily on site	If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Send to off-site facility within appropriate timeframes	Requires manifests, analytical characterization
		Store for future treatment and/or disposal. Storage consistent with state/federal regulations.	Consistent with final remedial action
Disposable PPE	Sampling, drilling, and test pit excavation observation, other on-site activities	Store temporarily on site	Dispose of appropriately after characterization
		Place in on-site industrial dumpster	Project-specific determination required – must be acceptable to client and project manager
		Send to off-site facility within 90 days	Project-specific determination required
		Store for future treatment and disposal.	Storage consistent with state/federal regulations. Project-specific determination required

Notes:

1) PPE - personal protective equipment
2) POTW - publicly owned treatment works
3) Generation processes listed here are provided as examples.
   IDW may also be generated as a result of other site activities.
4) RCRA Container/Waste Pile/Tank requirements:
   Containers; 40 CFR 264 Subpart I and 265 Subpart I
   Waste Piles; 40 CFR 264 Subpart L and 265 Subpart L
   Tanks; 40 CFR 264 Subpart J and 265 Subpart J

STANDARD OPERATING PROCEDURE

SC-004 Headspace VOC Screening

1. Objective

Describe methods to obtain site-specific measurement of the total volatile organic compound (VOC) concentrations present in the headspace of a jar containing soil.

This information can be used for several purposes:

- Segregate soil based on degree of contamination.
- Identify samples for quantitative analysis of VOCs.
- Evaluate the presence or absence of VOCs in soil.

2. Execution

- A photoionization detector (PID) or flame ionization detector (FID) instrument is used to measure VOCs in jar headspace (JHS) screening.
- Select the appropriate instrument, lamp, and calibration gas for the site-specific contaminants. Calibrate the instrument in accordance with the manufacturer's instructions before JHS screening begins. Record the type of calibration gas, detector, lamp, and results of calibration in the field notebook.
- Note the highest VOC concentration that the instrument measures in air in the work area before performing JHS screening. Record this as the initial background concentration.
- Half-fill a clean, glass jar with the soil. Quickly cover the open top with one or two sheets of clean, aluminum foil and screw on the cap to tightly seal the jar. Label the jar with the sample location and sample depth.
- Allow headspace development for at least 10 minutes at an ambient temperature of 50°F or greater. Vigorously shake the jar for 15 seconds at the beginning and end of the headspace development period. When ambient temperatures are below 50°F, place the jar in a heated vehicle or building during the headspace development period.
- After headspace development, remove the screw cap to expose the foil seal. Quickly puncture the foil seal with the instrument's sampling probe and insert it to a point at about one-half of the headspace depth.
- Record the highest VOC concentration that the instrument displays as the JHS concentration. The highest concentration should occur between 2 and 5 seconds after probe insertion.

3. Limitations

- The instruments may work poorly in the rain and in freezing temperatures. Under such conditions, operate the instrument in a heated vehicle or building if possible.

- Prevent water and soil particles from entering the tip of the instrument probe. Use a filter on the instrument's probe.
- Measure background VOC conditions and perform JHS screening away from non-site-related VOC sources, such as vehicle and heavy equipment exhaust.
- The VOC concentration on the instrument's display may vary when the air contains high VOC concentrations or high moisture.
- JHS screening is a guide that helps the screener to segregate soils into broadly defined categories. JHS screening results may differ by orders of magnitude from laboratory testing results.
- Note that states may have specific procedures for field monitoring. In Massachusetts, the Massachusetts Department of Environmental Protection (DEP) requires that screening of gasoline-contaminated soil be performed in accordance with Attachment II of the DEP's policy #WSC-94-400 Interim Remediation Waste Management Policy for Petroleum Contaminated Soils. Consult this procedure or any relevant guidance documents for assistance.

4. References

Interim Remediation Waste Management Policy for Petroleum Contaminated Soils. (April 1994), Massachusetts Department of Environmental Protection, Policy #WSC-94-400.

5. Contacts

Leslie Lombardo

Section 6

Solid Matrix Sampling (SM)

STANDARD OPERATING PROCEDURE

SM-001 Soil Sampling Techniques Including Split-Spoon

1. Objective

Describe standard procedures for the collection of surface and subsurface soil samples.

The definition of "surface" soil varies considerably between regulatory organizations. Surface soils may be classified as soils between the ground surface and 2 inches below ground surface, ground surface and 6 inches below ground surface, and even as much as ground surface and 24 inches below ground surface.

The definition of subsurface soil will vary in relation to the definition of surface soil. In general, subsurface soil is everything deeper than surface soil.

Refer to state-specific regulations for the definitions of surface and subsurface soils.

2. Execution

2.1. Surface Soil Sampling

Collection of surface soil samples can be accomplished with tools such as spades, shovels, trowels, scoops, etc. A flat, pointed mason trowel to cut a block of the desired soil is helpful when undisturbed profiles are required.

- Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.
- Using a decontaminated stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.
- If volatile organic compound (VOC) analysis is to be performed, transfer the sample directly into an appropriate labeled sample container with a stainless steel lab spoon, small diameter core device, or equivalent and secure the cap tightly.
- Place the remainder of the sample into a decontaminated stainless steel, plastic, or other appropriate container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval.
- Either place the sample into appropriate labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval or location into the container and mix thoroughly.
- When compositing is complete, place the sample into appropriate labeled containers and secure the caps tightly.

2.2. Sampling with Hand Augers and Thin Wall Tube Samplers

Several types of augers are available; these include: bucket type, continuous flight (screw), and post-hole augers. Bucket type augers are generally better for direct sample recovery because they provide a large volume of sample in a short time. When continuous flight augers are used, the sample can be collected directly from the flights. The continuous flight augers are satisfactory when a composite of the complete soil column is desired. Post-hole augers have limited utility for sample collection as they are designed to cut through fibrous, rooted, swampy soil and generally cannot be used below a depth of approximately three feet.

2.2.1 Auger Sampling

- Clear the area to be sampled of any surface debris (e.g., twigs, rocks, litter). It may be advisable to remove the first three to six inches of surface soil for an area approximately six inches in radius around the drilling location.
- Attach the decontaminated auger bit to a drill rod extension, and attach the "T" handle to the drill rod.
- Begin augering, periodically removing and depositing accumulated soils onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.
- After reaching the desired depth, carefully remove the auger from the hole. When sampling directly from the auger, collect the sample after the auger is removed from the hole.

2.2.2 Thin-Walled Core Sampling

- Remove auger tip from the extension rods and replace with a pre-cleaned thin wall tube sampler. Install the proper cutting tip.
- Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the soil. Do not scrape the borehole sides. Avoid hammering the rods as the vibrations may cause the boring walls to collapse.
- Remove the tube sampler, and unscrew the drill rods.
- Remove the cutting tip and the core from the device.
- Discard the top of the core (approximately 1 inch), as this may represent material knocked down from the sides of the boring and not the layer of interest. Place the remaining core into the appropriate labeled sample container.

One type of thin-wall sampler is depicted in Attachment A (this is typically used with a mechanical drill rig).

For either method, If VOC analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, small diameter core sampler, or equivalent and secure the cap tightly. VOC samples should be collected first to minimize the potential for losing volatiles prior to sample collection.

Place the remainder of the sample into a stainless steel, plastic, or other appropriate container and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the container and mix thoroughly.

When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow previous steps, making sure to decontaminate the auger and tube sampler between samples.

Abandon the hole according to applicable state regulations. Generally, shallow holes can simply be backfilled with the removed soil material.

2.3. Sampling at Depth with a Split-Spoon (Barrel) Sampler

Split-spoon sampling is generally used with a mechanical drill rig to collect undisturbed soil cores of 18 or 24 inches in length. A series of consecutive cores may be extracted with a split-spoon sampler to give a complete soil column profile, or an auger may be used to drill down to the desired depth for sampling. The split-spoon is then driven to its sampling depth through the bottom of the augured hole and the core extracted. A diagram of the split-spoon sampler assembly is provided as Attachment A.

When split-spoon soil sampling is performed to gain geologic information, work should be performed in accordance with ASTM D1586-08a, "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". The following procedures are used for collecting soil samples with a split-spoon:

- Select the size (length and diameter) of split-spoon sampler based on the amount of soil that is needed for characterization. The ASTM standard for N-values is 1 3/8 - inch I.D (2-inch O.D.). Specify spoon size and basket type to driller prior to mobilization to the site. Split spoon samplers are typically available in 1 3/8 – and 3 – inch I.D. sizes. A larger barrel may be necessary to obtain the required sample volume. Note on the boring log where larger split spoon barrels are used because the ASTM standard penetration test does not apply when driving split spoons larger than 1 3/8 I.D. (2-inch O.D.).

- Select a soft or stiff basket for the spoon (a softer basket generally works better for loose or soft material).
- Prior to hammering the split spoon to collect the sample, verify that the split-spoon is seated at the beginning of the desired sample interval. If it is seated above the interval, have driller clean out the hole prior to sampling. Record all depth measurements relative to ground surface.
- Assemble the sampler by aligning both sides of barrel and then screwing the drive shoe on the bottom and the head piece on top. See diagram in Attachment A.
- Place the sampler in a perpendicular position on the sample material.
- For all soil samples, use a 140-lb hammer falling 30 inches to drive the sampler, unless conditions necessitate using a 300-lb hammer.
- Record in the site fieldbook or on field data sheets the length of the tube used to penetrate the material being sampled, the split-spoon inside and outside diameters, and the hammer weight,
- Count and record the number of blow counts per 6-inch increments (confirming blow counts with driller if necessary).
- Withdraw the sampler, and open by unscrewing the bit and head and splitting the barrel. The length of recovery and soil type should be recorded on the boring log. If a soil sample is desired, a decontaminated stainless steel knife or spatula should be used to divide the tube contents in half, longitudinally. If possible, avoid collecting soil that has come in contact with the walls of the spoon, and soil at the top of the spoon.
- Without disturbing the core, transfer it to appropriate labeled sample container(s) and seal tightly.
- Note any material in the nose (shoe) of the spoon.
- Immediately collect a sample for VOCs (if required by the site-specific field sampling plan) by collecting soil from the entire length of the split spoon, unless otherwise specified by the project manager. When the most impacted interval is sampled for laboratory analysis, screen the spoon with the field instrument first, then collect the soil sample for VOC analysis from the appropriate interval.

3. Limitations

- Weather conditions (e.g., frozen ground) may prevent the collection of samples and should be considered prior to sample collection.
- Tools plated with chrome or other materials should not be used.
- Be aware of local laws regarding subsurface utility clearance prior to conducting subsurface investigations. Contact DigSafe or local utility companies as required.
- Be aware of the length of the drill string, the sample depth, and the required stickup of the drill string to ensure accurate sample interval measurement.
- If drilling with hollow-stem augers, the removal of the drill string from the hole, prior to attaching the split-spoon sampler, may cause soils to be sucked up

into the augers (blow-in running sands). Upon recovery, determine if there is blow-in in the split spoon sampler. In general, blow-in is more unconsolidated than the rest of the sample and lacks stratification (do not include blow-in for recovery of sample collection).

- If soils consist of loose sands or soft clay, the drill string and sampler may advance slightly under its own weight, giving a false depth for soil collection.
- Never sample more than two spoons consecutively without advancing the augers unless material is tight. Do not let the split spoon penetrate more than it can hold.
- In many instances, groundwater will fill the auger and the split-spoon.

4. References

ASTM D1586-08a, "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". 2008.

United States Environmental Protection Agency, SOP 2012 "Soil Sampling", Revision 0.0, February 18, 2000.

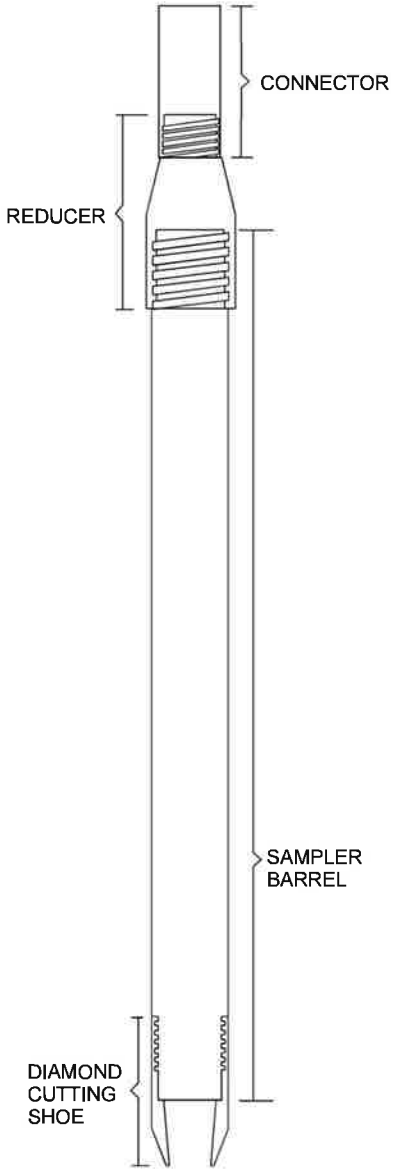
5. Attachments

Attachment A - Sampler Design Assembly

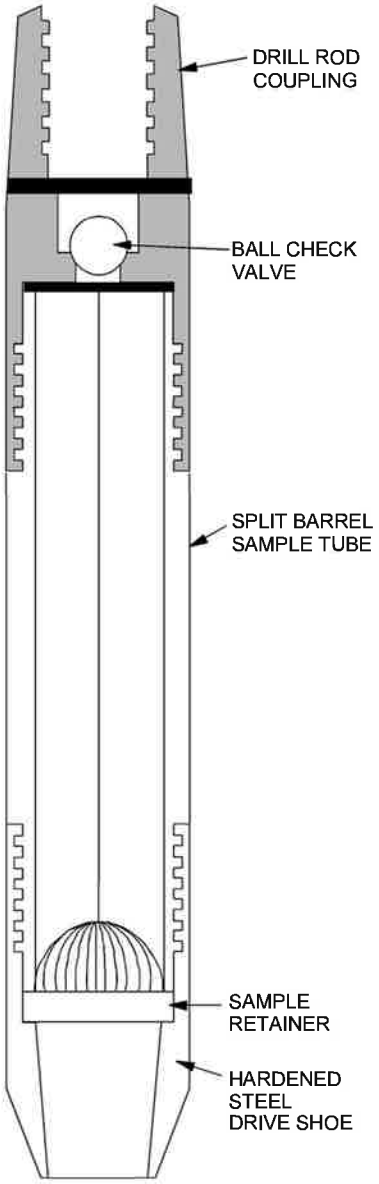
6. Contacts

Matt Glunt
Chris Pray

THIN WALL HQ CORE SAMPLER
(2" width x 60" length)



SPLIT-SPOON SAMPLER
(2" width x 24" length)



STANDARD OPERATING PROCEDURES SM-001	GEI Consultants	**THIN WALL AND SPLIT-SPOON SAMPLERS**
NEW ENGLAND AND ATLANTIC REGIONS	June 2011	Attachment A

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STANDARD OPERATING PROCEDURE

SM-003 Classification of Soil Samples in the Field

1. Objective

Describe methods to classify soil samples collected in the field in a consistent manner.

2. Execution

- Describe soil samples according to *ASTM D2488-09a, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) and* Attachments A and B. This standard is the basis for the Unified oil Classification System.
- Identify and record the soil in terms of the major and minor constituents (i.e., sand gravel, silt, clay), Unified Soil Classification Symbol, sample structure, plasticity and dilatancy for fine-grained soils, color, local or geologic name if known (e.g., Boston Blue Clay or glacial till), odor, presence of iron or other staining, and presence of organic matter, shells, debris, or other unusual characteristics of the same.
- If a soil split-spoon sample contains more than one soil type (for example, the upper portion is silty sand and the lower portion is clay) describe each type separately.
- Record sampler type, blow counts, soil description, etc. on the boring log (see Attachment C).
- GEI consistently applies one modification to the ASTM standard: Use "widely graded" and "narrowly graded" instead of "well-graded" and "poorly graded," respectively.

3. Limitations

Certain projects or clients will require the use of other classification systems. Other classification systems should not be used unless specifically required by the client. If the client requires that we use the Burmister method, obtain the details from the client. An example breakdown is shown below, but some clients (MassDOT, for example) have their own breakdown.

- "and" = 35-50%
- "some" = 20-35%
- "little" = 10-20%
- "trace" = 1-10%

- Describing soil samples is often difficult during cold or wet weather. Make sure your field notes describe these conditions. When possible, collect archive samples and verify sample descriptions in the office.

- The ASTM Standard Practice for Classification of Soils for Engineering Purposes (D2487) may be used in conjunction with the Visual-Manual Method to confirm the soil classification. D2487 includes laboratory testing.

4. References

ASTM D2487-06e1, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), ASTM, 2006.

ASTM D2488-09a, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), ASTM, 2009.

Field Guide for Soil and Stratigraphic Analysis, Midwest Geosciences Group Press, 2001-2005.

Coarse-Grained Soils Visual-Manual Descriptions, GEI Consultants, Soil Description Chart.

Fine-Grained Soils Visual-Manual Descriptions, GEI Consultants, Soil Description Chart.

5. Attachments

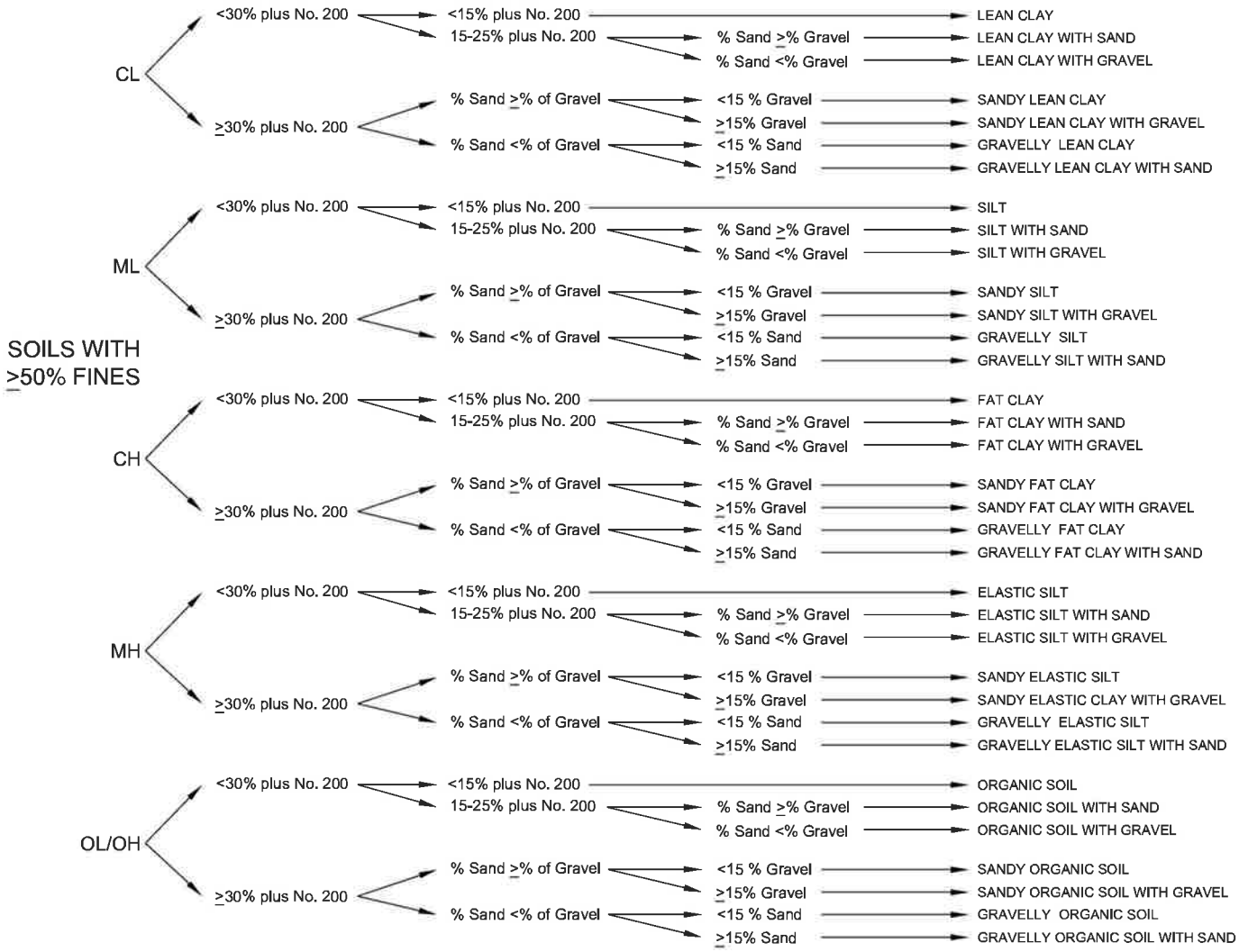
Attachment A – GEI Soil Description Charts (2007)
Attachment B – Visual Manual Descriptions with example boring log
Attachment C – Describing the Plasticity of Soil Samples

6. Contacts

Cathy Johnson

GEI Consultants

FINE-GRAINED SOILS
VISUAL-MANUAL DESCRIPTIONS



ID OF INORGANIC FINE SOILS FROM MANUAL TESTS

Symbol	Name	Dry Strength	Dilatancy	Toughness*
ML	Silt	None to low	Slow to rapid	Low or thread cannot be formed
CL	Lean Clay	Medium to high	None to slow	Medium
MH	Elastic Silt	Low to medium	None to slow	Low to medium
CH	Fat Clay	High to very high	None	High

1. GROUP NAME and (SYMBOL)
2. Describe fines, sand, and gravel components, in order of predominance. Include plasticity of fines. Include percentages of sand and gravel.
3. Color
4. Sheen, odor, roots, ash, brick, cementation, torvane and penetrometer results, etc.
5. "Fill," local name or geologic name, if known

PEAT

Peat refers to a sample composed primarily of vegetable matter in varying stages of decomposition. The description should begin: PEAT (PT) and need not include percentages of sand, gravel or fines.

CRITERIA FOR DESCRIBING PLASTICITY

Description	Criteria
Nonplastic ML	A 1/8-in. (3 -mm) thread cannot be rolled at any water content
Low Plasticity ML, MH	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit *
Medium Plasticity MH, CL	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit
High Plasticity CH	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit

* Toughness refers to the strength of the thread near plastic limit. The lump refers to a lump of soil drier than the plastic, similar to dry strength.

COARSE-GRAINED SOILS

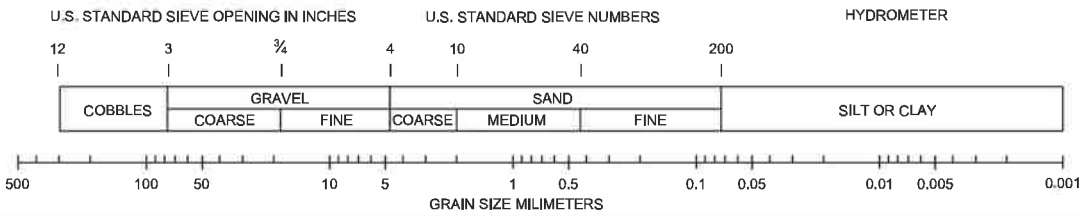
VISUAL-MANUAL DESCRIPTIONS

GEI Consultants

TYPICAL SOIL COLORS

- YELLOW
- OLIVE
- LIGHT BROWN
- BROWN
- REDDISH BROWN
- RED
- GRAY
- BLACK

			GROUP SYMBOL	GROUP NAME
GRAVEL (% Gravel > % Sand)	≤5% Fines	WIDELY GRADED	GW	<15% Sand → WIDELY GRADED GRAVEL
				≥15% Sand → WIDELY GRADED GRAVEL WITH SAND
		NARROWLY GRADED	GP	<15% Sand → NARROWLY GRADED GRAVEL
				≥15% Sand → NARROWLY GRADED GRAVEL WITH SAND
	~10% Fines	WIDELY GRADED	Fines = ML or MH → GW-GM	<15% Sand → WIDELY GRADED GRAVEL WITH SILT
				≥15% Sand → WIDELY GRADED GRAVEL WITH SILT AND SAND
			Fines = CL or CH → GW-GC	<15% Sand → WIDELY GRADED GRAVEL WITH CLAY
				≥15% Sand → WIDELY GRADED GRAVEL WITH CLAY AND SAND
		NARROWLY GRADED	Fines = ML or MH → GP-GM	<15% Sand → NARROWLY GRADED GRAVEL WITH SILT
				≥15% Sand → NARROWLY GRADED GRAVEL WITH SILT AND SAND
			Fines = CL or CH → GP-GC	<15% Sand → NARROWLY GRADED GRAVEL WITH CLAY
				≥15% Sand → NARROWLY GRADED GRAVEL WITH CLAY AND SAND
	≥15% Fines		Fines = ML or MH → GM	<15% Sand → SILTY GRAVEL
				≥15% Sand → SILTY GRAVEL WITH SAND
			Fines = CL or CH → GC	<15% Sand → CLAYEY GRAVEL
				≥15% Sand → CLAYEY GRAVEL WITH SAND
SOILS WITH <50% FINES				
SAND (% Sand ≥ % Gravel)	≤5% Fines	WIDELY GRADED	SW	<15% Gravel → WIDELY GRADED SAND
				≥15% Gravel → WIDELY GRADED SAND WITH GRAVEL
		NARROWLY GRADED	SP	<15% Gravel → NARROWLY GRADED SAND
				≥15% Gravel → NARROWLY GRADED SAND WITH GRAVEL
	~10% Fines	WIDELY GRADED	Fines = ML or MH → SW-SM	<15% Gravel → WIDELY GRADED SAND WITH SILT
				≥15% Gravel → WIDELY GRADED SAND WITH SILT AND GRAVEL
			Fines = CL or CH → SW-SC	<15% Gravel → WIDELY GRADED SAND WITH CLAY
				≥15% Gravel → WIDELY GRADED SAND WITH CLAY AND GRAVEL
		NARROWLY GRADED	Fines = ML or MH → SP-SM	<15% Gravel → NARROWLY GRADED SAND WITH SILT
				≥15% Gravel → NARROWLY GRADED SAND WITH SILT AND GRAVEL
			Fines = CL or CH → SP-SC	<15% Gravel → NARROWLY GRADED SAND WITH CLAY
				≥15% Gravel → NARROWLY GRADED SAND WITH CLAY AND GRAVEL
	≥15% Fines		Fines = ML or MH → SM	<15% Gravel → SILTY SAND
				≥15% Gravel → SILTY SAND WITH GRAVEL
			Fines = CL or CH → SC	<15% Gravel → CLAYEY SAND
				≥15% Gravel → CLAYEY SAND WITH GRAVEL



1. GROUP NAME and (SYMBOL)
2. Structure , if any. (stratified layer thicknesses, lenses, varves, gradational changes)
3. Describe sand, gravel and fines components, with percentages, in order of predominance. Include max gravel size. For test pits give percent cobbles and boulders, by volume, and include max size.
4. Color
5. Sheen, odor, roots, ash, brick, cementation, reaction with HCL, etc.
6. "Fill," local name or geologic name, if known

Describing the Plasticity of Soil Samples

M. Paster – November 2008

References ASTM D 2487 – Soil descriptions – lab
ASTM D 2488 – Soil descriptions – field
ASTM D 4318 – Atterberg limits testing

GEI Practice for Boring and Test Pit Logs

Describe the fines as:

Non-plastic
Low plasticity (The GEI laminated sheets incorrectly use "slightly plastic" for "low plasticity.")
Medium plasticity
High plasticity

Example: ~25% low plasticity fines

Toughness and dry strength:

You should use these tests to help decide how plastic the fines are. Record the results in the remarks column of the field log, but not in the soil description and not necessarily in the typed log.

On final logs, if Atterberg limits tests have been performed:

Do not use the descriptive terms non-plastic, low plasticity, etc. for samples on which Atterberg limits tests have been run. Instead, just give the percentage of fines and then report the actual Atterberg limits at the end of the description.

For example, the end of a silty sand description might be:
. . . ~25% fines, ~10% gravel max size ½ inch, gray. PL=23, LL=35.

(Atterberg limits tests are performed on the fraction of the sample finer than the No. 40 sieve, not just the fines. So the Atterberg limits data applies to the sample, not just to the fines.)

Hints:

High plasticity soils are rare in New England. If you think it's high plasticity, it's probably medium. Some Boston blue clay and some Connecticut River varved clays are high plasticity, but if you think you've found some, check with the project manager.

In New England, if ~10% fines or more, generally stick with GM, SM, ML, and CL. Occasionally GC, SC, CH. Don't use MH unless you have Atterberg limits data.

Estimating plasticity in the field, GEI guidance based on ASTM D 2488:

Plasticity	1/8-inch thread	Dry strength	Toughness
non	Cannot be rolled at any water content.	Dry specimen crumbles when handled.	Only slight pressure needed to roll thread near plastic limit.
low	Thread can barely be rolled.	Dry specimen crumbles with some finger pressure.	Slight to medium pressure needed to roll thread near plastic limit.
medium	Thread is easy to roll. Not much time needed to reach plastic limit.	Dry specimen crumbles with considerable finger pressure.	Medium pressure needed to roll thread near plastic limit.
high	Takes considerable time rolling and kneading to reach plastic limit.	Dry specimen cannot be broken with finger pressure.	Considerable pressure needed to roll thread near plastic limit.

Non-plastic vs. low plasticity:

ASTM D 2488 (soil descriptions - field) defines non-plastic and low plasticity based on the 1/8-inch thread as shown in the table above.

ASTM D 4318 (Atterberg limits testing) indicates that a sample should be called non-plastic for either of the following cases:

- The liquid limit test (dropping the cup) or the plastic limit test (rolling out the thread) cannot be performed because the plasticity is too low.
- The plastic limit is greater than or equal to the liquid limit.

Unfortunately, there are some soils that are low plasticity based on D 2488 (a thread can be rolled), but are non-plastic based on D 4318 (the liquid limit cannot be measured or PL≥LL).

GEI considers these soils to have low plasticity, because that is how they "look" and "feel." We want to document this information so that other people will have a better feel for what the soil looks like and how it behaves. So, if the soil was low plasticity based on D 2488, but non-plastic based on D 4318, that should be explained in the letter or report, and possibly in a note on the log.

BORING LOCATION Mople Ave Sidewolk
GROUND ELEVATION (NGVD) _____
GROUNDWATER EL. _____ DATE _____

DATE START/FINISH 2/14/07 - 2/15/07
DRILLED BY Geologic: M. Costigon
LOGGED BY T. Kohl/M. Yoko TOTAL DEPTH (FT) 25

B101

PG. 1 OF 1

EL. FT.	DEPTH FT.	SAMPLE TYPE and NO.	SAMPLE BLOWS PER 6 IN.	SAMPLE PEN IN.	SAMPLE REC IN.	PID JAR HS / REMARKS	GRAPHIC LOG	SOIL AND ROCK DESCRIPTIONS
	0						FILL	4" povement
		S1	13-9 17-14	24	0	0.5 ppm		S1: Redrove 0.5 to 3.5 ft. Recovery 11": WIDELY GRADED SAND (SW) ~85% sond, ~10% grovel to 1", <5% nonplostic fines, brown. Contoins brick frogments ond osh. Fill.
	2.5					hord drilling 3 to 4 ft, possible boulder		
	5	S2	7-7 11-13	24	8	2.0 ppm		S2: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) ~65% mostly fine sand, ~25% grovel to 3/4 inch ~10% non-plostic fines, brown. Fill.
	7.5	S3	9-10 2-1	24	16	0.0 ppm	ORGANICS	S3 (0-10"): Similor to S2.
	10							S3 (10"-16"): ORGANIC SILT (OL) ~100% slightly plostic fines, dork groy, orgonic odor, contoins white shell frogments.
	12.5	S4	WOH 1-2 1	24	15	0.0 ppm		
	15					hord drilling ot 15.5 ft		S4: Similor to S3, bot 6".
	17.5	S5	20-35 50/3"	15	8	Top of rock ~19 ft. Roller bit to 20 ft.	TILL	S5: SILTY SAND WITH GRAVEL (SM) ~60% mostly fine sond, ~25% slightly plostic fines, ~15% grovel to 1/2 inch, olive. Glociol Till.
	20						ROCK	C1: SCHIST, hord, slight weothering ot joint surfoces, joints ot ~30 degrees from horizontol ond generolly porollel to foliotion, groy. Morlborough Formotion.
	22.5	C1	RQD 70%	60	54	lost ~10 gollons drill fluid from 23 to 25 ft		
	25							Bottom of Boring 25 ft
	27.5							Truck-mounted drill rig. 4-inch cosing to 19 ft. Sofety-hommer with rope ond cothead for SPT. Bockfilled with drill cuttings.
	30							

BLOWS PER 6 IN.–140 LB. HAMMER FALLING 30 IN. TO DRIVE A 2.0 IN. OD SPLIT SPOON SAMPLER
PEN–PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC–RECOVERY LENGTH OF SAMPLE
RQD–LENGTH OF SOUND CORES > 4 IN./ LENGTH CORED, %
S–SPLIT SPOON SAMPLE
U–UNDISTURBED SAMPLES, UF–FIXED PISTON UO–OSTERBERG
▽ GROUNDWATER

NOTES:
1: Groundwoter ot 10 ft depth ot stort of doy 2/15/07.

PROJECT 07999-0
DATE

GEI Consultants

EXAMPLE SOIL DESCRIPTIONS

SANDY SILT (ML) ~60% slightly plastic fines, ~40% mostly fine sand, 1" thick layer of fine to medium sand with <20% fines, gray.

LEAN CLAY (CL) ~90% moderately plastic fines, ~10% fine sand, olive. Boston Blue Clay. Sv = 0.5, 0.5, 0.8 tsf, Qp = 1.0, 1.5, 1.6 tsf

Stratified CLAYEY SAND (SC) and WIDELY GRADED SAND (SW) SC layers 1 to 2 inches thick consist of fine sand with ~30% moderately plastic fines, gray. SW layers 1 to 4 inches thick consist of fine to coarse sand, ~10% gravel to 1/2 inch, <5% fines, brown. Hydraulic Fill.

EXAMPLE ROCK DESCRIPTIONS

(0-9"): GRANITE, hard, one piece, joint surface slightly weathered, pink.
(6-60"): PHYLLITE, joints ~ 45° generally parallel to foliation, 9" to 44" moderate to severe jointing and joint weathering. 44" to 60" single piece, green-gray.

ARGILLITE, medium hard, moderately weathered joints, gray. Cambridge Argillite.

GEOPROBE AND ROTOSONIC

When SPTs are not performed, note sample density (sands) or stiffness (clays) in description.

CRITERIA FOR DESCRIBING DILATANCY OF FINE-GRAINED SOILS

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing.
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing.

SPT: Standard Penetration Test

30-inch drop with 140-lb hammer
1 3/4 to 2 1/4 turns around cathead
2-inch O.D. split spoon sampler

ENV'L TERMINOLOGY FOR SOIL DESCRIPTIONS

- **Ash** - Typically silt-size to medium sand-size.
- Do not use the term "cinders." This is not a technical term. Instead, use "ash," "burnt wood," "burnt material," or a similar term.
- **Coal-like material** - If it looks like coal but you aren't sure.
- **Clinker** - Vitrified (glass-like) or heat-fused material. Often burned impurities in coal. Often looks like pumice, but heavier.
- **Slag** - Similar to clinker, but normally refers to residue from metal ore processing.

- **Sheen** - Iridescent petroleum-like sheen. Not to be used for a "bacterial sheen," which can be distinguished by its tendency to break up on the water surface at angles. Petroleum sheen will be continuous and will not break up.
- **Stained** - Use with a color ("brown-stained") to indicate that the soil is stained a color other than its natural (unimpacted) color.
- **Coated** - Soil grains are coated with NAPL (oil, tar, etc.). There is not enough NAPL to saturate the pore spaces. ("Split spoon sampler coated with brown oil." "Soil grains coated with gray substance with slight gasoline-like odor.")
- **Saturated** - The entire sample pore space is saturated with NAPL. If you use this term, be sure it is not water saturating the pore spaces. Depending on viscosity, the NAPL may drain from a soil sample. ("Sample saturated with green, sticky substance.")
- **Blebs** - Discrete spherical of NAPL in a soil matrix that was not visibly coated or saturated. ("Occasional blebs of reddish-brown tar.")
- **Oil** - Exhibits a petroleum odor, different from MGP odors.
- **Tar** - Exhibits an MGP odor (e.g. naphthalene-like odor).

- **Odors** - Use terms such as "naphthalene-like odor" or "petroleum-like odor." Use modifiers (strong, moderate, slight) to indicate odor intensity.

STANDARD OPERATING PROCEDURE

SM-004 Test Pit Excavation

1. Objective

Describe methods for excavating test pits and documenting findings.

The test pit is used to characterize geologic strata, subsurface conditions and provide access for collection of representative soil samples from these strata.

2. Execution

- Before digging begins, proper permits and notifications must be obtained, in accordance with applicable rules or regulations.
- Make sure that utility clearance has been conducted. Contact the property owner to determine the location of underground utilities. Verify, with the contractor that local/regional utility clearance service has been contacted. Ask subcontractor to provide local/regional utility clearance service authorization number and record this in the field notebook. Show the contractor the approximate excavation area, and have the contractor confirm that the area is suitable for excavation. Clearance may require marking of subsurface explorations prior to contacting utility clearance service.
- Have contractors pressure wash or steam clean equipment before beginning field activities, if necessary.
- Observe the contractor excavating the designated area.
- If contamination is suspected, have the contractor place excavated material on plastic sheeting.
- During excavation, monitor ambient air for contaminants of concern identified in the site-specific Health and Safety Plan. Record readings in field notebook (see SOP FD-001 Field Notebook).
- Record in a field book or test pit log:
    - Test pit dimensions,
    - Soil classifications (see SOP SM-003 Soil Classification)
    - Visual and olfactory indications of contamination
    - Subsurface structures
    - Obstructions to excavation
    - Any other observations relevant to the project objectives
    - Take photographs of excavation and completed test pit walls, etc. (SOP FD-004 Photodocumentation).
- Record technical information on a PDA, test pit log form, or a field book.
- Label sample bottles (see SOP SC-002 Sample Handling).
- Screen soil samples for contaminants of concern and record results in the field notebook or test pit log.
- Collect soil samples from the test pit as designated in the work plan including sidewalls and bottom at designated depths, at strata changes, or based upon

field screening using remote sampling equipment (backhoe bucket, stainless steel remote sampler, etc.). Do not enter a test pit unless side slopes satisfy Occupational Safety and Health Administration (OSHA) regulations and other health and safety concerns have been addressed.

- Transfer soil samples to the appropriate glassware according to soil sampling SOPs (SOP SM-002 VOC Soil Collection and Preservation Method, etc.).
- Store samples on ice in a cooler (see SOP SC-002 Sample Handling and SOP FD-003 Chain-of-Custody).
- Backfill excavation as soon as possible with material as described in the field plan. Place the excavated material back in the excavation in approximately the same strata it came from.
- Segregate contaminated soil as necessary (see SOP SC-003 IDW). Properly identify segregated material and secure as described in the work plan.
- Measure dimensions of excavation and record in the field notebook or test pit log. If sampling locations are to be surveyed, mark the corners and provide surveyor with location ID.
- Sketch dimension and location of the test pit relative to a site reference point and record in the field notebook. Note the sample locations by number on a cross-section sketch and plan view sketch.

3. Limitations

- Never enter the excavation unless it is shored or the sidewalls are sloped in accordance with OSHA regulations and all proper personal protective safety precautions have been considered and implemented.
- Terminate excavation if the flow of groundwater into the excavation adversely affects the stability of the excavation (i.e., slumping). Make sure to note in the field notebook or test pit log the depth to ground water.
- Terminate excavation if drums, tanks, or other potential sources of contamination are observed. Record visible drum markings, labels, and any other pertinent information on the test pit log and in the field notebook. Photograph drums and materials. Consult with the project manager before filling the excavation.
- Do not leave an open test pit unattended.

4. References

Earth Manual (1968), United States Department of the Interior, Bureau of Reclamation, United States Government Printing Office, Washington, D.C., pp. 134-139.

OSHA Standards for Excavations, Department of Labor, Federal Register, 29 CFR Part 1926, Aug. 9, 1994.

5. Contacts

Russ Morang
Mike Quinlan

Field Descriptions of Samples at Urban Impacted Sites

The intent of this document is to provide field personnel guidelines for logging soil conditions and observed impacts in a consistent and factual manner. This guidance recognizes that prejudging field conclusions regarding the potential source(s) or nature of a particular impact should be avoided and instead conclusions should be based on multiple lines of evidence (field observations, laboratory physical and chemical analyses, historic site uses, location of observed impacts, etc.).

SOIL LOGGING

- All soils are to be logged using the **Unified Soil Classification System** (ASTM D 2488 field descriptions).
- A photograph of the entire sample core should be taken. Additional photographs may be necessary to document impacted material.
- A calibrated **PID** (Photoionization Detector) should be used to screen all soil samples. PID readings should be taken every 6 inches of recovery and the interval reading should be included on the boring logs.
- The soil sample core should be scored or cut along the long axis so that the all of the soil lithology can be observed, when practical.
- **Moisture terms**: dry, moist and wet.
- **Color terms** –Color terms should be used to describe the "natural color" of the sample as opposed to staining caused by contamination (see below).
- **Representativeness** – Soil logs should include specific notes if the field representative believes that there is a possibility the soil sample being described is not representative of the interval sampled or is indicative of multiple sources of contamination.
- **Intervals for Description** – the field description should be for discrete intervals within the sampler, specifically pointing out small-scale units and changes within each sample interval. The description should also include the amount of sample recovered and note other conditions (such as a change in drilling conditions, etc.), as well as consistently adjusting the sample interval described (i.e. – identify the percentage of sample actually recovered and note any potential causes of the loss if possible) and note other conditions (such as a change in drilling conditions, etc.).

DESCRIPTION OF CONTAMINANTS

Visual Contamination Descriptors

- **NAPL** (Non Aqueous Phase Liquid) – a separate phase liquid that may be lighter than water (LNAPL) or denser than water (DNAPL). NAPL arises from a variety of industrial sources and can have varying consistency (viscosity) and can range from non-viscous to highly viscous (taffy-like). NAPL observations should be accompanied by applicable olfactory with smell for industrial sources (see descriptors below) and other visual observations (e.g., color and viscosity).

- **Sheen –** iridescent sheen. This is not to be used to describe a "bacterial sheen", which can be distinguished by its tendency to break up at angles on the water surface; whereas a non-bacterial sheen will be continuous and will not break up.

- **Blebs –** discrete, spherical shaped NAPL in or on the soil matrix. Include additional descriptors to the extent practicable such as the approximate size and quantity (number of blebs or qualitative estimate) to the extent practical.

- **Coated –** soil grains are coated with NAPL – there is not sufficient NAPL present to saturate the pore spaces. Use modifiers such as light, moderate or heavy to indicate the degree of coating.

- **Saturated –** the entirety of the pore space for a sample interval is saturated with NAPL. Care should be taken to ensure that the saturation described is not related to water in the sample. Depending on the viscosity, NAPL saturated materials may freely drain from a soil sample and should be documented accordingly.

- **Stained** – visible, unnatural discoloration of the soil, with no visible free product.

- **Solid NAPL –** NAPL that is in a solid or semi-solid phase. The magnitude of the observed solid NAPL should be described (discrete granules or a solid layer).

  Other Visual Impacts and Descriptors– Other visual impacts that are not naturally occurring should also be noted along with appropriate visual descriptors. These other visual observations could include the observation of debris, wood chips, staining, anthropogenic materials, or other notable visual characteristics and general observations characterizing common urban fill. The above impacts should be described using other visual descriptors as applicable. Descriptors may include, but not be limited to, color, consistency, thickness, etc.

Olfactory Descriptors

- Note odors similar to mothballs, driveway sealer, highway paving oil or other odors that are acrid, burnt, or sulfur-like, etc.
- Other odors that are not believed to be natural should also be identified with descriptors such as organic, ammonia, sweet, chemical etc., as applicable.
- Use modifiers such as strong, moderate or slight to indicate intensity of the observed odor.
- In instances where multiple odors are present, a combination of descriptors should be used to clearly identify where these co-mingled impacts are present.

DNAPL/LNAPL

- **Density of NAPL –** a jar shake test can be performed to preliminarily determine in the field whether observed NAPL is either denser or lighter than water. Care should be taken in recording and interpreting the results, as experience indicates that the apparent result immediately following the test may change with time. Laboratory testing for density of the NAPL is recommended to confirm results. The depth at which the NAPL is encountered on soil with respect to the groundwater surface is not diagnostic and should not be used a basis for identifying the density of NAPL in the field.

- **Viscosity of NAPL –** if NAPL is present a qualitative description of viscosity should be made. The following should be used:

  Highly Viscous (taffy-like)
  Viscous (No. 6 fuel oil or bunker crude-like)
  Low viscosity (No. 2 fuel oil-like or water-like)

GROUNDWATER SAMPLING OBSERVATIONS

- Any observations of sheen, blebs, NAPL, smearing or coating of the sampling equipment, odor, etc. made during groundwater sampling are to be included in the groundwater sample collection log.

COLOR CHART (ATTACHED) For Use in Cross-Sections, Extent Maps, and Similar Interpretative Depictions

The color chart attached is intended to help visually depict the nature and location of impacts observed during an investigation. The chart would be used for new sites or sites transitioning from the Site Characterization to the Remedial Investigation phase (or are in the early stages of the Remedial Investigation phase). The colors should be included in investigation summaries on cross sections to support an understanding of the nature and extent of impacts. In addition, the colors may also be placed on boring logs (although not a requirement) in the final report. In either case, the colors will be used in interpretive depictions of nature and extent once the lines of evidence support a determination of the appropriate color selection. Since the investigation of a site is dynamic, the use of a particular color or a combination of colors may change if other lines of evidence suggest such a change is appropriate.

In instances where multiple impacts are present, a combination of colors should be used (such as a color with cross hatching) to clearly identify where these co-mingled impacts are present.

Color Descriptions of Samples at Urban Impacted Sites

	RGB Color	Auto Cad Index
NAPL SATURATED	255,0,0	10
NAPL COATED MATERIAL	255,0,255	210
SOLID NAPL	129,64,0	34
NAPL BLEBS, GLOBS, SHEEN	255,191,0	40
STAINING, ODOR	255,255,0	50
INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS	0,191,255	140
INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS	170,234,255	141
WOOD CHIPS/BLUE DISCOLORATION/SULFER-LIKE ODOR	0,0,255	170
NO OBSERVED IMPACTS	0,165,0	92

Note: In instances where multiple impacts are present, a combination of colors should be used (such as a color with cross hatching) to clearly identify where these co-mingled impacts are present.

Section 7

Groundwater (GW)

STANDARD OPERATING PROCEDURE

GW-001 Water Level and NAPL Measurement

1. Objective

Describe procedures to measure the depth to water and non-aqueous phase liquid (NAPL) thickness in an open borehole, cased borehole, monitoring well or piezometer.

2. Equipment and Materials

Field forms and/or field notebook.

- Decontamination fluids
- Bailer
- Weighted cotton string
- Oil/Water interface probe
- Water level meter (if oil/water interface probe is not available)

Water level and NAPL measurements can be collected by a variety of methods. A water level meter is used to collect depth to water measurements however an oil/water interface probe or other methods must be used to gauge NAPL depths. An electronic oil/water interface meter, consists of a cable divided into incremental measurements of 0.01 feet, and probe that consists of an infra-red circuit that detects the presence of a liquid, and a conductivity circuit that differentiates between conductive liquid (water) and non-conductive liquid (LNAPL or dense non-aqueous phase liquid [DNAPL] product). Typically, a steady tone and light indicate a non-conductive liquid (e.g. product) and an intermittent tone and light indicate a conductive liquid (e.g. water). Refer to the manufacturer's instructions for details. Alternately, water level and NAPL measurements can be collected using a water level meter, clear bailer and weighted cotton string. Each method of data collection is described below.

3. General Information

- The water level in a monitoring well or piezometer should be allowed to stabilize for a minimum of 24 hours after development or construction before groundwater elevation and/or NAPL measurements are collected. The water level in a borehole can be measured during drilling; however, this should be noted in the field notebook.
- Water levels in multiple wells should be collected within the shortest timeframe practicable.
- Water and NAPL levels should be measured from the designated survey point as specified by the surveyor or highest point (or "V" notch) on the PVC. If the well is new, mark the datum point with an indelible marker and note reference location in

field book. Discuss with the project manager what reference point should be used to collect water measurements for specific sites.

- Water level and/or NAPL measurements should be made before any water is removed from wells because doing so may influence groundwater levels in the area of the investigation.
- Measurements should be made approximately three times to confirm the measurement. Each time a measurement is made it should be determined to the nearest one-hundredth of a foot (0.01).
- Water level and/or NAPL measurements should first be collected at the wells that are least contaminated and proceed towards the wells that are most contaminated. Decontaminate the water level meter or oil/water interface probe prior to initial use and after use at each location. If NAPL is encountered at a well where it was previously not observed, contact your project manager before continuing.
- Refer to the oil/water interface probe or water level meter instruction manual for guidance on indicator signals, as these may differ by manufacturer.

4. Execution

4.1 Water Level and NAPL Measurements Using Interface Probe

- Open wells to the atmosphere and allow them to equilibrate prior to collecting LNAPL depth measurements.
- LNAPL Depth (if present): Measure the LNAPL/air interface by slowly lowering the interface probe to the LNAPL surface. Be ready to stop as soon as the probe signals the LNAPL surface.
- Record the depth to LNAPL.
- Groundwater Depth: Continue slowly lowering the probe until it signals the presence of water.
- Record the depth to water.
- The LNAPL thickness is determined by subtracting the water depth from the LNAPL depth.

The depth and thickness of DNAPL can sometimes be determined by slowly lowering the interface probe past the LNAPL (if present) and water layers. Record the depth to the DNAPL layer. Finally, measure the depth to the well bottom.

The DNAPL thickness is determined by subtracting the DNAPL depth from the depth to well bottom.

- Decontaminate the interface probe and tape according to SOP QA-001.
- Dispose of any NAPL-impacted debris properly.
- Check with the Project Manager if you are uncertain of the appropriate disposal method.

4.2 LNAPL Measurements Using Clear Bailer

If LNAPL is suspected at a site, an oil/water interface probe should be used when gauging water level and NAPL measurements. However, a water level meter and a clear bailer may be used instead to estimate approximate LNAPL thickness if an oil/water interface probe is not available.

- Open wells to the atmosphere and allow them to equilibrate prior to collecting LNAPL depth measurements.
- Slowly lower the water level meter until contact with fluid is indicated by the meter.
- Record the depth to fluid measurement.
- Lower a clear bailer into the well and slowly into the LNAPL. Do not submerge the bailer.
- Slowly raise the bailer out of the well and measure LNAPL thickness in the bailer using a ruler or tape measure.

Calculating Depth to Groundwater

The depth to water can be calculated as follows:

DTW = DTF + PT
DTW = Depth to Groundwater
DTF = Depth to Fluid
PT = Measured Product Thickness

Calculating Corrected Depth to Groundwater

Once the LNAPL thickness is known and the depth to groundwater is known, the corrected depth to groundwater can be calculated.

Corrected DTW = Static DTW – (PT x G)
DTW = Depth to Ground Water
PT = Measured Product Thickness
G = Specific Gravity (density of free product / density of water)

4.3 DNAPL Measurements Using Weighted Cotton String

A weighted cotton string may be used to estimate approximate DNAPL thickness.

- Secure cotton string.
- Secure clean steel nuts and/or washers.

- Tie the string to the nuts/washers, so that there is adequate weight.
- Lower the weighted string into the well slowly, until a firm bottom is sensed.
- Remove the weighed string and measure the DNAPL coated portion of the string.
- Record the thickness.
- Dispose of any NAPL-impacted debris properly. Check with the Project Manager if you are uncertain of the appropriate disposal method.

5. Health and Safety Considerations

The health and safety considerations for the work associated with this SOP, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed job safety analysis (JSA) should be completed prior to the start of work.

6. Considerations

- Weak batteries in water level and oil/water interface meters frequently produce weak or gradual auditory and/or visual responses, making it difficult to accurately determine when the probe of the unit has come in contact with ground water or NAPL. As such, it is recommended that electronic ground water-level indicators be tested before they are brought out into the field.
- Electronic oil/water interface meters do not respond to distilled water. Do not use de-ionized water to test these units.
- Wells that are not vertical may result in probe contact with the side of the well casing providing a false measurement. Once the probe has come in contact with ground water in the well, water may be trapped by capillary action between the probe and the well casing. If this happens, the unit may continue to signal even after the probe has been raised above the ground water surface. The deeper the well, the more likely this problem may occur. To correct this, the cable should be raised several feet above the water and shaken to remove water from the probe. A new ground water-level measurement should then be collected. If the signals from the unit are not abrupt or reproducible, the probe and tape may need to be retrieved and dried off before trying again.
- Accumulation of sediment, organic material, or floating debris in the probe may also result in gradual or non-reproducible readings. Wells that are constructed with metal inner casings may lead to difficulties in collecting reproducible ground water-level measurements because the inner sides of the well casing are conductive.

- In some cases, a rubber grommet or metal centralizer may need to be placed on the probe so that it cannot contact the inner casing.
- Well gauging equipment should be properly decontaminated between wells and piezometers to avoid cross contamination.
- Water levels in wells may be influenced by changes in river stages, pumping of nearby wells, precipitation, tides, etc.
- Using a bailer to estimate LNAPL thickness can result in inaccuracies because successful use of the bailer is dependent upon the expertise of the operator and assumes the check valve does not leak upon retrieval.
- The optical sensor on interface probes may become damaged if solvents are used to clean NAPL from the probes.
- The optical sensor may become smeared when used to measure NAPL, rendering pinpoint accuracy to an estimate at best.
- Close attention to decontamination procedures will improve accuracy, operational life, and reduce the risk of cross contamination with other wells.
- LNAPL thickness can be affected by fluctuations in the water table. In some cases, an LNAPL's thickness may decrease when the water table rises, while its thickness increases as the water table drops. In other cases, fluctuating water tables may cause sudden appearances and disappearances of LNAPL layers.
- Monitoring points with LNAPL can pose a problem when measuring the level of groundwater. Floating LNAPL can depress the groundwater level in a monitoring well or piezometer and distort the measurement. Therefore, the Corrected Depth (CD) formula shown above should be applied to groundwater level measurements in monitoring points where LNAPL are present:
- Some interface probes are factory-calibrated based on an assumed conductivity of NAPL and water, both of which may vary. An interface probe that is functioning properly may not be able to discern different NAPLs at all sites.
- An interface probe may not successfully provide both LNAPL and DNAPL measurements in the same well because the probe is coated by LNAPL and loses its ability to detect DNAPL.
- DNAPL, in particular, may be only slightly heavier than water, or may be neutrally buoyant. As a result, it can be easily disturbed. Once it is disturbed, meaningful measurements can be difficult or impossible to obtain. As such, all tapes or probes used for measurements should be used slowly.

7. References

U.S. EPA Environmental Response Team Standard Operating Procedures SOP: 2043,"Water Level Measurement" REV: 0.0, 2/11/00

U.S. EPA Environmental Response Team Standard Operating Procedures SOP: 2044," Monitor Well Development" REV: 0.1, 10/23/01.

8. Contacts

Ryan Hoffman – (781) 721-4091 Boston

STANDARD OPERATING PROCEDURE

GW-002 Non-Aqueous Phase Liquid (NAPL) Recovery

1. Objective

Provide procedural guidance for routine recovery of non-aqueous phase liquids (NAPL).

2. Equipment and Materials

The following materials and equipment may be necessary for this procedure:

- SOP GW-001 Water Level and NAPL Measurement
- Oil/water interface probe
- Appropriate pump and required tubing/piping
- Double check valve bailers and string
- Drums or buckets for NAPL collection
- Proper personal protective equipment (PPE) including gloves and protective eyewear
- Drum labels
- Field data sheets or logbooks
- Decontamination supplies and plastic sheeting
- Additional equipment identified by site-specific work plan and health and safety plan (HASP)

3. General Information

Refer to SOP GW-001 and record the depth to NAPL and depth to water measurements If you are using an oil/water interface probe, first check to see if the unit is functioning correctly. Note: De-ionized water will not provide a correct reading. Check the interface probe battery and replace if necessary.

Interface probes usually distinguish between NAPL and water by sounding solid or intermittent tones. See the manufacturer's instructions for details.

4. Execution

4.1 General Measurement Procedures

Using an oil/water interface probe will provide a depth to water and a depth to NAPL in each monitoring well. Refer to probe manual to determine changes between liquid types (water, light non-aqueous phase liquid [LNAPL] and dense non-aqueous phase liquid [DNAPL]). To achieve accurate depth measurements, ensure the oil/water interface

probe is decontaminated (GEI SOP QA-001) prior to and between each measurement taken at each well.

To calculate the volume of NAPL in monitoring wells with well diameters specified below, use the following respective equations:

Light non-aqueous Phase Liquid (LNAPL) Volume

$$LNAPL\,V = (DTW - P_1) \times C$$

Dense Non-Aqueous Phase Liquid (DNAPL) Volume

$$DNAPL\,V = (TD - P_2) \times C$$

Where, V = Volume
DTW = Depth to Water
TD = Total Depth
P_1 = Depth to LNAPL
P_2 = Depth to DNAPL

Conversion factors (C) for wells based on well diameter size are noted in the table below.

Well Diameter (inches)	Conversion Factor (liters)	Conversion Factor (gallons)
2	0.6178	0.1632
4	2.4711	0.6528
6	5.561	1.469

Note: Well diameter sizes are noted for outer diameter. Conversion factors assume Schedule 40 PVC riser and screen, if well is constructed of different material appropriate conversion factors must be used to calculate accurate NAPL volume.

Once measurements have been taken and calculations have been made, collection of NAPL may commence.

4.2 NAPL Collection Procedures

Collection of NAPL shall be accomplished using common recovery techniques or technologies including:

- Peristaltic pump
- Bailer

Some projects require on-going NAPL recovery efforts. For these projects installation of dedicated recovery methods should be considered.

Special care shall be taken to prevent any recovered NAPL from spilling or coming into contact with the ground and sampling personnel. This includes the use of proper personal protective equipment (PPE), including gloves and protective eyewear (Tyvek® if necessary), along with plastic sheeting set beneath the pump, tubing, and collection

container (sealed top 55-gallon drum or 5-gallon bucket with lid), and the surrounding work area. A site-specific work plan, HASP and job specific job safety analysis need to be developed prior to the start of work. The specific operating procedures for common recovery methods are discussed in the following sections.

4.2.1 Sampling and Recovery via Peristaltic Pump:

LNAPL

- Take and record the required measurements prior to commencing pumping.
- Cut a length of poly tubing (T1) that is long enough to extend approximately 12-inches beyond the LNAPL layer. Cut an additional length of poly tubing (T2) that will be connected to the discharge side of the peristaltic pump silicone tubing that is long enough to extend from the pump to the NAPL collection container. Cut a length of silicone tubing (approximately 8-inches) for use in the peristaltic pump head.
- Insert the silicone tubing into the peristaltic pump head. Check the flow direction of the pump to ensure that the pump will be removing fluid and not pumping air into the well when removal begins.
- Insert T1 into the intake side of the silicone tubing. Lower the intake side into the well and secure in place just below the top of LNAPL.
- Insert T2 into the discharge side of silicone tubing and secure to the NAPL collection container with a clamp.
- Turn pump flow rate to lowest setting. Turn the pump on and slowly increase the pump rate to begin LNAPL removal from the well. Use the oil/water interface meter to measure the depth to LNAPL. Lower the intake tubing as necessary until all of the LNAPL has been recovered from the well.
- Once the LNAPL has been recovered from the well, collect and preserve a sample if required, in accordance with laboratory standards.
- Following completion of LNAPL recovery, disconnect the tubing from the pump, secure the well and road box, and clean/decontaminate the pump and oil/water interface probe, prior to moving to the next location.
- Impacted tubing will either be containerized for proper disposal or left in well for reuse.

DNAPL

- Take and record the required measurements prior to commencing pumping.
- Cut a length of poly tubing (T1) that is long enough to extend to the bottom of the well including additional length to attach to the pump intake. Cut an additional length of poly tubing (T2) that will be connected to the discharge side of the

peristaltic pump silicone tubing that is long enough to extend from the pump to the NAPL collection container. Cut a length of silicone tubing (approximately 8-inches) for use in the peristaltic pump head.

- Insert the silicone tubing into the peristaltic pump head. Check the flow direction of the pump to ensure that the pump will be removing fluid and not pumping air into the well when removal begins.
- Insert T1 into the intake side of the silicone tubing. Lower the intake side into the well and secure in place just above the bottom of the well.
- Insert T2 into the discharge side of silicone tubing and secure to the NAPL collection container with a clamp.
- Turn pump flow rate to lowest setting. Turn the pump on and slowly begin to remove DNAPL from the well. DNAPL removal will be complete when the pump begins to discharge water. Use the oil/water interface meter to check the DNAPL thickness during the removal process. Take care not to pump an excessive amount of water.
- Once the DNAPL has been purged from the well, collect and preserve a sample if required, in accordance with laboratory standards.
- Following completion of DNAPL recovery, disconnect the tubing from the pump, secure the well and road box, and clean/decontaminate the pump and oil/water interface probe, prior to moving to the next location.
- Impacted tubing will either be containerized for proper disposal or left in well for reuse.

4.2.2 Sampling and Recovery via Double Check Valve Bailer:

LNAPL

- Take and record the required measurements prior to commencing bailing.
- Ensure the work area is covered in plastic sheeting to avoid potential spills of water and/or NAPL.
- Tie the bailer to a piece of string that will allow the bailer to reach just below the LNAPL layer. Use the oil/water interface meter to determine the appropriate depth.
- Using slow and controlled motions while lowering (and raising) the bailer to the appropriate depth, commence bailing LNAPL out of the well and draining the bailer directly into collection container.
- Once the LNAPL has been purged from the well, collect and preserve a sample, if required, in accordance with laboratory standards.

DNAPL

- Take and record the required measurements prior to commencing bailing.
- Ensure the work area is covered in plastic sheeting to avoid potential spills of water and/or NAPL.
- Tie the bailer to a piece of string that will allow the bailer to reach the bottom of the well.
- Using slow and controlled motions while lowering (and raising) the bailer to the bottom, commence bailing DNAPL out of the well and draining the bailer directly into collection container.
- Once the DNAPL has been purged from the well, collect and preserve a sample, if required, in accordance with laboratory standards.

4.3 Waste Management and Disposal

Investigation derived waste should be managed in accordance with GEI SOP SC-003. DNAPL waste management and disposal should be evaluated on a site by site basis.

4.4 Troubleshooting Information

If there are any performance problems with the oil/water interface probe which result in inability to achieve the proper measurements presented in Section 5.1, or if there are any problems with the peristaltic pump, consult the appropriate section of the probe instruction manual for the checkout and self-test procedures. If the problem persists, consult the manufacturer's customer service department immediately for further instructions.

Lower temperatures can affect the ability to pump and/or bail NAPL. Weather should be taken into consideration when scheduling gauging and recovery sampling events.

4.5 Data and Records Management

All information pertaining to maintenance of the oil/water interface probe and the peristaltic pump shall be maintained in the project file. Field measurements (depth to water, NAPL, etc.) and all calculations (NAPL column length, volume of NAPL, etc.) shall be recorded on the appropriate field data sheets or in the logbook consistent with GEI SOP Section 5.

4.6 Limitations

- NAPL gauging and recovery can be challenging and requires adaptive thinking. A variety of measurement and collection techniques may be necessary to properly execute the work.
- Exposure to NAPL can accelerate the required maintenance/replacement intervals for tools and equipment.

5. Health and Safety Considerations

The health and safety considerations for the work associated with this standard operation procedure, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed JSA should be completed prior to the start of work.

6. References

U.S. EPA. Ground Water Issue: Dense Non-aqueous Phase Liquids, EPA/540/4-91-002, March 1991.

7. Contact

Kathleen Slimon
Mike Quinlan

STANDARD OPERATING PROCEDURE

GW-003 Low Flow (Low Stress) Groundwater Sampling

1. Objective

Describe methods to collect groundwater samples most likely to produce results that represent aquifer conditions.

Low-flow purging is limited to wells that, with sustained pumping, exhibit no continuous drawdown.

2. Execution

- Prior to groundwater sampling consult with the project manager to confirm that the type of pump is appropriate and consistent with the approved work plan.
- Record activities in the field notebook (see SOP FD-001 Field Notebook) and on a Monitoring Well Sampling Record such as the examples in Attachment A. Use a separate form for each sampling location and event. You may forego the forms and record all information in the field notebook if the Project Manager approves.
- Calibrate pH, temperature, Specific Conductance (SC), turbidity, Dissolved Oxygen (DO), and Oxidation-Reduction Potential (ORP) on the meter(s). Use calibration methods provided by the manufacturer of the equipment. Note that appropriate calibration for dissolved oxygen requires a water saturated air environment, along with measured temperature and barometric pressure.
- Begin with the monitoring well believed to have the least contaminated groundwater and proceed systematically to the well with the most contaminated groundwater. Check the well, the lock, and the locking cap for damage or evidence of tampering.
- Slowly and gently measure the depth to water with a water level probe and/or oil-water interface probe. Do not measure depth to well bottom at this time (wait until sampling has been completed). Measure water level in accordance with SOP GW-001 Water Level Measurement.
- Attach new polyethylene or Teflon lined tubing to the sampling pump and the flow-through cell that contains the meter probes.
- Slowly and gently insert new polyethylene or Teflon lined tubing to the pump intake (or use dedicated tubing that remains in the well) and to the middle of the saturated screened interval or to the pre-determined sampling depth.
- The tubing intake should be kept at least two (2) feet above the bottom of the well to prevent disturbance or suspension of any sediment or Non-Aqueous Phase Liquid (NAPL) present in the bottom of the well. Record the depth of the pump intake.

- If possible, position your sampling equipment and tubing so that it is in the shade. The goal is to minimize the effect of sunlight raising the temperature of water being collected.
- Start the pump on the lowest setting and increase slowly until flow begins. Adjust the pumping rate so that drawdown in the well is minimal (0.3 feet or less, is desirable but not mandatory). Use a pumping rate between 100 to 1,000 milliliters per minute (mL/min) (or approximately 0.1 to 1 quarts per minute). Measure flow rate on the pump or using a graduated container every 3 to 5 minutes and record. The minimum purge volume will be twice the combined volumes of the sampling string (i.e. pump, tubing, and flow-through cell).
- While purging, record water levels every 3 to 5 minutes and monitor and record the water quality indicator parameters: pH, temperature, specific conductance (SC), dissolved oxygen (DO), and turbidity. If specified in the field sampling plan also include ORP.
- Purging is complete when, after three consecutive measurements, the water quality parameters have stabilized as follows:

    - pH (+/- 0.1 standard units)
    - temperature (+/- 3%)
    - SC (+/- 3%)
    - turbidity (+/- 10% if >5 NTU; if 3 values are <5 NTU, consider the values as stabilized)
    - DO (+/-10% if >0.5 mg/L; if 3 values are <0.5 mg/L, consider the values as stabilized)
    - ORP (+/- 10 mV)

- Dispose of purge water according to the field plan.

Sample Collection:

- Following purge, remove the discharge tubing from the flow-through cell. Do not disturb pump and tubing between stabilization and sample collection.
- Fill sample containers directly from the sampling device in order of decreasing volatility (i.e., Volatile Organic Compounds (VOC) samples are collected first; see SOP SC-002 Sampling Handling). Fill all containers from the discharge end of the tubing. Collect samples at a flow rate equal to the steady state purge rate.
- If not using a dedicated pump, remove sampling device and decontaminate (see SOP QA-001 Equipment Decontamination). Discard used tubing.
- Store samples in a cooler on ice for transport to the laboratory.
- Measure depth to bottom of well.

- Secure the well cap.

3. Limitations

- Prior to departure for the field, obtain available information on well construction for use in field investigation (i.e., screen and riser material, well diameter and depth, screened interval, optimum sampling depth, etc.).
- If possible, when using dedicated equipment, install equipment into well at least 24 hours before sample collection to minimize disturbance of the water column and/or suspension of sediments or NAPL on bottom.
- If water quality indicator parameters do not stabilize after removing 3 to 5 well volumes or 2 hours, contact the Project Manager. Three options will be available: 1) continue purging until stabilization; 2) discontinue purging and do not sample; or 3) discontinue purging and sample.
- The key indicator parameter for VOCs is DO. The key indicator parameter for all other samples is turbidity.
- Fill all sample containers with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.
- Consult with the project manager before field filtering samples for metals if using low-flow sampling.
- Be aware of any preservatives in the sample bottles and handle with care, in accordance with the Health and Safety Plan.

4. References

Standard Reference for Monitoring Wells (April 19, 1991), Massachusetts DEP, DEP Publication No. WSC-310-91.

Reproducible Well-Purging Procedures and VOC Stabilization Criteria for Ground Water Sampling (1994), M.J. Barcelona, H. A. Wehram, and M.D. Varljen, Ground Water, Vol. 32, No. 1, 12-22.

Low-Flow Purging and Sampling of Ground Water Monitoring Wells with Dedicated Systems (1995), R.W. Puls, and C.J. Paul, Groundwater Monitoring and Review, Summer 1995 116-123.

Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (2010), EQASOP-GW 001 Low Stress (Low Flow) SOP, Revision 3, U.S. Environmental Protection Agency, Region I, January 19, 2010.

Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling, (1998), Ground-Water Sampling SOP, Final, U.S. Environmental Protection Agency, Region II, March 16, 1998.

RCRA Ground-Water Monitoring: Draft Technical Guidance, (1993), U.S. Environmental Protection Agency, EPA/530-R-93-001.

To Filter, or Not to Filter, That is the Question, (1997), Special Topics Subcommittee Letter Report EPA-SAF-EEC-LTR-97-011, April 29, 1997, Meeting, U.S. Environmental Protection Agency, Science Advisory Board Environmental Engineering Committee, September 5, 1997.

Should Filtered or Unfiltered Groundwater and Surface Water Samples be Collected for the Risk Assessment?, (1995), MCP Q&A: Subparts I and J, Special #4, Bureau of Waste Site Cleanup, Massachusetts Department of Environmental Protection (DEP), February, 1995.

5. Attachments

Attachment A - Monitoring Well Sampling Record

6. Contacts

Saskia Oosting

MONITORING WELL SAMPLING RECORD

PID Reading _____ Job Name _____

Job Number _____ By _____ Date _____

Location _____ Measurement Datum _____

Well Number _____

Pre-Development Information Time (start) _____

Water Level _____ Total Depth of Well _____

One Purge Vol _____ Three Well Volume _____

Water Characteristics

Color _____ _____ Clear _____ Cloudy

Odor _____ None _____ Weak _____ Moderate _____ Strong

Any films or immiscible material _____

Volume **(gal)**	**Time**	**pH**	**Temp (°C)**	**Spec. Conductance (µS/cm)**	**Turbidity (NTU)**	**DO Conc. (mg/L)**	**ORP (mV)**	**TDS**

Total Volume Removed (gal) _____ pH _____

Temperature (°C) _____ Specific Conductance (µS/cm) _____

DO Concentration (mg/L) _____ ORP (mV) _____

TDS _____

Post Development Information

Time (Finished) _____

Water Level _____ Total Depth of Well _____

Approximate Volume Removed (gal) _____

Water Characteristics

Color _____ ____ Clear ____ Cloudy

Odor ____ None ____ Weak ____ Moderate ____ Strong

Any films or immiscible material _____

Comments

Low-Flow Groundwater Sampling Form

Project number and name _____ Sampling personnel _____ Sample date _____ Well ID _____

Well location description: _____

Well Construction

Well diameter _____

Well measurement point _____

Roadbox condition _____

Well screen interval _____

Well depth _____

Sampling Information

Initial depth to water _____ Time: _____

Sample intake depth _____

Pump type and ID _____

Stabilized flow rate _____

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260	
SVOCs 8270	
VPH	
EPH	
Metals	
PCBs	
Other	

Field values at time of sample collection:

Time: _____ Depth to water: _____

Sp.Cond. _____ mS/cm

DO _____ mg/L

ORP _____ mV

pH _____ s.u.

Temp. _____ °C

Turb. _____ NTU

Cumulative Time (min.)	Volume (gal)	Water depth (ft)	Temp. (°C)	Sp.Cond. (mS/cm)	D.O. (mg/L)	pH (s.u.)	ORP (mV)	Turb. (NTU)
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10

Notes: _____

Sample Information:

Sample ID _____

Sample Time: _____

Color: _____

Turbidity: _____

Field Filtered YES / NO Analyses: _____

Filter type: _____

Odor/Sheen/NAPL _____

Duplicate Collected YES / NO

If yes, duplicate ID: _____

Purge water disposal? to ground drummed other:

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =
3.14 x (r)^2 x 7.48 gal/ft
where r = 1/2 diameter in ft

Stabilization Criteria:
Sp.Cond. +/- 3%
DO +/- 10%
ORP +/- 10 mV
pH +/- 0.1 Std Units
Temp. +/- 3%
Turb. +/- 10% if values >1 NTU

Guidance:

1 Position tubing at midpoint of saturated screened interval

2 Minimize drop in water level and purge until parameters are stable

3 Disconnect flow thru cell during sampling

4 Call Project Manager if issues arise (e.g. stabilization takes more than 2 hrs, well goes dry, odd data).

5 For VPH and VOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

STANDARD OPERATING PROCEDURE

GW-004 pH and Temperature Measurement

1. Objective

Describe methods for measuring the pH and temperature of liquids using a combination pH/temperature meter.

2. Execution

Calibration

- Calibrate the meter according to the equipment manufacturer's instructions at the beginning of each day of use. Calibration for pH shall be performed using at least two buffer solutions. Solutions chosen should be similar to the expected pH of the liquids tested (pH 7 and 4 buffer solutions are preferred in most cases for groundwater or surface water measurements).
- Check calibration at the end of the day by reading the two solutions used in calibration. Also perform additional field checks as needed based on observed readings (i.e., inconsistent readings). Record measurements and time of measurement in the field book or sample sheet. If the readings are outside +/– 0.2 pH units, recalibrate the meter.

Sample Measurement

- Immediately prior to testing a sample, decontaminate testing container and probe assembly with one rinse of distilled water. Do not use methanol to rinse the probe. Methanol rinses could damage the probe.
- Gently dry the probe with a paper towel and shake beaker to remove excess solution. Visually inspect the bottom of the probe to ensure that liquid or sediment is not trapped between outer casing and probe.
- Pour the sample into the testing container and insert both temperature and pH probe. Stir sample for 30 seconds using both probes. Let the probes equilibrate in the sample solution for another 30 seconds. Measure and record the temperature. Measure and record pH reading after stabilization or 60 seconds, whichever is sooner. A reading has stabilized if pH units have not changed +/– 0.1 pH units during a 30 second period.
- Record pH to the nearest 0.1 unit and temperature to the nearest whole number.

3. Limitations

- Coatings and particulates may affect the response of the probe; more thorough cleaning using a weak alconox solution and distilled water rinse

and gently wiping the probe surface with a paper towel may be required to clean the surface of the probe.

- Temperature affects both the response of the instrument to pH and the actual pH of the sample. The Automatic Temperature Compensation (ATC) function compensates for the variation in the response of the meter only. Therefore, the pH must always be reported with temperature.
- The probe is a fragile thin glass bulb surrounded on three sides by a plastic casing. Care must be taken in handling the probe to avoid breakage.
- Do not use buffer solutions past their expiration date.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-005 Turbidity Measurement

1. Objective

Describe calibration and use of a Hach nephelometer/turbidimeter.

The meter is used to measure turbidity of liquids by quantifying how much light passes through them. Turbidiity readings are required to be read using a portable (e.g Hach) instrument directly from the tubing before going through the flow-through cell.

This SOP is specific to a Hach turbidimeter. Follow manufacturer's recommendations for other meters.

2. Execution

i. Turn the meter "ON".
ii. Rinse the sample cell 3 times with distilled water.
iii. Fill the cell to the fill line with distilled water and then cap the cell.
iv. Wipe off excess water and streaks with a non-abrasive lint-free paper or cloth (preferably lens paper).
v. Open the cover and insert the cell (arrow to the front) into the unit and close the cover.
vi. Press "READ" and wait for the 'light bulb' icon to go off. Record the reading.
vii. Using the Gelex standards, repeat steps above. Record all measurements (note anomalies).
viii. Fill the cell with sample liquid to the fill line (about 15 mL) and replace the cap on the cell.
ix. Wipe off excess water and any streaks with a non-abrasive lint-free paper or cloth (lens paper).
x. Press "I/O" and the instrument will turn on. Place the meter on a flat, sturdy surface. Do not hold the instrument while making measurements.
xi. Insert the sample cell, arrow to the front, in the instrument. Close the lid.
xii. Select manual or automatic range selection by pressing the range key.
xiii. Use signal average mode if the sample causes a noisy signal (display changes constantly). Select signal averaging mode by pressing the "Signal Average" key.
xiv. Press Read. The display will show "---- NTU" and then the turbidity in NTU. Record the result after the lamp symbol turns off.
xv. Rinse the cell with distilled water.
xvi. Confirm the validity of the sample measurement by double-checking with one of the Gelex standards.

xvii. Periodically check the turbidity meter during the day by using the Gelex secondary standards provided.
xviii. Perform a post calibration at the end of the day and record all measurements.

3. Limitations

If the turbidity measurements are for National Pollutant Discharge Elimination System (NPDES) reporting purposes, all samples with values above 40 NTU must be diluted with turbidity free water (e.g. distilled water) and sample turbidity is calculated by multiplying the reading of the diluted sample by the dilution factor.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-006 Specific Conductance Measurement

1. Objective

Describe standard methods to measure conductivity of water using a field conductivity meter.

2. Execution

- Calibrate the meter according to equipment manufacturer's instructions at the beginning of each day of use. Calibration shall be performed using a standard KCl or other solution recommended by the manufacturer.
- Record the make, model, and serial or identification number of the instrument and calibration information in the field notebook.
- Check calibration at the end of the day by measuring the standard used in calibration and record in field book. Also perform additional field checks as needed based on observed readings (i.e., inconsistent readings). If the readings are outside +/- 0.02 mS/cm, the meter must be recalibrated. Initial calibration should be conducted under the same conditions (i.e., temperature, and location) of field testing.
- Immediately prior to testing a sample, decontaminate testing container and probe assembly with distilled water.
- Gently dry the probe with a paper towel and shake container to remove excess solution.
- Pour sample into the container and insert probe. Stir sample with the probe for approximately 10 seconds. Let the probe equilibrate in the sample solution for another 30 seconds. Measure conductivity and record in the field notebook.
- Record conductivity to the nearest whole number.

3. Limitations

- Oily coatings and particulates may affect the probe's response; more thorough cleaning using a weak alconox solution and distilled water rinse and gently wiping the probe surface may be required to clean the surface of the probe.
- If sample liquid is contaminated, (e.g. stained, conductance >0.75 mS/cm), rinse probe with distilled water immediately after measuring sample to minimize fouling of probe.
- Do not use calibration solutions past their expiration date.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contact

Brian Conte
Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-007 Dissolved Oxygen Measurement

1. Objective

Describe calibration and field use of dissolved oxygen meter.

2. Execution

- Place instrument in the intended operating position (vertical, tilted, or horizontal) before it is prepared for use and calibrated.
- Recalibration may be necessary when the instrument operating position is changed.
- Attach the prepared probe to the Probe connector of the instrument and adjust the retaining ring finger tight. Check that membrane is intact and check for presence of air bubbles under membrane. If bubbles are present or membrane is damaged, prepare probe again according to manufacturer's instruction.
- Place approximately 1/8 inch of water into the bottom of the calibration cup. Place the probe into the cup and engage only one thread of the calibration cup onto the probe to ensure that the DO probe is readily vented to the atmosphere. Make sure the DO and temperature probes are not in contact with the water. Wait approximately 10 minutes for the air in the calibration cup to become water saturated and for the temperature to equilibrate.
- Calibrate meter according to the procedures outline in the instrument manual. Calibrate probe to a zero oxygen solution provided by manufacturer, and water saturated air.
- The calibration procedure may require correction factors or input of site-specific barometric pressure and temperature. Correction factors can be found at:

  http://water.usgs.gov/owq/FieldManual/Chapter6/6.2_v2.1.pdf

- Otherwise, use appropriate instruments at the site to determine temperature and pressure.
- Perform Dissolved Oxygen Measurement using the following procedure:
  i. Submerge probe in flow-through chamber or water body.
  ii. Gently raise and lower probe in sample.
  iii. Allow sufficient time for probe to stabilize to sample temperature and dissolved oxygen.
  iv. Read and record the temperature and the value of the dissolved oxygen in mg/L.
  v. Document field analysis data and general observations in the field log book or groundwater sampling sheet.

3. Limitations

- Collect DO measurements in the field during sampling. Storing samples in containers will alter the DO concentration of the sample.
- Detection Limit (DL) = 0.1 mg/L for 0-10 mg/L range; do not record values less than Detection Limit: a zero reading is recorded < 0.1 mg/L.

4. References

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

5. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-008 Temporary Groundwater Sampling Points

1. Objective

To define the procedures for installation of temporary groundwater sampling points (hereafter referred to as well point) for measuring depth to groundwater and collecting groundwater samples. Well points may aid in the placement of permanent monitoring wells.

A well point is a small diameter (1-2 inch) probe constructed of continuously wrapped stainless steel or wrapped stainless steel gauze screen over perforated carbon steel pipe. No filter or gravel pack is used in the installation.

Well point installations are not the only type of temporary monitoring wells. Alternative temporarily well constructions should be discussed with the project manager and may be more appropriate based on-site conditions.

2. Execution

2.1. Installation

- The well point can be placed with the use of a conventional hollow-stem auger rig, Geoprobe®, slide hammer, jack hammer, rotary hammer, or by hand.

- The well point may be driven through the unsaturated zone only in known "clean" soils. Driving the well point through contaminated soil may carry contamination downward with the point resulting in analytical sample results which are biased high. In areas with contamination above the desired screening zone, the well points should be installed with the aid of either hollow-stem augers or Geoprobe®, to “case off” contamination from the upper layer.

- If the well point is to be installed in an oversized (20% larger than the well point) pre-drilled hole, the hollow-stem augers or bull drive point must be advanced to a point which is just above the targeted sample zone. The well point is then placed in the hole and advanced beyond the bottom of the hole by hammering or pushing into place. The use of pre-drilled holes will reduce clogging of well point screens when driving.

- If the well point is used for piezometeric data, make a survey mark on top of the casing as a reference point for water level measurements.

- Caution must be used when using well points in areas of contaminated soil. Possible cross contamination may be introduced to the screen as it passes through the zone of contamination.

2.2. Sampling Procedures

Development of a well point is not required prior to sampling. Sampling of groundwater or collecting piezometric data must be performed by one of several recommended methods described in this manual.

After sample collection, (See Groundwater Sampling SOP) the well point is removed by back hammering or pulling the tool out with the rig hydraulics.

3. References

ASTM D6001 - 05 Standard Guide for Direct-Push Water Sampling for Geoenvironmental Investigations

Standard Methods for the Examination of Water and Wastewater, 18th Edition, Method 4500-H. American Public Health Association (1992).

Ground Water and Wells. Johnson Division, UOP Inc.; St. Paul, Minn. 1982. p277-294.

Ground Water Manual - A Water Resources Technical Publication; U.S. Dept. of Interior, Bureau of Reclamation. Government Printing Office, Washington DC 1977.

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91.

4. Contacts

Saskia Oosting

STANDARD OPERATING PROCEDURE

GW-010 Slug Tests

1. Objective

Describe methods to use slugs, pressure transducers, and data loggers to collect data that will support calculation of horizontal hydraulic conductivity of distinct geologic strata.

General Information

Slug tests are performed on single monitoring wells to estimate the hydraulic conductivity of the aquifer in which the well is screened. The test consists of adding or removing a known volume (slug) to or from the well to instantaneously change the water level. Subsequently, the recovery of the water level back to the static water level is measured. The resulting data are used to determine the hydraulic conductivity of the aquifer test zone using an appropriate analytical method.

Falling head tests can only be performed in fully-penetrating wells (well screened completely below the water table). Rising head tests can be performed in both fully- and partial-penetrating wells.

2. Execution

2.1 Setup

- Determine how water levels will be recorded. If the geologic materials in the test zone are expected to be slightly permeable (e.g., a glacial till or clay), then measurements may be recorded manually with an electronic water level indicator. If the geologic materials in the test zone are expected to be moderately- or highly-permeable (e.g., outwash sands), record measurements using a pressure transducer attached to an automatic data logger.

  The remainder of this SOP assumes that an automatic data logger is being used to measure water levels.

- Check to see if test equipment functions prior to leaving for the site.
- Decontaminate the transducer and cable using alconox and distilled water. Do not use methanol. Do not use transducer in wells containing non-aqueous phase liquid (NAPL).
- Make initial water level measurements
- Test wells in the following order: from the least contaminated to the most contaminated, and from low to high expected permeability, where possible.
- Measure the static water level (i.e., depth to water) in the well to be tested manually using an electronic water level indicator. Record all

measurements taken during the test in the field log book or on the attached log form.

- Install the pressure transducer as far below the deepest point of insertion of the slug bar or bailer as possible. Allow the transducer to thermally equilibrate for 15 to 30 minutes (to allow instrumentation wiring to expand/contract) before measurements are taken.
- Secure the transducer cable at ground surface with tape or weight to keep the transducer at a constant depth.
- Cover sharp edges of the well casing with duct tape to protect the transducer cables.
- Transducer measurement setup: For wells screened in sand and silty sand, a linear setting of one reading per second is generally used. In coarser soil where full recovery may occur over a few seconds, a linear setting for more frequent readings is necessary. If a transducer is used for silt and clay, a linear setting of one reading per minute, or a logarithmic setting, may be used to avoid risk of exceeding the memory capacity of the transducer.

2.2 Field Procedure – Rising Head Test

In this test, a slug is inserted in the well prior to the test and the water level is allowed to return back to static level. The test is then started by removing the slug from the well and immediately measuring rising water levels. In wells where recovery is slow, this test can be performed by pumping or bailing water from the well and immediately starting measurements.

- Record the initial water level and other setup information on the attached form.
- Fully submerge the slug bar or bailer into the water column of the well.
- Allow the water level in the well to return to static condition after both the slug and transducer have been inserted. The transducer readout should indicate the height of water above the transducer.
- When the water level in the well has returned to static condition, start the transducer ("Start Test" if using Win Situ software). Periodically view graphical data during the test, to confirm adequate data collection.
- Rapidly remove the slug bar or bailer from the water column and well. Avoid moving or pulling up the transducer cable when removing the slug.
- Continue recording water levels with the transducer until the water level has recovered to within 15 percent of the original static water level relative to the initial test displacement (85 percent recovery), or until one hour has elapsed. If less than 50 percent recovery has been achieved after one hour, continue to collect measurements every 10 to 20 minutes.
- Where possible, repeat the test to establish the repeatability of measurements and calculated hydraulic conductivity results.
- As soon as practicable, download data stored in the transducer and transfer data.

2.3 Field Procedure – Falling Head Test

In this test, a slug is inserted in the well at the start of the test and the falling water levels are measured immediately. In wells where recovery is slow, this test can be performed by adding water to the well and immediately starting measurements.

- Record the initial water level and other set up information on the attached form.
- Allow the water level in the well to return to static conditions after the transducer has been inserted. The transducer readout should indicate the height of water above the transducer.
- When the water level in the well has returned to a static condition, begin recording transducer readings ("Start Test" if using Win Situ software).
- Fully submerge the slug bar or bailer into the water column of the well.
- Periodically view graphical data during test, to confirm adequate data collection. The transducer should continue to record water levels until the water level has recovered to within 15 percent of the original static water level relative to the initial test displacement (85 percent recovery), or until one hour has elapsed. If less than 50 percent recovery has been achieved after one hour, continue to collect a measurement every 10 to 20 minutes.
- Where possible, repeat the test to establish the repeatability of measurements and calculated hydraulic conductivity results.
- As soon as practicable, download data stored in the transducer and transfer data.

3. Additional Information

- Do not perform hydraulic conductivity tests on wells that have not previously been developed and allowed to equilibrate.
- It is critical to either add or remove the slug to the well as quickly as possible and to start collecting depth-to-water measurements immediately.
- The early-time data is critical because the rate of recovery of head in the well is exponential. Collect measurements frequently at the start of all variable head tests.
- The time required for a slug test to be completed is a function of the volume of the slug, the hydraulic conductivity of the formation, and the type of well completion. The slug volume should be large enough that a sufficient number of water level measurements can be made before the water level returns to equilibrium conditions. Two bailers connected in series can be used to increase the slug volume, provided the water column is deep enough.
- Decontaminate all down well equipment before using it in the well.

- NAPL will damage the transducer. Gauge recovery manually in these instances.
- Where possible, take periodic water level readings manually during recovery. The manual data are used to check for transducer noise or movement.
- If using automatic data loggers, download the data as soon as possible. Batteries in the data loggers may run down and result in a loss of data.
- Be prepared to containerize water generated from rising head tests if the water is contaminated.
- Where possible, take more than one pressure transducer to site. This will provide backup and allow testing of multiple wells simultaneously.

4. Calculations

The simplest interpretations of piezometer recovery are Hvorslev (1951) and Bouwer and Rice (1976). The analyses assume a homogenous, isotropic medium in which soil and water are incompressible. Spreadsheets and software are available to calculate hydraulic conductivity from slug test data according to the methods below.

Hvorslev's expression for hydraulic conductivity (K) is:

$$K = \frac{r^2 \ln (L/R)}{2 L T_0} \qquad for\ L/R > 8$$

where:
K = hydraulic conductivity [ft/sec]
r = casing radius [ft]
L = length of open screen (or borehole) [ft]
R = filter pack (borehole) radius [ft]
T_0 = Basic Time Lag [sec]; value of t on semi-logarithmic plot of $H\text{-}h/H\text{-}H_0$ vs. t, where H-h/H-Ho = 0.37
H = initial water level prior to removal
of slug
H_0 = water level at t = 0
h = recorded water level at t > 0

(Hvorslev, 1951; Freeze and Cherry, 1979)

The Bouwer-Rice expression for hydraulic conductivity (K) is:

$$K = \frac{r^2 \ln (R_e/R) \ln(h_o/h_t)}{2 L t}$$

where:
r = casing radius [ft]
t = time of drawdown measurement since start of test [sec]

h = drawdown of water in well at time = t [ft]
h_o = drawdown of water in well at t = 0 (initial drawdown) [ft]
L = length of open screen (or borehole) [ft]
R_e = effective radius (radius of influence) [ft]
R = gravel pack radius [ft]

Both the Hvorslev and Bouwer-Rice methods can be applied for partially-penetrating wells. Hvorslev is generally applicable only to fully penetrating wells.

5. References

Bouwer, H., "The Bouwer and Rice Slug Test – An Update," Ground Water, vol. 27(3), 304, 1989.

Butler, James, J., Jr. "Improving the Quality of Parameter Estimates Obtained from Slug Tests", Ground Water, Vol. 34, No. 3, May-June 1996.

Butler, James J., Jr., "The Design, Performance, and Analysis of Slug Tests", Kansas Geological Survey, Lewis Publishers, 1997.
Chirlin, G.R. (1989), A Critique of the Hvorslev Method for Slug Test Analysis: The Fully Penetrating Well.

Fetter, C.W. (1994), Applied Hydrogeology, 3rd edition.

Freeze, R. Allen and John A. Cherry, 1979. Groundwater, Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Hvorslev, M.J., "Time Lag and Soil Permeability In Ground-water Observations," U.S. Army Corps of Engrs. Waterways Experiment Station Bulletin No. 36, 1951.

Lambe, T.W, and R.V. Whitman (1969), Soil Mechanics.

Sanders, Laura L., "A Manual of Field Hydrogeology", Prentice-Hall, Inc., 1998.

U. S. EPA ENVIRONMENTAL RESPONSE TEAM STANDARD OPERATING PROCEDURES SOP: 2043,"Water Level Measurement" REV: 0.0, 10/03/94.

U. S. EPA ENVIRONMENTAL RESPONSE TEAM STANDARD OPERATING PROCEDURES SOP: 2046,"Slug Tests" REV: 0.0, 10/03/94

6. Attachments

Attachment A – Slug Test Data Form

7. Contacts

Andy Adinolfi
Saskia Oosting

Attachment A. Slug Test Data Form

SITE ID: _____ SLUG TYPE (solid/bailer/pumped)

LOCATION/WELL ID _____ SLUG DIAMETER: _____

DATE: _____ SLUG LENGTH: _____

FIELD PERSONNEL: _____ METHOD:

_____ RISING HEAD _____

DATALOGGER TYPE: FALLING HEAD _____

_____

_____

COMMENTS:

_____

_____

==========

SETUP

Time _____
Depth to Water - Initial Static (before installing troll/slug) _____
Confirm well recovers to static after installing slug, or note otherwise

_____

==========

MANUAL CONFIRMATORY MEASUREMENTS

ELAPSED TIME (min.)	DTW	ELAPSED TIME	DTW
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Form based on:
USEPA, 1994; Sanders, 1998.

STANDARD OPERATING PROCEDURE

GW-011 Constant Head Permeability Testing

1. Objective

Describe procedures for performing constant head borehole permeability testing in granular soils. Constant head permeability testing is used when the soil permeability is sufficiently high for testing to be practical.

2. Execution

- All borehole permeability testing shall be performed below the static groundwater table. As the boring is advanced, attempt to determine the static groundwater level by:
  - Observing the water content of samples collected from the boring to identify the transition from moist to saturated soil.
  - For higher permeable soils, allowing the water level in the borehole to stabilize before performing the test.
  - If the borehole is left open overnight or for an extended period, measure the static groundwater level in the borehole at the beginning of the next day.
  - Measure the water level in nearby observation wells or piezometers.
  - If a well or piezometer is installed in the borehole, measure the water level in the well or piezometer after the water level has stabilized.
- Advance the drill casing to the top of the test zone and clean the borehole to the bottom of the casing.
- Obtain a split spoon sample in the test zone below the bottom of the casing.
- Advance the borehole 2 feet below the bottom of the casing using a side discharge roller bit. The roller bit should be only slightly smaller than the inside diameter of the casing. Record the diameter of the casing and the diameter of the roller bit. Avoid jetting the borehole walls or bottom during cleaning. Continue flushing the borehole until return water is clear.
- Measure the depth to groundwater in the borehole over a 10 to 15 minute period to observe if the groundwater elevation has approximately stabilized. Compare the saturated soil depth estimated from split-spoon samples to the measured water level in the borehole.
- Using a weighted tape, sound the bottom of the borehole to verify that the hole is cleaned to the correct depth and caving hasn't occurred. If more than 3 inches of wash remains in the borehole, lower the roller bit back to the bottom of the borehole and continue to clean the borehole.
- Measure and record the depth to the bottom of the borehole to the nearest 0.05 feet.
- Determine the length of the test zone (L = distance from the bottom of the casing to the bottom of the borehole) to the nearest 0.05 feet and record on the field form.
- Add clean water to fill the casing.

- Using a calibrated flow meter, adjust the flow rate into the casing so the water level remains within 0.5 inches of the top of the casing. Once the water level has stabilized, take a flow meter reading at the start of the test (time=0). Record the inflow volume at regular intervals (generally 1 minute) for a period of 10 minutes.
- Check the depth to the bottom of the borehole after completion of the test to check for caving.
- Record all measurements and observations on the Borehole Permeability Test Field Data Form.

3. Limitations

Site-specific conditions must be evaluated to determine appropriate test intervals. Test interval shall be determined by the Project Manager or their designee.

4. References

GEI Procedure No. 44, Borehole Permeability Testing in Granular Soils

U.S. Department of the Interior Bureau of Reclamation Ground Water Manual, Chapter 10: Permeability Tests in Individual Drill Holes and Wells.

5. Attachments

Attachment A - GEI Borehole Permeability Test Field Data Form – Constant Head

6. Contacts

Steve Hawkins

BOREHOLE PERMEABILITY TEST - CONSTANT HEAD
FIELD DATA FORM

PROJECT:			BORING :
LOCATION:			PROJ NO.:
CLIENT:			TEST NO.:
PERF'D BY:	DATE:		PAGE NO.:
CALC'D BY:	DATE:		GROUND
CHECKED:	DATE:		SURF. EL.:

STANDPIPE/RISER DETAILS

Riser inside diameter,d,inches: _____

Riser length, feet: _____

Riser stick up above ground surface, feet: _____

Groundwater depth below ground surface, H, feet: _____

Test Start Time: _____

Test End Time: _____

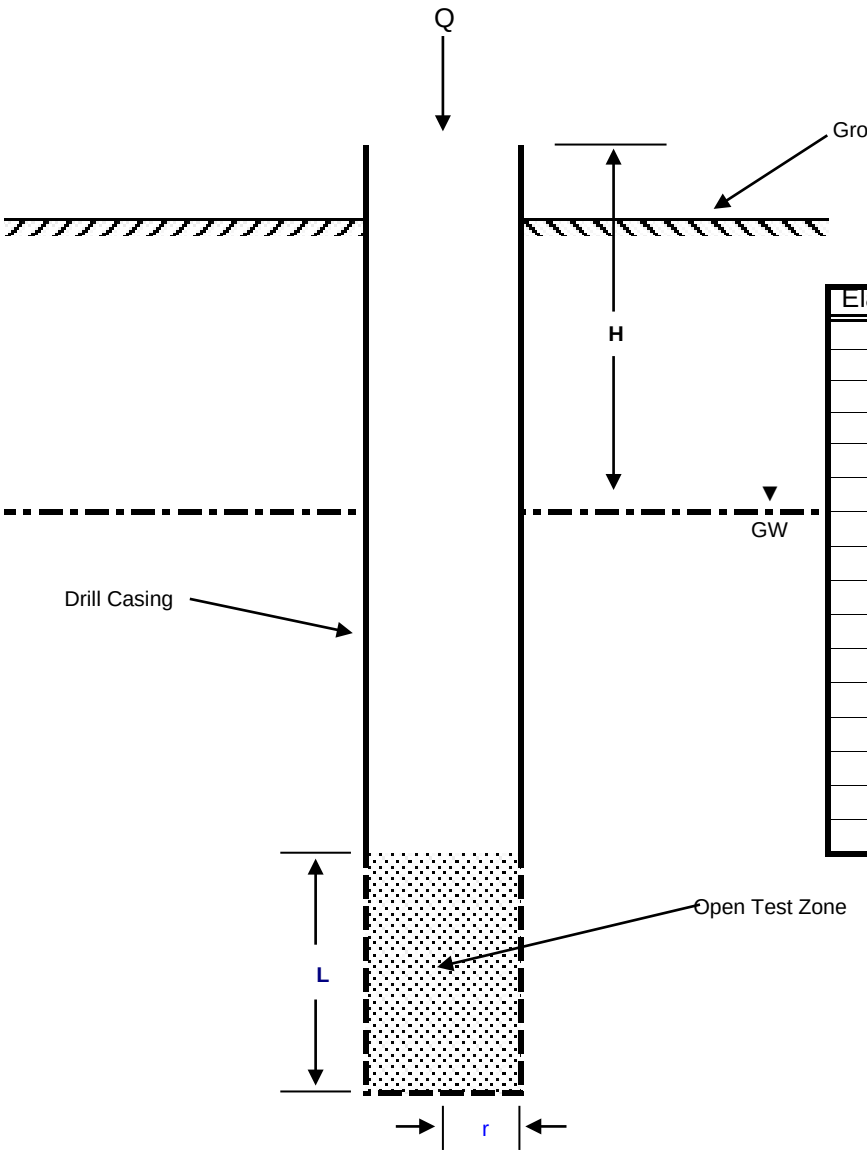
TEST INTERVAL DETAILS

Depth to bottom, feet (below ground surface): _____

Depth to top, feet (below ground surface): _____

Length, L, inches: _____

Water flow to achieve constant head, Q: _____ (volume/time)



Elapsed Time	Inflow	Overflow
0		

NOTES: 1. Based on the Constant Head Permeability Test SOP:
Created for the CT River Levee Projects, GEI Consultants
October 2008.

GEI Consultants

STANDARD OPERATING PROCEDURE

GW-014 Dense Non-Aqueous Phase Liquid (DNAPL) Measurement and Recovery

1. Objective

Provide procedural guidance for routine gauging and recovery of dense non-aqueous phase liquids (DNAPL) related to former manufactured gas plant (MGP) operations.

2. Execution

2.1 Equipment and materials

The following materials and equipment are necessary for this procedure:

- Oil/water interface probe
- Appropriate pump and required tubing/piping
- Double check valve bailers and string
- Drums or buckets for NAPL collection
- Proper PPE including gloves and protective eyewear
- Drum labels
- Field data sheets or logbooks
- Decontamination supplies and plastic sheeting
- Additional equipment identified by site-specific work plan and HASP
- Example specifications of DNAPL management equipment is included as Attachment A.

2.2 General Measurement Procedures

Using an oil/water interface probe will provide a depth to water and a depth to product in each monitoring well. Refer to probe manual to determine changes between liquid type. To achieve accurate depth measurements, ensure the oil/water interface probe is decontaminated (GEI SOP QA-001 prior to and between each measurement taken at each well.

To calculate the volume of product in monitoring wells with these specifications, take the following measurements:

- Total well length
- Depth to water
- Depth to product (s) – c1 and c2

Using the following equations, determine the length of the water column and the length of the product column:

[1] (a) – (b) = Water column length (d)
[2] (a) – (c1) = Product column length (e) dense non-aqueous phase liquid (DNAPL)

Calculate the volume of DNAPL product in the well using the following equation:

DNAPL for a 2" diameter well
[4] (e) x 0.1632 = Volume (gallons) of product in well
(e) x 0.6178 = Volume (liters) of product in well

DNAPL for a 4" diameter well
[4] (e) x 0.6528 = Volume (gallons) of product in well
(e) x 2.4711 = Volume (liters) of product in well

DNAPL for a 6" diameter well
[4] (e) x 1.469 = Volume (gallons) of product in well
(e) x 5.561 = Volume (liters) of product in well

Once measurements have been taken and calculations have been made, collection of dense non-aqueous phase liquid (DNAPL) may commence.

2.3 DNAPL Collection Procedures

Collection of DNAPL shall be accomplished using common recovery techniques or technologies as follows:

- Peristaltic pumps
- Bailers
- Positive displacement down hole pumps (e.g. Hammerhead, Blackhawk pumps, etc)

Special care shall be taken to prevent any purged DNAPL causing a spill and coming into contact with the ground and sampling personnel. This includes the use of proper personal protective equipment (PPE), including gloves and protective eyewear (Tyvek® if necessary), along with plastic sheeting set beneath the pump, tubing, and collection container (sealed top 55-gallon drum or 5-gallon bucket with lid), and the surrounding work area. A site-specific work plan, HASP and job specific job safety analysis need to be developed prior to the start of work. Examples of DNAPL specific management equipment and tools are included as Attachment A. The specific operating procedures for common recovery methods are discussed in the following sections.

2.3.1 Sampling and recovery via peristaltic pump with dedicated tubing:

- Take and record the required measurements prior to commencing pumping.
- Connect the dedicated tubing to the peristaltic pump with the long end of the silicon tubing set to discharge water and product directly into either a 5-gallon bucket or a 55-gallon closed-top drum, ensuring that the entire set-up is underlain by plastic sheeting.
- Begin purging the well, occasionally checking the depth to water and depth to product.
- Once the DNAPL has been purged from the well, a sample will be collected and preserved if required, in accordance with laboratory standards.

- Following completion of NAPL recovery, disconnect the tubing from the pump, secure the well and road box, and clean/decontaminate the pump and oil/water interface probe, prior to moving to the next location.
- Impacted tubing will either be containerized for proper disposal or left in well for reuse.

2.3.2 Sampling and recovery via double check valve bailer:

- Take and record the required measurements prior to commencing bailing.
- Ensure the entire work area is covered in plastic sheeting to avoid potential spills of water and/or product.
- Tie the bailer to a piece of string that will allow the bailer to reach the bottom of the well.
- Using slow and controlled motions while lowering (and raising) the bailer to the bottom of the well, commence bailing product out of the well and draining the bailer directly into either a 5-gallon bucket or a 55-gallon closed-top drum.
- Once the NAPL has been purged from the well, collect and preserve the analytical sample, if required, in accordance with laboratory standards.

2.3.3 Sampling via piston-style pumps (HammerHead, Blackhawk etc)

For significant accumulations of DNAPL a variety of dedicated pumping technologies exist. Refer to manufacturer-specific operating procedures and site specific means and methods.

2.4 Waste Management and Disposal

Investigation derived waste should be managed in accordance with GEI SOP SC-003. Additional care should be taken with DNAPL while infrequent the potential for hazardous waste characteristics does exist. DNAPL waste management and disposal should be evaluated on a site by site basis as discussed in Section 3.

2.5 Troubleshooting Information

If there are any performance problems with the oil/water interface probe which result in inability to achieve the proper measurements presented in Section 5.1, or if there are any problems with the peristaltic pump, consult the appropriate section of the probe instruction manual for the checkout and self-test procedures. If the problem persists, consult the manufacturer's customer service department immediately for further instructions.

Lower temperatures can affect the ability to pump and/or bail NAPL. Weather should be taken into consideration when scheduling gauging and recovery sampling events.

2.6 Data and records management

All information pertaining to maintenance of the oil/water interface probe and the peristaltic pump shall be maintained in the project file. Field measurements (depth to

water, product, *etc.*) and all calculations (product column length, volume of product, *etc.*) shall be recorded on the appropriate field data sheets or in the logbook consistent with GEI SOP Section 5.

2.7 Health and safety considerations

The health and safety considerations for the work associated with this SOP, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed job safety analysis (JSA) should be completed prior to the start of work.

3. Limitations

- DNAPL gauging and recovery can be problematic and requires adaptive thinking. A variety of measurement and collection techniques may be necessary to properly execute the work.
- Exposure to DNAPL can accelerate the required maintenance/replacement intervals for tools and equipment.
- A site specific work plan, HASP and JSA needs to be developed prior to commencing work. The documents should address: safety, recovery technologies, waste containment and waste management.

4. References

U.S. EPA. Ground Water Issue: Dense Non-aqueous Phase Liquids, EPA/540/4-91-002, March 1991.

5. Attachments

Attachment A – Example specifications of DNAPL recovery and management tools and equipment.

6. Contact

Kathleen Slimon
Mike Quinlan

Section 8

Air Sampling and Monitoring (AR)

STANDARD OPERATING PROCEDURES

AR-001 General Guidance on Work Zone Monitoring Methods

1. Objective

Protect human health by measuring air quality at the perimeter of a work area.

2. Execution

Walk-around perimeter and work zone monitoring for Total Volatile Organic Compounds (TVOC), Respirable Particulate matter less than 10 microns (RPM_{10}), and odor will occur along the perimeter of the project site on a regular and as-needed basis. Specific site conditions that will trigger walk-around perimeter or work zone monitoring include:

- visible dust
- odor complaints
- detection of TVOCs and/or RPM_{10} at levels approaching or exceeding action levels
- direction by the site oversight consultant or client

Perimeter air monitoring and work zone monitoring, in the absence of any specific triggering criteria, will be conducted on a regular basis during the normal work day. Particular attention will be given to the direction of any residences or other sensitive receptors.

At the time when a triggering condition is observed, the walk-around perimeter and work zone monitoring will occur continuously until the conditions that triggered the monitoring have subsided. Additional temporary monitoring points may be established due to changing site or meteorological conditions.

TVOC concentrations will be monitored and recorded using a Rae Systems MiniRAE 2000 Portable Ionization Detector (PID) or equivalent. RPM_{10} will be measured and recorded using a MIE personal DataRAM 1200 (PDR-1200) portable real-time aerosol monitor equipped with a PM-10 monitor and Gilian personal air sampling pump. AR-002 Suspended Particulate Matter in Ambient Air using the MIE DataRAM Real-time Aerosol Monitor (Portable) provides guidance on the use of this meter. Odors will be noted based on the n-butanol scale, as adapted from ASTM E544-99.

At each monitoring point, the 15-minute average value of TVOC and RPM_{10}, sample time, and sample location will be collected and recorded. The odor intensity based on the n-butanol scale will be monitored over a 15-minute period and recorded. At each location, air temperature, wind direction, and wind speed may be monitored and recorded using a hand-held wind meter.

Odors as a function of naphthalene concentration will be monitored over a 15-minute period and recorded. To measure naphthalene concentrations, the zNose™ Model 4200 system will be used. The zNose™ is an ultra-fast gas chromatograph (GC) that is capable of analyzing airborne concentrations of VOCs and SVOCs in less than one minute. The zNose™ uses a surface acoustic wave (SAW) detector that changes in vibration frequency as compounds elute from the column and condense onto the surface of the detector.

The zNose™ is a portable instrument and will be positioned downwind of the remedial activities. Up to five samples will be analyzed for naphthalene concentrations over a 15-minute period. The concentrations will be averaged to produce a 15-minute result. The calibration will be checked at the start of the day, at mid-day, and at the end of the day. An air blank will be run every two hours. A blank will also be run if a reading exceeds the calibration range of the instrument.

The zNose™ also has the capability of generating fingerprint images of the chemical constituents in the vapor called VaporPrints™. A VaporPrint™ of an air sample can be collected through a headspace analysis. This VaporPrint™ can be compared to others generated at the perimeter and off-site to see if remedial operations are the source of the odors. VaporPrints™ can allow for identification of odors that may not be affiliated with remedial operations.

To monitor cyanide (as hydrogen cyanide gas), a real-time hand-held meter in conjunction with the Dräger Chip Measuring System (CMS) will be used. Types of continuously monitoring equipment include the V-RAE by Rae Systems and the Mini-Warn by Dräger Safety Systems and are available from rental equipment suppliers. Due to potential interference from sulfur compounds, hydrogen sulfide gas (H_2S) will also be monitored for comparison to the hydrogen cyanide gas levels detected. Hydrogen cyanide gas detections will also be confirmed with CMS Dräger tubes due to this interference. The Dräger CMS can quantify other gases that could potentially provide false positives for hydrogen cyanide gas (including sulfur dioxide, hydrogen sulfide, phosphine gas, chlorine, and nitrogen dioxide) detected by the real-time meter.

At each location, air temperature, wind direction, and wind speed will be monitored and recorded using a hand-held wind meter.

3. References

New York State Department of Environmental Conservation. 2010. DER-10 / Technical Guidance for Site Investigation and Remediation. Division of Environmental Remediation. May 3, 2010. Appendix 1A. pp. 204-206

ASTM E544 - 99(2004) Standard Practices for Referencing Suprathreshold Odor Intensity

4. Attachments

None

5. Contact

Chris Gordon/Mike Quinlan

STANDARD OPERATING PROCEDURE

AR-002 Air Sampling for Dust (Particulate Matter) using the MIE DataRAM™ Real-Time Aerosol Monitor

1. Objective

Describe standard procedures for the real-time monitoring of airborne particulate matter using a MIE DataRAM™ model DR-2000 real-time aerosol monitor.

The MIE DataRAM™ is a real-time, portable monitor that measures airborne particulate matter. It is capable of monitoring total suspended particulate matter, particulate matter less than 10 microns (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$) by using an appropriate orifice to control the size of the particles being measured. The DataRAM can be programmed to collect continuous real-time data, or to record time averaged data.

2. Materials

- MIE DataRAM™ model DR-2000
- Shelter/Enclosure - a pre-constructed enclosure capable of protecting the instrumentation from severe weather conditions during sample collection
- Omnidirectional inlet
- Inlet heater
- $PM_{2.5}/PM_{10}$ impactor
- IBM compatible computer loaded with MIE DataRAM™ software
- Field notebook

3. Meter Calibration

- Assemble all necessary DataRAM™ attachments.
- Make sure the power selector switch on the rear panel is in the "on" position. Turn on the power by pressing the "on" button on the front display panel of the DataRAM™. "Main Menu I" will appear on the screen.
- Activate the zero mode by pressing the button indicating zero.
- When the screen indicates the zero mode is complete, activate the span check mode by pressing the button indicated, and follow the prompts that appear on the screen.
- Record the time of the zeroing and the calibration difference percent in the field notebook. If the zeroing procedure takes longer than 5 minutes press "exit" and then "off," and then put the power switch on the rear panel of the instrument in the "off" position. Wait several minutes, turn on the power and zero the instrument again. If the calibration difference percent is more than ±5% then follow the "Calibr Diff" Resetting Procedure in the DataRAM™ Instruction Manual.
- Set the DataRAM™ to automatically log data. Refer to the Instruction Manual for details on how to set the data logging function.

- Record the instrument flow rate from the parameters menu in the field notebook.

4. Sample Collection

- Set the DataRAM™ at the predetermined sampling location in a rain or weatherproof containment, with only the inlet tubing exposed to ambient air.
- Start the run.
- When sampling is completed, terminate run and download data using the RS-232 cable connector and the MIE DR-COM software.
- Once the data file has been successfully downloaded and saved in an appropriate location, clear the data from the instrument memory.

5. Limitations

Each instrument must be calibrated using the internal reference standard and zeroed at the start of each sampling event and at a frequency of once per day throughout the duration of the sampling event.

The DataRAM™ can be programmed to collect continuous real-time data, or can collect "averaged" real-time data. These various options should be addressed prior to field operations and must be referenced in an approved work plan. This work plan must be available to all field personnel.

Project objectives will usually dictate the sampling location. In general, for air monitoring, meters are usually placed near breathing height and away from objects that can interfere with air motions. Since the DataRAM™ is measuring particulate matter, placement of the instrument directly on the ground should be avoided to prevent the sampling of dust concentrations that may not be representative of the air that is intended to be sampled (e.g. air at breathing height).

6. References

Code of Federal Regulations, 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, US Environmental Protection Agency, Office of Air Quality Planning and Standards, Washington, D.C. EPA-454/B-08-003 December, 2008.

7. Contacts

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STANDARD OPERATING PROCEDURE

AR-003 Air Sampling for PM_{10} Particulate Matter using the High-Volume Sampler Method

1. Objective

Describe standard procedures for the collection of air samples for laboratory analysis of PM_{10} particulate matter using the high volume sampler method.

2. Materials

- General Metal Works (GMW) Model IP 10-8000 or equivalent. The GMW sampler can be rented.
- Calibration kit, as specified for the selected sampler.
- PM_{10} sampling filters, to be supplied by the contract laboratory. A Whatman QM-A quartz filter is currently the only commercially available PM_{10} filter that satisfies all criteria specified in 40 CFR 50, Appendix J. .
- Ice chest for sample storage or shipping.

3. Sampling

This method measures the mass concentration of particulate matter with an aerodynamic diameter equal to or less than 10 micrometers (µm). A high volume (HV) sampler draws a known volume of ambient air at a constant flow rate through a size selective inlet and through one or more filters. Particulates of 10 µm or smaller are collected on the filter(s) during the prescribed time period. Each sample filter is weighed before and after sampling to determine the net weight gain of the collected PM_{10} sample.

A HV sampler consists of two basic components: a specially designed inlet that transmits only particles equal to or less than 10 µm in diameter and a flow control system capable of maintaining a constant flow rate within the design specifications of the inlet.

3.1. Sampler Installation

- On receipt of the sampler, inspect all shipping cartons to ensure that all components have been received and verify that the unit is operational.
- On site, assemble the unit according to the manufacturer's instructions. Check all power cords and tubing for crimps, cracks, and breaks. The HV sampler should be placed on a sturdy platform or table, with the air inlet 4 to 6 feet above ground level.
- The sampler should be strategically placed according to the work plan or objectives of the study and located free of any obstructions to ambient air flow.
- The HV sampler requires 110 V AC power. The electrical outlet should be protected by a ground fault interrupter and water proof electrical connectors should be used.

- Operate the sampler for 30 minutes to ensure that the motor is operating at full performance.
- Calibrate the sampler in accordance with the instructions provided with the appropriate calibration kit. Proper calibration of the sampler is critical.
- Field personnel should be familiar with both the sampling unit and the calibration procedure before attempting to record data.

3.2. Sampling Procedure

- Operate sampler as per manufacturer's instructions.
- Filters are received from the laboratory numbered and pre-weighed in their individual envelope or folder within an envelope. Powder free latex gloves, or equivalent, should be worn during the handling of filters. Only touch the edges of the filter.
- Examine the filter support screen to confirm that it is clean. If it appears to be dirty, wipe it clean using lint free wipes such as laboratory wipes or equivalent. Check the gasket to be sure that it is in good condition. The filter is placed on the support screen with the numbered side facing down. Tighten thumb nuts on alternate corners to properly align and seat the gasket. The nuts should be only hand tightened to avoid damaging the gasket.
- Record the sampler serial number, filter ID number, sampler location, sampling date, and the operator's initials in the field notebook, any field data sheets being used, and on the back of a clean chart and install the chart in the flow recorder.
- Turn the sampler on and allow it to equilibrate to operating temperature, about 3 to 5 minutes. Verify that the recorder is operating and that the pen is inking. Allow the sampler to run for the required sampling interval.
- When sampling interval is completed, turn off the sampler and carefully remove the filter as soon as possible. Sample degredation can occur if the filter is left in the sampler for an extended period of time. The filter should be folded in half with the exposed side inward and the folded filter carefully placed in its respective folder and/or envelope. When removing and folding the filter touch only the outer edges. Powder free latex gloves, or equivalent, should be worn when handling filters.
- Record the following parameters in the field notebook and in any field data sheet being used:
    1. Elapsed time of sampling interval in minutes
    2. Average recorder response in arbitrary units
    3. Starting flow rate and ending flow rate
- The average flow rate for GMW Model IP 10-8000 sampler should be close to 1.13 m^3/min.
- Calculate the total flow rate for the sampling interval by time weighted averaging the flow rate readings. Air monitoring results where the flow rates

varied more than +/- 10%, from beginning to end, should be qualified accordingly and discussed with the project manager.

- The exposed filters, folded in half, are placed back into their shipping envelope and forwarded with completed chain of custody forms to the contracted laboratory for analyses. Follow the contracted laboratory's instructions for handling and returning the exposed filters.

4. General Guidance

The total volume of air sampled is determined from the measured volumetric flow rate and the sampling time. The mass concentration of PM_{10} in the ambient air is calculated as the total mass of collected PM_{10} particles divided by the total volume of air sampled. The PM_{10} measurement is expressed as micrograms (µg) per standard cubic meter (µg/std M^3). The sampled volume must be corrected to EPA standard conditions, 25° C, 760 mm Hg or 101 kPa.

A field blank may be collected, which consists of an unexposed filter removed from its envelope, put in place in the HV sampler, immediately removed, folded, replaced in its envelope and sent to the laboratory. Field blanks, if collected, should be taken at a frequency of one per twenty samples. If fewer than twenty samples will be collected during one week, collect one field blank weekly during sampling.

5. References

Code of Federal Regulations, 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods (Interim Edition), Addendum to Section 2.11 Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High-Volume Sampler Method), US Environmental Protection Agency, Office of Research and Development, Washington, D.C. EPA/600/R-94/038b April 1994.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, US Environmental Protection Agency, Office of Air Quality Planning and Standards, Washington, D.C. EPA-454/B-08-003 December, 2008.

6. Contacts

Chris Gordon
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STANDARD OPERATING PROCEDURE

AR-005 Hydrogen Cyanide Work Zone Air Monitoring Procedures

1. Objective

Describe real-time monitoring of hydrogen cyanide gas during field activities.

2. Equipment

To monitor cyanide (as hydrogen cyanide gas), the GEI field representative should utilize a real time handheld meter in conjunction with the Dräger Chip Measuring System (CMS) during subsurface activities including subsurface excavations, borings and monitoring well installation, materials handling, and groundwater sampling in areas with confirmed or suspected cyanide impacts.

Continuous monitoring equipment includes the V-RAE by Rae Systems and the Mini-Warn by Dräger Safety Systems, and are available from rental equipment suppliers. Due to potential interference from sulfurs, hydrogen sulfide gas (H_2S) should also be monitored for comparison to the hydrogen cyanide gas levels detected. Hydrogen cyanide gas detections will also be confirmed with CMS Dräger tubes due to this interference. The Dräger CMS can quantify other gases that could potentially provide false positives for hydrogen cyanide gas (including sulfur dioxide, hydrogen sulfide, phosphine gas, chlorine, and nitrogen dioxide) detected by the real time meter.

3. Calibration

Prior to commencing work on-site, the real-time cyanide meter should be calibrated in accordance with the equipment manufacturer's specifications. If the meter is calibrated in the field, the daily calibration results should be recorded in the field notebook.

4. Execution

Cyanide will be monitored around the perimeter of the work zone on a regular basis. Continuous monitoring should be completed every fifteen minutes if sulfur odor or suspected purifier waste material (former MGP sites only) is encountered. Measurements should be monitored in the breathing zone and should be recorded into the field notebook or on an applicable form. In the event that hydrogen cyanide is detected, the GEI field representative should proceed as follows:

4.1. Action Level: HCN ≤1 ppm for 15-minute average using real time meter

- Run CMS Dräger tube.
- Continue monitoring with real time meter.
- Continue work if CMS Dräger tube for hydrogen cyanide reads <2 ppm.

4.2. Action Level: 1 ppm < HCN < 2ppm for 15-minute average using real time meter.

- Run CMS Dräger using hydrogen cyanide gas chip and confirm <2 ppm concentration.
- Continue monitoring with real time meter.
- Run CMS Dräger tube using sulfur dioxide, hydrogen sulfide phosphine chip to evaluate potential interference.
- Recalibrate the real time meter and continue to monitor the work zone.

4.3. Action Level: HCN 2 ppm on CMS Dräger tube

- Stop work and move (with continuous monitoring meter) at least 25 feet upwind from excavation or until continuous monitoring meter registers <1 ppm.
- Run CMS Dräger hydrogen cyanide chip and re-evaluate activities
- Continue monitoring with real time meter.
- Allow area to ventilate and continue to monitor while returning to the work zone.
- Do not move into an area when readings are >1 ppm without confirming with additional CMS Dräger measurement.
- May resume work if Dräger tube for cyanide reads <2 ppm.

5. Limitations

No air purifying respiratory protection is available for hydrogen cyanide gas.

The American Conference of Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for Hydrogen Cyanide is 4.7 ppm.

6. References

Code of Federal Regulations, 40 CFR 50, Appendix J, Reference Method for the Determination of Particulate Matter as PM_{10} in the Atmosphere.

Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods (Interim Edition), Addendum to Section 2.11 Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High-Volume Sampler Method), US Environmental Protection Agency, Office of Research and Development, Washington, D.C. EPA/600/R-94/038b April 1994.

7. Contacts

Ryan Hoffman

Section 9

Quality Control – Quality Assurance (QA)

STANDARD OPERATING PROCEDURE

QA-001 Equipment Decontamination

1. Objective

This SOP describes methods used to decontaminate reusable sampling equipment for projects that require collection of organic and inorganic analytical samples. The goal is to minimize cross-contamination between samples. This maximizes confidence that field samples will be representative of specific locations and conditions.

Refer to the work plan or project manager to determine if different decontamination methods are acceptable.

2. Execution

- All contractor-provided equipment (augers, rods, spoons, backhoe buckets) should be decontaminated by steam cleaning or pressure washing prior to coming on site. If there is doubt about cleanliness of drilling tools, they should be decontaminated before use at the site.
- Sampling equipment decontamination is a sequential procedure consisting of the following steps:

    - Alconox-solution wash (or equivalent non-phosphate detergent)
    - Potable water rinse
    - A ten percent reagent grade nitric acid wash should be used to strip potential inorganic contaminants from sampling devices.
    - Laboratory grade 100 percent methanol, should be used to strip potential organic contaminants from sampling devices.
    - Three distilled/deionized water rinses.

- Alconox solution is a mixture of approximately 1 cup of Alconox per 1 gallon of potable water. Alconox solution wash requires scrubbing the equipment with a brush soaked in Alconox solution to remove visible contamination or dirt from sampling devices.
- Split-spoon samplers must be decontaminated prior to collecting each sample. The procedure follows:

    - Overall wash and scrub in a bucket of Alconox solution
    - Potable water rinse.
    - 10% nitric rinse
    - 100% laboratory grade methanol rinse
    - Three distilled-water rinses.

The same procedure is applied to all devices that may contact soil or groundwater slated for analytical samples - spoons and knifes used to inspect or sample soils; water level indicators; oil/water interface probes.

Equipment used for well development of multiple wells must be decontaminated between wells.

Pumps and tubing should be flushed using a minimum of one gallon of Alconox-solution followed by a gallon of potable water. Some projects may require methanol (in much lower quantities) and distilled water instead of or in addition to the Alconox-solution and potable water.

For pumps and tubing, a final rinse of the sampling equipment may be performed with the water being sampled.

Equipment blanks measure the effectiveness of the decontamination procedures. Blanks should be collected per guidance provided in QA-002, Field Quality Control Samples.

3. Limitations

- Do not store the deionized/distilled water in polyethylene bottles, use Nalgene, glass, or Teflon. Polyethylene may leach phthalates.
- Do not attempt to decontaminate string or rope - replace it.
- Due to eye and skin absorption hazards, safety glasses and gloves must be worn when handling decontamination solvents.
- Decontamination procedures may also require modification based on state or federal requirements.
- Steam cleaning or pressure washing with potable water is generally an acceptable decontamination method for drilling equipment (i.e., augers). Check with the work plan.
- Dedicated equipment need not be decontaminated beyond initial decontamination prior to field use.

4. References

Environmental Response Team (ERT), US EPA. Sampling Equipment Decontamination, SOP No. 2006, Revision 0.0. August 11, 1994.

US EPA Region 9. Sampling Equipment Decontamination, SOP No. 1230, Revision 1.September 1999.

5. Contacts

Mackenzie Fannon
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STANDARD OPERATING PROCEDURE

QA-002 Field Quality Control Samples

1. Objective

Field Quality Control (QC) samples are used to monitor the reproducibility and representativeness of field sampling. The QC samples are handled, transported, and analyzed in the same manner as the associated field samples. QC samples may include trip blanks, equipment blanks, and field duplicates.

2. Execution

2.1. Trip blanks

- Used to monitor possible sources of contamination from transport, storage, inadequate bottle cleaning, or laboratory methodologies.
- Sample containers filled at the laboratory with analyte-free water are transported to and from the site, and are not opened until time of analysis.
- Trip blanks are stored with the sample containers prior to and after field activities and remain with the collected samples until analyzed.
- Generally, one trip blank per volatiles analysis (e.g. volatile organic compounds) shipment.
- Consider submitting a trip blank when sample shipment is by Fed Ex or other large carrier, or laboratory courier.
- Trip blanks should be recorded in the field notebook and on the chain-of-custody that same as all other samples.

2.2. Equipment blanks

- Equipment blanks (also known as equipment rinsate blanks) are used to monitor possible sources of contamination associated with sample collection. Monitors on-site sampling environment, sampling equipment decontamination, sample container cleaning, the suitability of sample preservatives and analyte-free water, and sample transport and storage conditions
- Equipment blanks are collected by pouring laboratory supplied or distilled or deionized water over sampling tools that have been decontaminated per the work plan, into sample containers.
- Equipment blanks are stored with the associated field samples until submitted for analysis.
- Generally collected when site conditions indicate site related contamination is a concern. Check project-specific work plan and/or quality assurance project plan for required frequency.
- Prepare equipment blanks immediately after the equipment is cleaned in the field and before leaving the sampling site.
- Prepare equipment blanks by rinsing the decontaminated sampling equipment set with the appropriate type of analyte-free water and collecting the rinse water in appropriate sample containers.

- If a potable water rinse is the typical final step, collect the equipment blank with analyte-free water after the potable water rinse.
- Equipment blanks should be recorded in the field notebook and on the chain-of-custody that same as all other samples.

2.3. Field Duplicates

- Used to evaluate the precision and representativeness of the sampling procedures.
- Field duplicates are two samples collected from the same location using the same procedures. Both samples are submitted to the laboratory as individual samples with different sample identification.
- Field duplicates from groundwater sampling for all analyses except volatiles analysis are collected by alternating filling sample containers from the same sampling device. Field duplicates for volatiles analysis are filled sequentially.
- Soil or sediment field duplicates are collected by homogenizing the sample for all analyses except volatiles. The homogenized sample is then divided into two equal portions and placed in separate sample containers. Field duplicates for volatile analysis are collected at two adjacent sampling locations.
- Each sample is assigned different sample identifications.
- Field duplicates are generally collected at frequency of 1/20 samples. Check project-specific work plan and/or quality assurance project plan for required frequency.
- All field QC samples should be labeled in the field and submitted “blind” to the laboratory – as if they are separate, primary samples.
- Field duplicates should be recorded in the field notebook and on the chain-of-custody that same as all other samples.
-

2.4. Matrix-Spike samples (MS/MSD)

- Matrix spike and matrix spike duplicate samples (MS/MSDs) are environmental samples that are spiked in the laboratory or in the field with a known concentration of a target analyte(s) to verify percent recoveries.
- Matrix spike and matrix spike duplicate samples are primarily used to check sample matrix interferences. They can also be used to monitor error due to laboratory bias and poor precision. However, a data set of at least three or more results is necessary to statistically distinguish between laboratory performance and matrix interference.
- Generally, the laboratory is required to extract and analyze MS or MS / MSDs at a minimum frequency of 5% of samples being analyzed for the target analyte(s). If the project or client criteria require an MS or MS/MSD, collect sufficient volume in the appropriate containers, and designate the sample to be used as the MS or MS/MSD on the chain of custody.
- Calculate the percent recovery for all spiked analytes for both the MS and MSD. For MS/MSDs also calculate the relative percent difference (RPD). The

RPD for each spiked analyte is calculated using the amount detected not percent recovery. If your data will be subjected to validation, the % recovery and the RPD will generally be determined by the validator.

2.5. Typical QA/QC Frequency

- QA/QC frequency is determined by project, client or regulatory criteria and should be verified prior to sample collection. Generally, QA/QC samples are collected according to the frequency described below:

Duplicate Samples	One per sampling event, one per 10 samples collected, or one every two weeks, whichever comes first.
Equipment Blanks	For each equipment type that is not dedicated or disposable - one per sampling event, one per 20 samples collected, or one every two weeks, whichever comes first.
Trip Blanks	One per sample delivery group, or in each cooler containing VOC soil or aqueous samples, depending on project.
MS or MS / MSDs	One MS or MS/MSD per sampling event, one per 20 samples collected, or one every two weeks, whichever comes first.

3. Limitations

- Trip blanks must never be opened in the field.
- Trip blanks are usually for VOCs only because less volatile compounds are not likely to cross-contaminate other samples by simply being in close proximity.
- Laboratory-grade water must be used during the collection of equipment blanks.
- Field duplicates must have different sample identifications.

4. References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (November 1986), U.S. Environmental Protection Agency Department of Solid Waste, Washington, D.C.

U.S. Environmental Protection Agency Office of Emergency and Remedial Response, 1990, Quality assurance/quality control guidance for removal activities: EPA/540/G-90/004, Sampling QA/QC Plan and Data Validation Procedures Interim Final, April, 1990.

5. Contact

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Appendix D

Quality Assurance Project Plan

GEI Consultants

Consulting
Engineers and
Scientists

Quality Assurance Project Plan

Parcels 3 and 4 Portion of Williamsburg Works Site

Brooklyn, New York
ACO Index No. A2-0552-0606
Site #: 224055

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Appendices

A. Laboratory Quality Manual

MF/MO:bdp

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Abbreviations and Acronyms

ASP	Analytical Service Protocols
ASTM	American Society for Testing and Materials
CAS	Chemical Abstract Service
CMS	Chip Measurement System
CLP	Contract Laboratory Protocol
COC	Chain Of Custody
DQO	Data Quality Objective
DO	Dissolved Oxygen
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
GC/MS	Gas Chromatography/Mass Spectroscopy
GEI	GEI Consultants, Inc., P.C.
LCS	Laboratory Control Sample
LEL	Lower Explosive Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
PM	Project Manager
PQL	Practical Quantification Limit
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation Recovery Act
RL	Reporting Limit
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SD	Standard Deviation
SOP	Standard Operating Procedures
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compounds
TOX	Total Organic Halides
TPH	Total Petroleum Hydrocarbons
USDOT	United States Department of Transportation
VOC	Volatile Organic Compound

Quality Assurance Glossary

"Analytical Services Protocol" or "ASP" means the New York State Department of Environmental Conservation (NYSDEC's) compendium of approved EPA and NYSDEC laboratory methods for sample preparation and analysis and data handling procedures.

"Confirmatory Sample" means a sample taken after remedial action is expected to be complete to verify that the cleanup requirements have been met. This term has the same meaning as "post remediation sample."

"Contract laboratory program" or "CLP" means a program of chemical analytical services developed by the United States Environmental Protection Agency (EPA) to support CERCLA.

"Data Usability Summary Report, (DUSR)" is a document that provides a thorough evaluation of the analytical data to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and use.

"Effective solubility" means the theoretical aqueous solubility of an organic constituent in groundwater that is in chemical equilibrium with a separate phase mixed product (product containing several organic chemicals). The effective solubility of a particular organic chemical can be estimated by multiplying its mole fraction in the product mixture by its pure phase solubility.

"Environmental Laboratory Accreditation Program" or "ELAP" means a program conducted by the New York State Department of Health (NYSDOH), which certifies environmental laboratories through on-site inspections and evaluation of principles of credentials and proficiency testing.

"Intermediate Sample" means a sample taken during the investigation process that will be followed by another sampling event to confirm that remediation was successful or to confirm that the extent of contamination has been defined to below a level of concern.

"Method detection limit" or "MDL" means the minimum concentration of a substance that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from the analysis of a sample in a given matrix containing the analyte.

"Non-targeted compound" means a compound detected in a sample using a specific analytical method that is not a targeted compound, a surrogate compound, a system monitoring compound or an internal standard compound.

"Practical quantitation level" or "PQL" means the lowest quantitation level of a given analyte that can be reliably achieved among laboratories within the specified limits of precision and accuracy of a given analytical method during routine laboratory operating conditions.

"PAH" means polycyclic aromatic hydrocarbon as defined by United States Environmental Protection Agency (USEPA) Method 8270.

"Quality assurance" or "QA" means the total integrated program for assuring the reliability of monitoring and measurement data, which includes a system for integrating the quality planning, quality assessment and quality improvement efforts to meet data end-use requirements.

"Quality assurance project plan" or "QAPP" means a document, which presents in specific terms the policies, organization, objectives, functional activities, and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of a specific project or operation.

"Quality control" or "QC" means the routine application of procedures for attaining prescribed standards of performance in the monitoring and measurement process.

"Semi volatile organic compound" or "SVOC" means compounds amenable to analysis by extraction of the sample with an organic solvent. For the purposes of this section, semi volatiles are those target compound list compounds identified in the statement of work in the current version of the EPA Contract Laboratory Program.

"Target analyte list" or "TAL" means the list of inorganic compounds/elements designated for analysis as contained in the version of the EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, and Multi-Concentration in effect as of the date on which the laboratory is performing the analysis. For the purpose of this chapter, a Target Analyte List scan means the analysis of a sample for Target Analyte List compounds/elements.

"Targeted compound," means a hazardous substance, hazardous waste, or pollutant for which a specific analytical method is designed to detect that potential contaminant both qualitatively and quantitatively.

"Target compound list plus 30" or "TCL+30" means the list of organic compounds designated for analysis (TCL) as contained in the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis, and up to 30 non-targeted organic compounds (plus 30) as detected by gas chromatography/mass spectroscopy (GC/MS) analysis. For the purposes of this chapter, a Target Compound List+30 scan means the analysis of a sample for Target Compound List compounds and up to 10 non-targeted volatile organic compounds and up to 20 non-targeted semi volatile organic compounds using GC/MS analytical methods. Non-targeted compound criteria should be pursuant to the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, and Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis.

"Tentatively identified compound" or "TIC" means a non-targeted compound detected in a sample using a GC/MS analytical method, which has been tentatively, identified using a mass spectral library search. An estimated concentration of the TIC is also determined.

"Unknown compound" means a non-targeted compound, which cannot be tentatively identified. Based on the analytical method used, the estimated concentration of the unknown compound may or may not be determined.

"Volatile organics" means organic compounds amenable to analysis by the purge and trap technique. For the purposes of this chapter, analysis of volatile organics means the analysis of a sample for either those priority pollutants listed as amenable for analysis using EPA method 624 or those target compounds identified as volatiles in the version of the EPA "Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date on which the laboratory is performing the analysis.

"**Waste oil"** means used and/or reprocessed engine lubricating oil and/or any other used oil, including but not limited to: fuel oil, engine oil, gear oil, cutting oil, transmission fluid, oil storage tank residue, animal oil and vegetable oil, which has not subsequently been refined.

1. Purpose

GEI Consultants, Inc. (GEI) has prepared this Quality Assurance Project Plan (QAPP) for the Williamsburg Works site located in Brooklyn, New York (the Site). The QAPP is a companion document to the draft *Supplemental Remedial Investigation Work Plan – Parcels 3 and 4 Portion of Williamsburg Works Site* (SRIWP) dated May 2024 and Field Sampling Plan (FSP) dated December 2020. The project location is shown on Figure 1 of the SRIWP. The QAPP presents the project scope and goals, organization, objectives, sample handling procedures and specific QA/QC procedures for samples collected under the SRIWP.

Furthermore, this QAPP identifies project responsibilities, prescribes guidance and specifications to make certain that:

- Samples are identified and controlled through sample tracking systems and chain-of-custody (COC) protocols.
- Field and laboratory analytical results are valid and usable by adherence to established protocols and procedures.
- Laboratory data are validated so they can be applied to developing a conceptual understanding of the nature and extent of contamination of soils and ground waters at the Williamsburg Works site.
- All aspects of the investigation, from field to laboratory are documented to provide data that are technically sound and legally defensible.

The requirements of this QAPP apply to all contractor activities as appropriate for their respective tasks.

This QAPP was prepared based upon guidance provided by the NYSDEC:

- DER-10, Technical Guidance for Site Investigation and Remediation. New York State Department of Environmental Conservation. May 2010.

2. Project Goals and Objectives

On behalf of National Grid, GEI prepared an SRIWP to investigate the nature and extent of impacts at the Williamsburg Works site in the Williamsburg neighborhood of Brooklyn, New York (Site). This QAPP was prepared to provide quality assurance guidelines for sampling proposed at the Site. The Site was used to manufacture gas from 1850 until prior to 1941.

3. Project Organization and Responsibility

Qualified Environmental Professional (QEP) is responsible for the implementation of the scope of work, including the supervision of contractors, field activities, and the evaluation and interpretation of data. The Consultant will direct the sampling activities and coordinate submittal of samples to testing laboratories. The project organization and key personnel for the Consultant are listed below:

- Program Manager: Jim Ash
- Project Manager (PM): Melissa Felter
- Field Team Leader: TBD
- Quality Assurance Officer: Lorie MacKinnon
- Corporate Health & Safety Officer: Steve Hawkins
- Data Validator: Lorie MacKinnon
- Data Manager: Jaimie Wargo

The primary responsibilities of each of these personnel are described in the following table.

Key Project Personnel and Responsibilities		
Position	**Consultant Personnel**	**Areas of Responsibilities**
Program Manager	Jim Ash	• Overall program oversight • Project management • Project schedule • Client contact regarding project related issues • Personnel and resource management • Review of project submittals • Budgeting
Project Manager (PM)	Melissa Felter	• Client contact regarding project related issues • Coordination of contractors • Technical development and implementation of Work Plan and Field Sampling Plan • Personnel and resource management • Preparation and review of project submittals • Preparation of project submittals • Budgeting

Key Project Personnel and Responsibilities		
Position	**Consultant Personnel**	**Areas of Responsibilities**
Field Team Leader	TBD	• Client contact regarding project related issues on day to day basis as part of field operations • Coordination of contractors • Implementation of Work Plan and Field Sampling Plan • Personnel and resource management • Preparation of project submittals
Quality Assurance Officer	Lorie MacKinnon	• QA/QC for sampling and laboratory performance
Data Validator	Lorie MacKinnon	• Perform data validation activities • Prepare data usability summary reports • Evaluate data with regards to quality objectives
Data Managers	Jaimie Wargo Julie Dicostanzo	• Manage raw data from the laboratory

A New York State Department of Health (NYSDOH) Environmental Laboratory approval Program (ELAP) approved laboratory will be utilized to perform standard analytical chemistry parameters for soil and groundwater samples including:

- Volatile Organic Compounds (VOCs) by EPA Method 8260C
- Semi volatile Organic Compounds (SVOCs) by EPA Method 8270D
- Target Analyte List (TAL) Metals including tin by EPA Method 6000/7000 series
- Total Cyanide by EPA Method 9014 (groundwater only)
- Free Cyanide by EPA Method 9014 (soils only)
- Disposal Parameters (total metals, Toxicity Characteristic Leaching Procedure (TCLP) by EPA 1311, Resource Conservation Recovery Act (RCRA) 8 metals by EPA 6000/ 7000 series, TCLP pesticides EPA 8081A, TCLP herbicides by 8151A, TCLP VOC by EPA 8260B, TCLP SVOC by EPA 8270C, paint filter test, ignitability by EPA 1030 (soils)/EPA 1010 (water), corrosivity by EPA 9040 (water)/ 9045 (soils) , reactivity [cyanide by EPA 7.3.3.2 and sulfide by EPA 7.3.4.2] by , total petroleum hydrocarbons (TPH) by EPA 8015B/ 418.1, total PCBs by EPA 8082, flashpoint, total organic halides (TOX) EPA 450.1, and % solids)

Table 1 provides a summary of soil analyses. Table 2 provides a summary of groundwater analyses. Table 3 provides a summary of quality assurance samples, holding times and analysis for each media.

Drilling contractors will be identified once the work plan is approved.

4. Quality Assurance Objectives

This section establishes the QA objectives for measurements that are critical to the project. The QA objectives are developed for relevant data quality indicators. These indicators include the method detection limit, reporting limit, precision, accuracy, completeness, representativeness, and comparability. The data quality objectives (DQOs) are based on project requirements and ensure: (1) that the data generated during the project are of known quality and (2) that the quality is acceptable to achieve the project's technical objectives provided in the Work Plan. All analytical data will be provided by the laboratory using the New York State ASP Category B deliverable format.

Quantitation Limits are laboratory-specific and reflect those values achievable by the laboratory performing the analyses. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy, precision, and completeness. The analytical methods to be used at this site will provide a level of data quality and can be used to evaluate potential impacts to soil and groundwater from the former Site operations, compared to NYSDEC Part 375 soil cleanup objectives and New York State Ambient Groundwater Standards, Criteria and Guidance values, and for purposes of risk assessment.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs. Specific procedures for sampling, chain of custody, laboratory instruments calibration, laboratory analysis, reporting of data, internal quality control, and corrective action are described in other sections of the QAPP.

The data quality indicators are presented in subsections 4.1 through 4.6. Procedures to assess the data quality indicators are given below in Section 13. Laboratory MDLs and PQLs for soils and groundwater are located on Tables 4 and 5, respectively. Soil clean-up objectives and groundwater standards and guidance values are located on Tables 6 and 7.

4.1 Required Quantification Limit

The required quantification limit is the quantitative analytical level for individual analytes needed to make decisions relative to the objectives of the project. Quantitative limits may be expressed as the MDL, or some quantitative level defined in terms relative to the program. It should be noted that there is some ambiguity in the definitions and use of terms that define quantification limits. The MDL presented herein is a well-defined and accepted entity, although attainable only under ideal laboratory conditions.

Method Detection Limit: The MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. MDL is determined from analysis of a sample in a given matrix type containing the analyte.

Practical Quantitation Limit: The PQL [also referred to as the reporting limit (RL)] is the concentration in the sample that corresponds to the lowest concentration standard of the calibration curve.

Laboratory MDLs and PQLs for soils and groundwater are located on Tables 4 and 5, respectively.

4.2 Accuracy

Accuracy is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of equipment being used (e.g., sample liners, drilling shoe, or stainless–steel sampling implements).

The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses, or %R of spiked compounds in matrix spikes (MSs), matrix spike duplicates (MSDs) and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. The laboratory accuracy will be evaluated in accordance with laboratory quality assurance plan and standard operating procedures located in Appendix A.

4.3 Precision

Precision is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. In environmental sampling, precision is the result of field sampling and analytical factors. Precision in the laboratory is easier to measure and control than precision in the field. Replicate laboratory analyses of the same sample provide information on analytical precision; replicate field samples provide data on overall measurement precision.

The difference between the overall measurement precision and the analytical precision is attributed to sampling precision. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation. The difference between the overall measurement precision and the analytical precision is attributed to sampling precision.

Precision in the field is assessed through the collection and measurement of field duplicates. Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter, with the exception of the waste characterization parameters. Precision will be measured through the calculation of relative percent differences (RPDs) as described below in subsection 13.2. The resulting information will be used to assess sampling and analytical variability. Field duplicate RPDs must be less than 50% for soil samples and less than 30% for aqueous samples. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are <5x the quantitation limit, the criterion will be doubled. Duplicate samples are described in below in subsection 5.1.5. Table 3 summarizes the number of duplicates per media sampled.

Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic analyses, laboratory precision will be assessed through the analysis of MS/MSD samples and field duplicates. For the inorganic analyses, laboratory precision will be assessed through the analysis of matrix duplicate pairs and field duplicate pairs. MS/MSD samples or matrix duplicate pairs will be performed at a frequency of one per twenty primary samples per matrix. Duplicate samples are described in below in subsection 5.1.5. Table 3 summarizes the number of duplicates per media sampled.

4.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. “Normal conditions” are defined as the conditions expected if the sampling plan was implemented as planned. The objective for completeness is a sufficient amount of valid data to achieve a predetermined statistical level of confidence. Critical samples must be identified, and plans must be formulated to secure requisite valid data for these samples.

Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

To ensure that these percentages are met, materials for crucial parameters will be retained if re-sampling is required and strict adherence to holding times will be required.

4.5 Representativeness

Representativeness is a qualitative parameter that expresses the degree to which data accurately and precisely represents either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data.

Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the SRIWP and FSP are followed, and that proper sampling, sample handling, and sample preservation techniques are used.

Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample-holding times. These are provided in Table 3 and within Appendix A.

4.6 Comparability

Comparability is a qualitative parameter that expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the SRIWP and FSP are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

Comparability is dependent on the use of recognized EPA or equivalent analytical methods and the reporting of data in standardized units. To facilitate data comparison, the data-reporting format as presented below will be used:

- Conventions (units reported as): for solids (weight/unit weight [i.e., mg/kg]); for liquids (weight/unit volume [i.e., mg/L]); for air (weight/unit volume [i.e., mg/m3]).
- Use common chemical name with corresponding chemical abstract system (CAS) code.
- Report all data for soils on a dry-weight basis.

5. Sampling Plan

Environmental sampling will include subsurface soil, groundwater, and waste characterization sampling. Subsurface soil borings and monitoring wells will be installed utilizing drilling methods presented in the FSP. Groundwater samples will be collected utilizing low-flow sampling methods, peristaltic pumps, bailers, whale pumps, or bladder pumps. Performing grab or composite sampling by appropriate hand-held sampling equipment will be the preferred method for waste characterization sampling. Analytical samples and analysis methods are described in the SRIWP, and sampling methods and procedures are described in the FSP.

5.1 Sample Type, Location, and Frequency

Samples required by the SRIWP are described below.

5.1.1 Subsurface Borings Soil Sampling

Soil borings locations will be sampled utilizing drilling methods listed in the FSP. Soil borings may be completed as permanent monitoring wells. The actual number of subsurface soil samples and their location may be modified based upon subsurface utilities and property access. The number and location of samples will vary based upon access and subsurface obstructions. Soils will be evaluated through visual, olfactory, and field screening observations in accordance with the FSP. Soil samples will be collected and submitted for laboratory analysis in general accordance with the SRIWP and the FSP. Monitoring wells will be installed in accordance with the SRIWP and FSP. A summary of subsurface soil samples and analysis are located in Table 1.

5.1.2 Groundwater Sampling

Monitoring wells will be gauged and sampled. Groundwater samples will be collected from monitoring wells screened across the water table or targeted intervals at the proposed sample locations. Groundwater samples will be collected and submitted for laboratory analysis in general accordance with the FSP and SRIWP. Water quality parameters including temperature, pH, turbidity, salinity, dissolved oxygen (DO), oxidation reduction potential (ORP), and specific conductance, will be collected prior to laboratory analysis in general accordance with the FSP. A summary of groundwater samples and analysis are located in Table 2.

5.1.3 Investigation-Derived Waste Sample Collection

Waste classification sampling may be conducted for soil and liquid wastes. The purpose of characterizing a waste is for its proper off-site disposal. Composite samples will be collected from the on-site waste storage vessels (drums or roll-off) for parameters required by the approved disposal facility. Soil samples will be collected utilizing stainless steel sampling tools, shovel, or auger that had been decontaminated. Liquid samples will be collected utilizing disposable bailer, peristaltic pump, a pump with tubing, or other similar methods. These samples will be handled in general accordance with sample handling procedures presented in the FSP. Investigation derived waste samples will be analyzed for parameters listed in Section 3 or other analyses that are required by the National Grid-approved facility.

5.1.4 Field QC Sample Collection

Field QC samples are used to monitor the reproducibility and representativeness of field sampling activities. The field QC samples are handled transported and analyzed in the same manner as the associated field samples. Field QC samples will include equipment blanks, trip blanks, field duplicates and MS/MSDs. The quantity, field QC sample type and analysis is detailed in Table 3.

Equipment Blank Samples are used to monitor the adequacy of decontamination procedures and possible sources of contamination such as potential laboratory methodologies. Equipment blanks will consist of laboratory-supplied, distilled or de-ionized water and will be used to check for potential contamination of the equipment, which may cause sample contamination. Equipment blanks will be collected by routing the distilled water through decontaminated piece of sampling equipment or disposable sampling equipment into laboratory supplied bottles. Non-dedicated field equipment will be decontaminated as specified below in subsection 4.3. Equipment blanks will be submitted to the laboratory at a frequency of one per 20 samples per matrix per type of equipment being used per parameter. Equipment blanks will be submitted daily for PFAS analysis. Equipment blanks will not be completed for waste characterization sampling activities.

Trip Blank Samples will consist of analyte free water and will be prepared by the laboratory. (Trip blanks are used to assess the potential for VOC contamination of samples due to contaminant migration during sample shipment and storage. Trip blanks will be transported to the project location unopened, stored with the site characterization samples, and kept closed until analyzed by the laboratory. Trip blanks will be submitted to the laboratory at a frequency of one per cooler, which contains samples submitted for VOC analysis.

Field Duplicate Samples, also referred to as blind duplicate samples, are two samples that are submitted form the same interval using the same sample procedures. Field duplicates will be used to assess the sampling and analytical reproducibility. Both samples are collected

utilizing the same methods and are submitted for the same laboratory analysis however different sample identification numbers are used. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters. Field duplicates will not be completed for waste characterization sampling activities.

MS/MSD Samples are two additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology. MS/MSDs will be submitted at a frequency of one per 20 investigative samples per matrix for organic and inorganic parameters. MS/MSDs will not be completed for waste characterization sampling activities.

Refer to Table 3 for a summary of QC sample preservation and container requirements.

5.2 Sample Preservation and Containerization

The analytical laboratory will supply the sample containers for the chemical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest United States EPA's Specifications and Guidance for Contaminant-Free Sample Containers. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to United States EPA specifications. The containers will be pre-preserved, where appropriate (Table 3).

5.3 Equipment Decontamination

All non-dedicated sampling equipment shall be cleaned between each use in the following manner:

- Wash/scrub with a biodegradable degreaser ("Simple Green") if there is oily residue on equipment surface
- Tap water rinse
- Wash and scrub with Alconox (or non-phosphate soap) and water mixture
- Tap water rinse
- All equipment used to collect samples for VOCs and SVOC analysis will then receive a methanol rinse followed by a de-ionized water rinse.
- All equipment used to collect samples for metals analysis will then receive a 10% nitric acid solution rinse followed by a de-ionized water rinse.

- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location, where appropriate.

The drilling and excavation equipment will be decontaminated in general accordance with methods described in the FSP.

Groundwater sampling pumps will be cleaned by washing and scrubbing with an Alconox/water solution, rinsing with tap water and irrigating with de-ionized water.

Decontamination fluids will be containerized into United States Department of Transportation (USDOT)/UN-approved 55-gallon drums or containment vessels and will be characterized and disposed of by National Grid at an approved disposal facility.

6. Documentation and COC

6.1 Sample Collection Documentation

6.1.1 *Field Notes*

Field notes documenting field activities will be maintained in a field notebook in general accordance with the FSP. Field logbooks will provide the means of recording the chronology of data collection activities performed during the investigation. The logbook will be a bound notebook with water-resistant pages. Logbook entries will be dated, legible, and contain accurate and inclusive documentation of the activity. Each page of the logbook will be signed in permanent ink and dated. No erasures or obliterations of field notes will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark, which is signed and dated by the sampler. The correction shall be written adjacent to the error.

Field logbooks will be reviewed at regular intervals by the field team leader, site manager and PM for completeness and representativeness. Logbooks will be supported by daily activity reports as described in the FSP.

6.1.2 *COC Records*

Sample custody is discussed in detail below in subsection 6.2. COC records are initiated by the samplers in the field. The field portion of the custody documentation should include:

- The project name
- Signature(s) of sampler (s) responsible for sample custody
- Sample ID number
- Date and time of collection
- Whether the sample is grab or composite
- Names of individuals involved in sampling
- Air bill or other shipping number (if applicable)

On a regular basis (daily or on such a basis that all holding times will be met), samples will be transferred to the custody of the respective laboratories, via third-party commercial carriers or via laboratory courier service. Sample packaging and shipping procedures, and

field COC procedures are described below in subsection 6.2.1 of this Plan. Sample receipt and log-in procedures at the laboratory are described below in subsection 6.2.2 of this Plan.

6.1.3 *Sample Labeling*

Each sample will be labeled with a pre-printed adhesive label using indelible ink. The label should include the date and time of collection, sampler's initials, tests to be performed, preservative (if applicable), and a unique identification. The following identification scheme will be used:

PRIMARY SAMPLES TYPES	QA/QC SAMPLE TYPES
SOIL SAMPLES	**FIELD BLANKS**
Boring -ID (SAMPLE DEPTH-FEET)	SAMPLE-ID – [DATE]
WW -SB-01 (10-15)	WW-FB-033107
GROUNDWATER SAMPLES	**MATRIX SPIKE/DUP**
Monitoring Well-ID	SAMPLE [ID] [DEPTH] [EITHER MS OR MSD]
WW-MW-01	WW-SB-01 (10-15) MS/MSD
	WW-MW-01 (10-15) MS/MSD
	TRIP BLANKS
	SAMPLE- ID [DATE]
	WW-TB-063007
	BLIND DUPLICATES
	SAMPLE -ID[XX][DATE]
	WW-SB-XX-063007
	WW-MW-XX-063007

This sample label contains the authoritative information for the sample. Inconsistencies with other documents will be settled in favor of the vial or container label unless otherwise corrected in writing from the field personnel collecting samples or the Data Manager and/or the Project QA Officer.

6.1.4 Sample Handling

Samples will be handled in general accordance with the FSP.

6.2 Sample Custody

The COC provides a record of the custody of any environmental field sample from the time of collection to the delivery to the laboratory. Custody is one of several factors that are necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files.

A sample is considered to be under a person's custody if:

- The item is in the actual possession of a person.
- The item is in the view of the person after being in actual possession of the person.
- The item was in the actual physical possession of the person but is locked up to prevent tampering.
- The item is in a designated and identified secure area.

6.2.1 Field Custody Procedures

Samples will be collected following the sampling procedures indicated in the Work Plan and the FSP. A summary of samples and collection methods are provided above in Section 5 of this QAPP. Documentation of sample collection is described above in subsection 6.1. Sample COC and packaging procedures are summarized below. These procedures will ensure that the samples will arrive at the laboratory with the COC intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.
- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of collection, and type of analysis. The sample numbering system is presented above in subsection 6.1.3.
- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions.
- Samples will be accompanied by a completed COC form. The sample numbers and locations will be listed on the COC form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, and to the laboratory facility.
- All shipments will be accompanied by the COC record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.
- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be secured with strapping tape and custody seals for shipment to the laboratory.

The custody seals will be attached to the cooler and covered with clear plastic tape after being signed by field personnel.

- If the samples are sent by common carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.
- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian, and signature of the laboratory sample custodian on COC document as receiving the samples and signature of sampler as relinquishing samples.

6.2.2 Laboratory Custody Procedures

After accepting custody of the shipping containers, the laboratory will document the receipt of the shipping containers by signing the COC record. The laboratory will:

- Examine the shipping containers to verify that the custody tape is intact
- Examine all sample containers for damage
- Determine if the temperature required for the requested testing program has been maintained during shipment and document the temperature on the COC records
- Compare samples received against those listed on the COC
- Verify that sample holding times have not been exceeded
- Examine all shipping records for accuracy and completeness
- Determine sample pH (if applicable) and record on COC forms
- Sign and date the COC immediately (if shipment is accepted) and attach the air bill
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the laboratory project manager, who will be responsible for contacting the data manager
- Attach laboratory sample container labels with unique laboratory identification and test
- Place the samples in the proper laboratory storage.

Following receipt, samples will be logged in according to the following procedure:

- The samples will be entered into the laboratory tracking system. At a minimum, the following information will be entered: project name or identification, unique

sample numbers (both client and internal laboratory), type of sample, required tests, date and time of laboratory receipt of samples, and field ID provided by field personnel.

- The completed COC, air bills, and any additional documentation will be placed in the final evidence file.

7. Calibration Procedure

7.1 Field Instruments

Field instruments will be calibrated according to the manufacturer's specifications. Air monitoring instruments will be calibrated to a known reference gas standard and ambient air outside the work zone. Calibration will be completed daily. If concentrations of VOCs are encountered above the reference gas standard, the soil screening photoionization detector (PIDs) may be calibrated or re-checked against the reference gas standard. Water quality meters will be calibrated with known reference solutions. All calibration procedures performed will be documented in the field logbook and will include the date/time of calibration, name of person performing the calibration, reference standard used, and the readings. The following equipment has been identified for use to implement sampling required by the SRIWP.

Subsurface Soil Sampling Activities:

- RAE Systems MultiRAE Plus equipped with VOC (10.6 eV lamp), lower explosive limit (LEL), percent oxygen, hydrogen sulfide and hydrogen cyanide
- RAE Systems MiniRAE (PID) with 10.6 eV lamp
- Drager Chip Measurement System (CMS) and compound specific chips (including benzene, hydrogen sulfide, hydrogen cyanide, etc.)
- Dust Trak Aerosol Monitor [particulate monitor]

Groundwater Sampling Activities:

- In-Situ Multi-Parameter Troll 9000
- YSI 6280 XLM water quality meter

Similar field equipment can be substituted that perform the same functions can be substituted if selected equipment is not available from equipment supplier.

7.2 Laboratory Instruments

Calibration procedures for a specific laboratory instrument will consist of initial calibrations, initial calibration verifications, and/or continuing calibration verification. Detailed descriptions of the calibration procedures for a specific laboratory instrument are included in the laboratory's quality assurance plan, which describe the calibration procedures, their frequency, acceptance criteria, and the conditions that will require recalibration. These

procedures are as required in the respective analytical methodologies summarized in Tables 1 and 2 of this QAPP.

8. Sample Preparation and Analytical Procedures

Analytical samples will be collected in general accordance with the FSP and as specified in the SRIWP. Tables 1 and 2 provide a sample collection matrix that is separated by media. Analytical samples will be collected into laboratory-preserved sample containers and will be preserved as indicated in Table 3.

9. Data Reduction, Validation, and Reporting

Appropriate QC measures will be used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in this project. Complete data packages suitable for data validation to support the generation of a DUSR according to NYSDEC requirements will be provided by the analytical laboratory.

9.1 Field Data Evaluation

Measurements and sample collection information will be transcribed directly into the field logbook or onto standardized forms. If errors are made, results will be legibly crossed out, initialed and dated by the person recording the data, and corrected in a space adjacent to the original (erroneous) entry. Reviews of the field records by the field team leader, site manager, and PM will ensure that:

- Logbooks and standardized forms have been filled out completely and that the information recorded accurately reflects the activities that were performed.
- Records are legible and in accordance with good record keeping procedures, i.e., entries are signed and dated, data are not obliterated, changes are initialed, dated, and explained.
- Sample collection, handling, preservation, and storage procedures were conducted in accordance with the protocols described in the FSP and Work Plan, and that any deviations were documented and approved by the appropriate personnel.

9.2 Analytical Data Validation

The consultant will be responsible for performing an independent validation of the analytical data. Project-specific procedures will be used to validate analytical laboratory data. The basis for the validation will be the USEPA CLP National Functional Guidelines for Organic Data Review (February 2005) and the USEPA CLP National Functional Guidelines for Inorganic Data Review (October 2004), modified to accommodate the criteria in the analytical methods used in this program, and Region II Standard Operating Procedures (SOPs) for CLP Organic Data review (Revision 11, June 1996) and Evaluation of Metals for the CLP Program (Revision 11, February 1992). Critical functions for determining the validity of generated data are: (1) strict adherence to the analytical methods, (2) assurance that the instrumentation employed was operated in accordance with defined operating procedures, (3) assurance that quality parameters built into the analytical procedures have been adhered to, and (4) confirmation that the DQOs have been met.

Table 3 highlights the QC criteria and holding time requirements for all analyses conducted under this program. These criteria will be used to evaluate and qualify the data during validation.

The consultant or qualified contracted personnel will validate analytical samples collected under the SRIWP. Samples collected for waste classification will not be validated. Validation will include all technical holding times, as well as QC sample results (blanks, surrogate spikes, laboratory duplicates, MS/MSDs, and LCSs), tunes, internal standards, calibrations, target compound identification, and results calculations.

For all analyses, the laboratory will report results, which are below the laboratory's reporting limit; these results will be qualified as estimated (J) by the laboratory. The laboratory may be required to report TICs for the VOC and SVOC analyses; this will be requested by the consultant on an as-needed basis.

The overall completeness of the data package will also be evaluated by the data validator. Completeness checks will be administered on all data to determine whether full data deliverables were provided. The reviewer will determine whether all required items are present and request copies of missing deliverables.

Upon completion of the validation, a report will be prepared. This report will summarize the samples reviewed, elements reviewed, any nonconformance with the established criteria, and validation actions. Data qualifiers will be consistent with EPA National Functional Guidelines. This report will be in a format consistent with NYSDEC's DUSR.

9.3 Analytical Data Validation

Laboratory deliverables will consist of an original hard copy data package that is in general accordance with NYSDEC ASP Category B data deliverable requirements.

10. Internal Quality Control

Laboratory and field quality internal control checks will be used to ensure the data quality objectives. At a minimum, this will include:

- Matrix spike and/or matrix spike duplicate samples.
- Matrix duplicate analyses.
- Laboratory control spike samples.
- Instrument calibrations.
- Instrument tunes for VOC 8260C and SVOC 8270D analyses.
- Method and/or instrument blanks.
- Surrogate spikes for organic analyses.
- Internal standard spikes for VOC 8260C and SVOC 8270D analyses.
- Detection limit determination and confirmation by analysis of low-level calibration standard.

The laboratory quality plan for the selected ELAP is located in Appendix A.

Field quality control samples will include:

- Equipment blanks as outlined in Table 3.
- Field duplicate samples as outlined in Table 3.
- Trip blanks as outlined in Table 3.
- MS/MSDs as outlined in Table 3.

11. Performance and System Audits

Audits are an independent means of: 1) evaluating the operation or capability of a measurement system, and 2) documenting the use of QC procedures designed to generate data of know and acceptable quality.

Field audits may be completed to assess sample collection protocols, determine the integrity of COC procedures, and evaluate sample documentation and data handling procedures. Field audits may be scheduled by the QA officer, PM, site manager or in-house consultant, at their discretion. Written records of audits and any recommendations for corrective action will be submitted to the PM.

The QA officer is the interface between management and project activities in matters of project quality. The QA officer will review the implementation of the QAPP. Reviews will be conducted at the completion of field activities and will include the results of any audits and an evaluation of the data quality.

12. Preventative Maintenance

Preventative maintenance will be performed on field equipment in accordance with the manufacturer's recommendations. Preventative maintenance to field will be provided by the equipment vendor. The following equipment has been identified for use to implement the SRIWP.

Subsurface Soil Sampling Activities:

- RAE Systems MultiRAE Plus equipped with VOC (10.6 eV lamp), LEL, percent oxygen, hydrogen sulfide and hydrogen cyanide.
- RAE Systems MiniRAE 2000 PID with 10.6 eV lamp.
- RAE Systems VRAE Surveying Monitor with LEL, hydrogen cyanide, hydrogen sulfide, carbon monoxide, and percent oxygen.
- Drager CMS and compound specific chips.
- Dust Trak Aerosol Monitor.

Groundwater Sampling Activities

- In-Situ Troll 9000
- YSI 600 XLM

Similar equipment will be substituted that perform the same functions can be substituted if selected equipment is not available from equipment supplier.

Laboratory equipment calibration and maintenance procedures are specified in the ELAP laboratory quality manual located in Appendix A.

13. Specific Procedures to Assess Data Quality Indicators

QC analyses conducted as a part of the testing program will provide a quantitative quality assessment of the data generated and their adherence to the data quality indicators. The data quality indicators ensure that the quality assurance objectives for the project are met.

13.1 Detection Limits

13.1.1 Method Detection Limit

The MDL is defined as follows for all measurements:

$$MDL = (t[n-1,1-a=0.99]) \times (s)$$

where: s = standard deviation of the replicate analysis,
t(n-1, 1-a=0.99) = student's t-value for a one-sided, 99 percent confidence level and a standard deviation estimate with n-1 degrees of freedom

The MDLs calculated by the laboratory are determined under ideal conditions. MDLs for environmental samples are dependent on the sample aliquot, the matrix, the concentration of analyte, and interference present in the matrix, the percent of moisture, dilution factor, etc. The MDL for each sample analysis will be adjusted accordingly.

13.1.2 Reporting Limit

The RL is the concentration of an analyte in the sample that corresponds to the lowest concentration standard of the calibration curve. As with the MDLs, the RLs are dependent on the sample aliquot, the final sample volume, the percent of moisture, dilution factor, etc.

The RL is determined as follows:

$$RL = \frac{Lowest\ conc.\ std\ (ng)}{Volume\ injected\ (uL)}\ x\ \frac{Sample\ aliquot\ (mL\ or\ g)}{Final\ volume\ (mL)}\ x\ DF\ x\ \frac{100}{(100 - \%M)}$$

where: DF = dilution factor, including all dilutions or lost samples not accounted for in a sample aliquot/final volume ratio
%M = percent moisture for solid samples.

13.2 Precision

Variability will be expressed in terms of the RPD when only two data points exist. The RPD is calculated as:

$$RPD = \frac{(Larger\ Value - Smaller\ Value)}{[(Larger\ Value + Smaller\ Value)/2]}\ x\ 100\%$$

For data sets greater than two points, the percent relative standard deviation (percent RSD) is used as the precision measurement. It is defined by the equation:

$$Percent\ RSD = \frac{Standard\ Deviation}{Mean}\ x\ 100\%$$

Standard deviation (SD) is calculated as follows:

$$SD = \sqrt{\sum_{i=1}^{n} \frac{(y_i - y)^2}{n - 1}}$$

where: SD = standard deviation
yi = measured value of the ith replicate
y = mean of replicate measurements
n = number of replicates

For measurements such as pH, where the absolute variation is more appropriate, precision is usually reported as the absolute range (D) of duplicate measurements:

D = | first measurement - second measurement |

or as the absolute standard deviation previously given. RPD, %RSD, and D are independent of the error of the analyses and reflect only the degree to which the measurements agree with each other, not the degree to which they agree with the true value for the parameter measured.

13.3 Accuracy

Accuracy is related to the bias in a measurement system. Accuracy describes the degree of agreement of a measurement with a true value. Accuracy will be expressed as percent recovery for each matrix spike analyte by using the following equation:

$$\%\ Recovery = \frac{Css - Cus}{Csa}\ X\ 100\%$$

where: Css = measured concentration in spiked sample
Cus = measured concentration in unspiked sample
Csa = known concentration added to the sample

Accuracy for a measurement such as pH is expressed as bias in the analysis of a standard reference sample according to the equation:

$$Bias = pH_m - pH_t$$

where: pH_m = measured pH
pH_t = the true pH of the standard reference sample

13.4 Completeness

Data completeness is a measure of the amount of usable data resulting from a measurement effort. For this program, completeness will be defined as the percentage of valid data obtained compared to the total number of measurements necessary to achieve our required statistical level of confidence for each test. The confidence level is based on the total number of samples proposed in the Work Plan.

Data completeness is calculated as:

$$Completeness = \frac{Number\ of\ valid\ data\ points}{Number\ of\ data\ points\ necessary\ for\ confidence\ level}\ x\ 100\%$$

The completeness goal is to generate a sufficient amount of valid data. It is anticipated that 95 percent of the data will be complete. Data validation criteria discussed in the work plan and Section 10 of this QAPP will be used to determine data completeness. Any data deficiencies and their effect on project goals will be evaluated in the DUSR.

13.5 Representativeness

Representativeness is a qualitative statement that expresses the extent to which the sample accurately and precisely represents the characteristics of interest of the study. Representativeness is primarily concerned with the proper design of the sampling program and is best ensured by proper selection of sampling locations and the taking of a sufficient number of samples. It is addressed by describing the sampling techniques, the matrices sampled, and the rationale for the selection of sampling locations, which are discussed in the field sampling plan and Work Plan

13.6 Comparability

Comparability is a qualitative parameter expressing the confidence that one set of data can be compared to another. Comparability is possible only when standardized sampling and analytical procedures are used.

14. Corrective Action

If unacceptable conditions are identified as a result of audits or are observed during field sampling and analysis, the PM, Field Team Leader, and QA officer will document the condition and initiate corrective procedures. The specific condition or problem will be identified, its cause will be determined, and appropriate action will be implemented.

The entire sampling program will be under the direction of the PM and QA officer. The emphasis in this program is on preventing problems by identifying potential errors, discrepancies, and gaps in the data collection, laboratory analysis, and interpretation process. Any problems identified will be promptly resolved. Likewise, follow-up corrective action is always an option in the event that preventative corrective actions are not effective.

The acceptance limits for the sampling and analyses to be conducted in this program will be those stated in the method or defined by other means in the SRIWP and FSP. Corrective actions are likely to be immediate in nature and most often will be implemented by the contracted laboratory analyst or the PM. The corrective action will usually involve recalculation, reanalysis, or repeating a sample run.

14.1 Immediate Corrective Action

Corrective action in the field may be needed when the sample requirements are changed (i.e., more/less samples, sampling locations), or when sampling procedures and/or field analytical procedures require modification, etc. due to unexpected conditions. The field team may identify the need for corrective action. The Field Team Leader, Site Manager, and PM will approve the corrective action and notify the QA officer. The PM and QA officer will approve the corrective measure. The Field Team Leader and Site Manager will ensure that the corrective measure is implemented by the field team.

Corrective actions will be implemented and documented in the field record book. Documentation will include:

- A description of the circumstances that initiated the corrective action.
- The action taken in response.
- The final resolution.
- Any necessary approvals.

No staff member will initiate corrective action without prior communication of findings through the proper channels.

Corrective action in the laboratory will be completed in accordance with the quality assurance procedures located in the Appendix A. Any corrective actions completed by the laboratory will be documented in both the laboratory's corrective action files, and the narrative data report sent from the laboratory to the PM. If the corrective action does not rectify the situation, the laboratory will contact the PM, who will determine the action to be taken and inform the appropriate personnel.

If potential problems are not solved as an immediate corrective action, the contractor will apply formalized long-term corrective action if necessary.

Tables

Table 1. Soil Field Sampling Matrix
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: 1. Shallow soils within observed impacts (0 to 5' bgs) and below recent fill; 2. Subsurface soils within heaviest observed impacts below 5 feet (if present); 3. Subsurface soils below deepest observed visual impacts. IF NO IMPACTS ARE OBSERVED:					Analysis (Method[1])			
		Sample Number								
		Number Samples Proposed	Number Samples Collected	Date Collected	Heaviest Impacted Zone below previous sample (if present)	Subsurface soils below deepest observed visual impacts (only if impacts are present)	VOCs (8260C)	SVOCs (8270D)	TAL Metals (6000/7000)	Free Cyanide (9014)
Subsurface Soils										
WW-MW-200D	Lot 16	2					2	2	2	2
WW-MW-201D	Lot 30	2					2	2	2	2
WW-MW-203D	Lot 30	2					2	2	2	2
WW-MW-204D	Lot 16	2					2	2	2	2
WW-MW-205D	Lot 30	2					2	2	2	2
WW-MW-206D	Lot 16	2					2	2	2	2
WW-MW-207D	Lot 30	2					2	2	2	2

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.

Table 2. Groundwater Field Sampling Matrix
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Sample I.D.	Sample Location	SAMPLE SELECTION PROTOCOL: Collect one groundwater sample at the water table or installed monitoring well depth.				Water Quality Measurements						Analysis (Method[1])			
		Sample Number			Sample Zone										
		Number Samples Proposed	Number Samples Collected	Date Collected	Water Table	pH	Specific Conductance	Temperature	Oxidation Reduction Potential (ORP)	Turbidity	Dissolved Oxygen	VOCs (8260C)	SVOCs (8270D)	TAL Metals (6000/7000)	Total Cyanide (9014)
WW-MW-200I and D	Lot 16	2										1	1	1	1
WW-MW-201I and D	Lot 30	2										1	1	1	1
WW-MW-202I and D	Lot 30	2										1	1	1	1
WW-MW-203I and D	Lot 30	2										1	1	1	1
WW-MW-204I and D	Lot 16	2										1	1	1	1
WW-MW-205I and D	Lot 30	2										1	1	1	1
WW-MW-206I and D	Lot 16	2										1	1	1	1
WW-MW-207I and D	Lot 30	2										1	1	1	1

Notes:
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
1. Chemical analysis test methods specified are from U.S. EPA SW-846 test methods.

Table 3. Analytical Methods/Quality Assurance Summary Table
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Media	Number of Primary Samples	QA/QC Samples				Total Number of Samples	Analytical Parameters	Method	Preservative	Holding Time	Container
		TB	FB[2]	DUP	MS/MSD						
Subsurface Soil	14	7	1	1	1	24	VOCs	8260C	Cool to 4°C	14 days to analysis	3 Encore or Terracore samplers
	14	0	1	1	1	17	SVOCs	8270D	Cool to 4°C	14 days to extraction; 40 days from extraction to analysis	Wide mouth 8-oz. and 4oz. clear glass jars[1]
	14	0	1	1	1	17	TAL Metals	6000/7000	Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	Wide mouth 8-oz. and 4oz. clear glass jars1
	14	0	1	1	1	17	Free Cyanide	9013A/ ASTM Method D4282-02	Cool to 4° C	14 days	Wide-mouth amber 8-oz.
Groundwater	16	2	1	1	1	21	VOCs	8260C	pH<2 with HCl, Cool to 4°C	14 days to analysis	(2) 40 mL VOA vials
	16	0	1	1	1	19	SVOCs	8270D	Cool to 4°C	7 days to extraction; 40 days from extraction to analysis	(2) 1 L amber glass jar
	16	0	1	1	1	19	TAL Metals	6000/7000	pH<2 with HNO_3; Cool to 4°C	28 days to analysis for mercury; 6 months to analysis for other metals	(1) 500 mL polyethylene container
	16	0	1	1	1	19	Total Cyanide	9012	NaOH to pH>12/Cool to 4°C	14 days to analysis	(1) 500 mL polyethylene container

Notes:
[1]: SVOC, TAL metals, herbicides, pesticides and PCBs will be collected from the (1)- 8 oz jar and the (1)- 4 oz jar
[2]: Soil field blanks will include bottles listed in groundwater section of the table.
VOCs - volatile organic compounds
SVOCs - semivolatile organic compounds
TAL - target analyte list
ASTM - American Society for Testing and Materials
°C- Degrees Celsius
L - Liter
oz. - ounce
mL - Milliliter
HNO3 - Nitric acid
HCl - Hydrochloric Acid

Table 4. Quantification Limits for Soils
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Metals by EPA Method 6000/7000 series			
Aluminum	258	20	mg/Kg
Antimony	11.7	1.14	mg/Kg
Arsenic	8	1.22	mg/Kg
Barium	2	0.18	mg/Kg
Beryllium	2	0.5	mg/Kg
Cadmium	3	1	mg/Kg
Calcium	85	11.6	mg/Kg
Chromium	3	0.34	mg/Kg
Cobalt	2	0.42	mg/Kg
Copper	5	0.8	mg/Kg
Iron	145	10.2	mg/Kg
Lead	9	0.76	mg/Kg
Magnesium	35	9.2	mg/Kg
Manganese	2.5	0.64	mg/Kg
Mercury	0.05	0.02	mg/Kg
Nickel	6.25	0.44	mg/Kg
Potassium	200	40	mg/Kg
Selenium	16	1.6	mg/Kg
Silver	3	0.32	mg/Kg
Sodium	94	20	mg/Kg
Thallium	20	4.17	mg/Kg
Vanadium	4	0.36	mg/Kg
Zinc	20	3.8	mg/Kg
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D			
1,2,4-Trichlorobenzene	333	55.96	ug/Kg
1,2-Dichlorobenzene	333	56.43	ug/Kg
1,2-Diphenylhydrazine	333	32.86	ug/Kg
1,3-Dichlorobenzene	333	50.49	ug/Kg
1,4-Dichlorobenzene	333	52.75	ug/Kg
2,2-oxybis (1-chloropropane)	333	47.18	ug/Kg
2,4,5-Trichlorophenol	1667	120.96	ug/Kg
2,4,6-Trichlorophenol	333	85.18	ug/Kg
2,4-Dichlorophenol	333	108.95	ug/Kg
2,4-Dimethylphenol	333	172.3	ug/Kg
2,4-Dinitrophenol	1667	114.87	ug/Kg
2,4-Dinitrotoluene	333	60.09	ug/Kg
2,6-Dinitrotoluene	333	60.57	ug/Kg
2-Chloronaphthalene	333	48.46	ug/Kg
2-Chlorophenol	333	86.27	ug/Kg
2-Methylnaphthalene	333	52.92	ug/Kg
2-Methylphenol	333	89.03	ug/Kg
2-Nitroaniline	1667	42.32	ug/Kg
2-Nitrophenol	333	115.71	ug/Kg
3,3-Dichlorobenzidine	667	88.96	ug/Kg
3-Nitroaniline	1667	68.54	ug/Kg
4,6-Dinitro-2-methylphenol	1667	239.28	ug/Kg
4-Bromophenyl phenyl ether	333	51.16	ug/Kg
4-Chloro-3-methylphenol	333	112.76	ug/Kg

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D (Continued)			
4-Chloroaniline	333	107.34	ug/Kg
4-Chlorophenyl phenyl ether	333	45.74	ug/Kg
4-Methylphenol	333	179.39	ug/Kg
4-Nitroaniline	667	48.17	ug/Kg
4-Nitrophenol	1667	141.69	ug/Kg
Acenaphthene	333	55.32	ug/Kg
Acenaphthylene	333	40.59	ug/Kg
Aniline	333	73.83	ug/Kg
Anthracene	333	54.55	ug/Kg
Benzidine	3333	1134.9	ug/Kg
Benzo(a)anthracene	333	45.31	ug/Kg
Benzo(a)pyrene	333	41.16	ug/Kg
Benzo(b)fluoranthene	333	93.11	ug/Kg
Benzo(ghi)perylene	333	36.99	ug/Kg
Benzo(k)fluoranthene	333	37.12	ug/Kg
Benzoic acid	1667	90.33	ug/Kg
Benzyl alcohol	333	62.93	ug/Kg
Bis(2-chloroethoxy)methane	333	57.03	ug/Kg
Bis(2-chloroethyl)ether	333	44.86	ug/Kg
Bis(2-ethylhexyl)phthalate	333	44.37	ug/Kg
Butyl benzyl phthalate	333	43.04	ug/Kg
Carbazole	333	48.63	ug/Kg
Chrysene	333	41.6	ug/Kg
Dibenzo(a,h)anthracene	333	36.71	ug/Kg
Dibenzofuran	333	52.67	ug/Kg
Diethyl phthalate	333	48.88	ug/Kg
Dimethyl phthalate	333	51.27	ug/Kg
Di-n-butyl phthalate	333	43.98	ug/Kg
Di-n-octyl phthalate	333	34.97	ug/Kg
Fluoranthene	333	41.87	ug/Kg
Fluorene	333	43.39	ug/Kg
Hexachlorobenzene	333	48.52	ug/Kg
Hexachlorobutadiene	333	67.85	ug/Kg
Hexachlorocyclopentadiene	333	247.96	ug/Kg
Hexachloroethane	333	59.22	ug/Kg
Indeno(1,2,3-cd)pyrene	333	33.74	ug/Kg
Isophorone	333	60.02	ug/Kg
Naphthalene	333	56.66	ug/Kg
Nitrobenzene	333	40.4	ug/Kg
n-Nitrosodimethylamine	333	48.87	ug/Kg
n-Nitroso-di-n-propylamine	333	44.63	ug/Kg
n-Nitrosodiphenylamine	333	49.76	ug/Kg
Pentachlorophenol	1667	287.85	ug/Kg
Phenanthrene	333	38.58	ug/Kg
Phenol	333	96.98	ug/Kg
Pyrene	333	45.56	ug/Kg
Pyridine	667	39.9	ug/Kg

Table 4. Quantification Limits for Soils
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Volatile Organic Compounds (VOCs) by EPA Method 8260C			
1,1,1-Trichloroethane	5	0.84	ug/Kg
1,1,2,2-Tetrachloroethane	5	1.21	ug/Kg
1,1,2-Trichloroethane	5	1.04	ug/Kg
1,1-Dichloroethane	5	0.81	ug/Kg
1,1-Dichloroethene	5	1.09	ug/Kg
1,2,3-Trichloropropane	5	1.62	ug/Kg
1,2,4-Trichlorobenzene	5	0.61	ug/Kg
1,2-Dichloroethane	5	0.99	ug/Kg
1,2-Dichloropropane	5	1.06	ug/Kg
2-Butanone (MEK)	10	1.78	ug/Kg
2-Chloroethylvinylether	5	1.37	ug/Kg
2-Hexanone	10	2.53	ug/Kg
4-Methyl-2-pentanone (MIBK)	5	1.18	ug/Kg
Acetone	20	3.15	ug/Kg
Acrolein	20	3.1	ug/Kg
Acrylonitrile	5	1.19	ug/Kg
Benzene	5	0.86	ug/Kg
Bromodichloromethane	5	0.84	ug/Kg
Bromoform	5	0.99	ug/Kg
Bromomethane	5	0.82	ug/Kg
Carbon disulfide	5	0.61	ug/Kg
Carbon tetrachloride	5	0.78	ug/Kg
Chlorobenzene	5	0.79	ug/Kg
Chloroethane	5	1.89	ug/Kg
Chloroform	5	0.53	ug/Kg
Chloromethane	5	0.9	ug/Kg
cis-1,2-Dichloroethene	5	1.04	ug/Kg
cis-1,3-Dichloropropene	5	0.78	ug/Kg
Dibromochloromethane	5	0.41	ug/Kg
Dichlorodifluoromethane	5	1.25	ug/Kg
Ethylbenzene	5	0.79	ug/Kg
Isopropyl ether	5	0.44	ug/Kg
Methylene chloride	20	2.21	ug/Kg
Methyl-tert-butyl-ether (MTBE)	5	0.93	ug/Kg
Styrene	5	1.06	ug/Kg
tert-Butyl alcohol	20	4.69	ug/Kg
Tetrachloroethene	5	0.7	ug/Kg
Toluene	5	0.84	ug/Kg
trans-1,2-Dichloroethene	5	0.58	ug/Kg
trans-1,3-Dichloropropene	5	0.92	ug/Kg
Trichloroethene	5	0.68	ug/Kg
Trichlorofluoromethane	5	0.6	ug/Kg
Trichlorotrifluoroethane	5	0.63	ug/Kg
Vinyl acetate	10	2.7	ug/Kg
Vinyl chloride	5	0.87	ug/Kg
Xylenes (total)	5	1.96	ug/Kg

Table 4. Quantification Limits for Soils
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Free Cyanide by EPA Method 9016			
Cyanide	TBD	TBD	ug/Kg

Notes:
mg/kg - milligrams per kilogram
ug/Kg - micrograms per kilogram
TBD - To Be Determined
EPA - Environmental Protection Agency
ASTM - American Standard for Testing and Materials

Table 5. Quantification Limits for Groundwater
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Cyanide by EPA Method 9012			
Cyanide, Total	10	1	ug/L
Metals by EPA Method 6000/7000 series			
Aluminum	500	92	ug/L
Antimony	20	5.4	ug/L
Arsenic	40	3.9	ug/L
Barium	5	0.74	ug/L
Beryllium	5	0.54	ug/L
Cadmium	10	1.1	ug/L
Calcium	300	56	ug/L
Chromium	10	1.3	ug/L
Cobalt	10	1.8	ug/L
Copper	10	4.3	ug/L
Iron	100	54	ug/L
Lead	10	3	ug/L
Magnesium	100	26	ug/L
Manganese	15	6.9	ug/L
Mercury	0.4	0.07	ug/L
Nickel	10	1.9	ug/L
Potassium	400	191	ug/L
Selenium	30	5	ug/L
Silver	6	1.1	ug/L
Sodium	400	98	ug/L
Thallium	40	10	ug/L
Vanadium	6	1.5	ug/L
Zinc	50	11	ug/L
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D			
1,2,4-Trichlorobenzene	10	0.68	ug/L
1,2-Dichlorobenzene	10	0.74	ug/L
1,2-Diphenylhydrazine	10	0.84	ug/L
1,3-Dichlorobenzene	10	0.68	ug/L
1,4-Dichlorobenzene	10	0.46	ug/L
2,2-oxybis (1-chloropropane)	10	0.62	ug/L
2,4,5-Trichlorophenol	50	0.78	ug/L
2,4,6-Trichlorophenol	10	0.79	ug/L
2,4-Dichlorophenol	10	0.84	ug/L
2,4-Dimethylphenol	10	0.73	ug/L
2,4-Dinitrophenol	50	5.13	ug/L
2,4-Dinitrotoluene	10	0.8	ug/L
2,6-Dinitrotoluene	10	0.59	ug/L
2-Chloronaphthalene	10	0.73	ug/L
2-Chlorophenol	10	0.6	ug/L
2-Methylnaphthalene	10	0.64	ug/L
2-Methylphenol	10	0.59	ug/L
2-Nitroaniline	50	1.12	ug/L
2-Nitrophenol	10	0.75	ug/L
3,3-Dichlorobenzidine	10	0.98	ug/L

Table 5. Quantification Limits for Groundwater
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D (Continued)			
3-Nitroaniline	50	0.67	ug/L
4,6-Dinitro-2-methylphenol	50	4.24	ug/L
4-Bromophenyl phenyl ether	10	0.91	ug/L
4-Chloro-3-methylphenol	10	0.51	ug/L
4-Chloroaniline	10	0.43	ug/L
4-Chlorophenyl phenyl ether	10	0.82	ug/L
4-Methylphenol	10	0.33	ug/L
4-Nitroaniline	20	1.05	ug/L
4-Nitrophenol	50	1.85	ug/L
Acenaphthene	10	0.8	ug/L
Acenaphthylene	10	0.75	ug/L
Aniline	10	0.63	ug/L
Anthracene	10	0.99	ug/L
Benzidine	100	2.15	ug/L
Benzo(a)anthracene	10	1.19	ug/L
Benzo(a)pyrene	10	1.08	ug/L
Benzo(b)fluoranthene	10	1.54	ug/L
Benzo(ghi)perylene	10	1.04	ug/L
Benzo(k)fluoranthene	10	0.91	ug/L
Benzoic acid	50	5.88	ug/L
Benzyl alcohol	10	0.99	ug/L
Bis(2-chloroethoxy)methane	10	0.87	ug/L
Bis(2-chloroethyl)ether	10	0.87	ug/L
Bis(2-ethylhexyl)phthalate	10	1.31	ug/L
Butyl benzyl phthalate	10	0.96	ug/L
Carbazole	10	1.11	ug/L
Chrysene	10	0.97	ug/L
Dibenzo(a,h)anthracene	10	1.34	ug/L
Dibenzofuran	10	0.82	ug/L
Diethyl phthalate	10	0.82	ug/L
Dimethyl phthalate	10	0.63	ug/L
Di-n-butyl phthalate	10	1.14	ug/L
Di-n-octyl phthalate	10	1.3	ug/L
Fluoranthene	10	1.08	ug/L
Fluorene	10	0.77	ug/L
Hexachlorobenzene	10	1.07	ug/L
Hexachlorobutadiene	10	0.84	ug/L
Hexachlorocyclopentadiene	10	2.21	ug/L
Hexachloroethane	10	1.06	ug/L
Indeno(1,2,3-cd)pyrene	10	1.17	ug/L
Isophorone	10	0.66	ug/L
Naphthalene	10	0.66	ug/L
Nitrobenzene	10	0.79	ug/L
n-Nitroso-di-n-propylamine	10	0.7	ug/L
n-Nitrosodiphenylamine	10	1.08	ug/L
n-Nitrosomethylethylamine	10	0.5	ug/L

Table 5. Quantification Limits for Groundwater
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D (Continued)			
Pentachlorophenol	50	5.04	ug/L
Phenanthrene	10	0.66	ug/L
Phenol	10	0.35	ug/L
Pyrene	10	1.01	ug/L
Pyridine	20	2.31	ug/L
Volatile Organic Compounds (VOCs) by EPA Method 8260C (continued)			
1,1,1-Trichloroethane	5	0.4	ug/L
1,1,2,2-Tetrachloroethane	5	0.4	ug/L
1,1,2-Trichloroethane	5	0.6	ug/L
1,1-Dichloroethane	5	0.6	ug/L
1,1-Dichloroethene	5	0.7	ug/L
1,2,3-Trichloropropane	5	1.1	ug/L
1,2,4-Trichlorobenzene	5	0.9	ug/L
1,2-Dichloroethane	5	0.6	ug/L
1,2-Dichloropropane	5	0.9	ug/L
1,3-Dichloropropane	5	0.4	ug/L
2-Butanone (MEK)	5	1.2	ug/L
2-Chloroethylvinylether	5	0.6	ug/L
2-Hexanone	5	0.8	ug/L
4-Methyl-2-pentanone (MIBK)	5	0.7	ug/L
Acetone	5	1.4	ug/L
Acrolein	10	7.8	ug/L
Acrylonitrile	5	1.6	ug/L
Benzene	5	0.4	ug/L
Bromodichloromethane	5	0.4	ug/L
Bromoform	5	0.8	ug/L
Bromomethane	5	1.2	ug/L
Carbon disulfide	5	0.9	ug/L
Carbon tetrachloride	5	1	ug/L
Chlorobenzene	5	0.4	ug/L
Chloroethane	5	0.8	ug/L
Chloroform	5	0.7	ug/L
Chloromethane	5	0.5	ug/L
cis-1,2-Dichloroethene	5	0.6	ug/L
cis-1,3-Dichloropropene	5	0.5	ug/L
Dibromochloromethane	5	0.5	ug/L
Dichlorodifluoromethane	5	0.6	ug/L
Ethylbenzene	5	1	ug/L
Isopropyl ether	5	N/A	ug/L
Methylene chloride	5	0.4	ug/L
Methyl-tert-butyl-ether (MTBE)	5	0.3	ug/L
Styrene	5	0.5	ug/L
Tetrachloroethene	5	0.5	ug/L
Toluene	5	0.3	ug/L
trans-1,2-Dichloroethene	5	0.5	ug/L
trans-1,3-Dichloropropene	5	0.3	ug/L

Table 5. Quantification Limits for Groundwater
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

	Reporting Detection Limit	Method Detection Limit	Units
Volatile Organic Compounds (VOCs) by EPA Method 8260C (continued)			
Trichloroethene	5	0.7	ug/L
Trichlorofluoromethane	5	0.6	ug/L
Trichlorotrifluoroethane	5	0.5	ug/L
Vinyl acetate	5	0.2	ug/L
Vinyl chloride	5	0.8	ug/L
Xylenes (total)	5	1	ug/L

Notes:
ug/L - micrograms per liter
EPA - Environmental Protection Agency

Table 6. Soil Cleanup Objectives
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Volatile Organic Compounds							
Acetone	0.05	100	100	500	1,000	0.05	2.2
Benzene	0.06	2.9	4.8	44	89	0.06	70
Butanone, 2-	0.12	100	100	500	1,000	0.12	100
Butylbenzene, n-	12	100	100	500	1,000	12	NE
Butylbenzene, tert-	5.9	100	100	500	1,000	5.9	NE
Butylbenzene,sec-	11	100	100	500	1,000	11	NE
Carbon tetrachloride	0.76	1.4	2.4	22	44	0.76	NE
Chlorobenzene	1.1	100	100	500	1,000	1.1	40
Chloroform	0.37	10	49	350	700	0.37	12
Dichlorobenzene,1,2-	1.1	100	100	500	1,000	1.1	NE
Dichlorobenzene,1,3-	2.4	17	49	280	560	2.4	NE
Dichlorobenzene,1,4-	1.8	9.8	13	130	250	1.8	20
Dichloroethane,1,1-	0.27	19	26	240	480	0.27	NE
Dichloroethane,1,2-	0.02	2.3	3.1	30	60	0.02	10
Dichloroethene, cis-1,2-	0.25	59	100	500	1,000	0.25	NE
Dichloroethene,1,1-	0.33	100	100	500	1,000	0.33	NE
Dioxane,1,4-	0.1	9.8	13	130	250	0.1	0.1
Ethylbenzene	1	30	41	390	780	1	NE
Methyl tert-butyl ether	0.93	62	100	500	1,000	0.93	NE
Methylene chloride	0.05	51	100	500	1,000	0.05	12
Naphthalene	12	100	100	500	1,000	12	NE
Propylbenzene, n-	3.9	100	100	500	1,000	3.9	NE
Tetrachloroethene	1.3	5.5	19	150	300	1.3	2
Toluene	0.7	100	100	500	1,000	0.7	36
Trans-1,2-dichloroethene	0.19	100	100	500	1,000	0.19	NE
Trichloroethane, 1,1,1-	0.68	100	100	500	1,000	0.68	NE
Trichloroethene	0.47	10	21	200	400	0.47	2
Trimethylbenzene, 1,2,4-	3.6	47	52	190	380	3.6	NE
Trimethylbenzene, 1,3,5-	8.4	47	52	190	380	8.4	NE
Vinyl chloride	0.02	0.21	0.9	13	27	0.02	NE
Xylene, total	0.26	100	100	500	1,000	1.6	0.26

Table 6. Soil Cleanup Objectives
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Semivolatile Organic Compounds							
Acenaphthene	20	100	100	500	1,000	98	20
Acenaphthylene	100	100	100	500	1,000	107	NE
Anthracene	100	100	100	500	1,000	1,000	NE
Benz[a]anthracene	1	1	1	5.6	11	1	NE
Benzo[a]pyrene	1	1	1	1	1.1	22	2.6
Benzo[b]fluoranthene	1	1	1	5.6	11	1.7	NE
Benzo[g,h,i]perylene	100	100	100	500	1,000	1,000	NE
Benzo[k]fluoranthene	0.8	1	3.9	56	110	1.7	NE
Chrysene	1	1	3.9	56	110	1	NE
Dibenz[a,h]anthracene	0.33	0.33	0.33	0.56	1.1	1,000	NE
Dibenzofuran	7	14	59	350	1,000	210	NE
Fluoranthene	100	100	100	500	1,000	1,000	NE
Fluorene	30	100	100	500	1,000	386	30
Hexachlorobenzene	0.33	0.33	1.2	6	12	3.2	NE
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.5	5.6	11	8.2	NE
Methylphenol, 4-	0.33	34	100	500	1,000	0.33	NE
Cresol, m (methylphenol, 3-)	0.33	100	100	500	1,000	0.33	NE
Methylphenol,2-	0.33	100	100	500	1,000	0.33	NE
Pentachlorophenol	0.8	2.4	6.7	6.7	55	0.8	0.8
Phenanthrene	100	100	100	500	1,000	1,000	NE
Phenol	0.33	100	100	500	1,000	0.33	30
Pyrene	100	100	100	500	1,000	1,000	NE
Polychlorinated Biphenyls (PCBs)							
Total PCBs	0.1	1	1	1	25	3.2	1

Table 6. Soil Cleanup Objectives
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Analytes	Unrestricted Use (ppm)	Residential Use (ppm)	Restricted-Residential Use (ppm)	Restricted-Commercial Use (ppm)	Restricted-Industrial Use (ppm)	Protection of Groundwater (ppm)	Protection of Ecological Resources (ppm)
Metals							
Arsenic	13	16	16	16	16	16	13
Barium	350	350	400	400	10,000	820	433
Beryllium	7.2	14	72	590	2700	47	10
Cadmium	2.5	2.5	4.3	9.3	60	7.5	4
Chromium (VI)	1	22	110	400	800	19	1
Chromium (III)	30	36	180	1500	6800		41
Copper	50	270	270	270	10,000	1720	50
Lead	63	400	400	1000	3900	450	63
Manganese	1600	2000	2,000	10,000	10,000	2,000	1600
Mercury	0.18	0.81	0.81	2.8	5.7	0.73	0.18
Nickel	30	140	310	310	10,000	130	30
Selenium	3.9	36	180	1500	6800	4	3.9
Silver	2	36	180	1500	6800	8.3	2
Zinc	109	2200	10,000	10,000	10,000	2480	109
Cyanide							
Cyanide, Total	27	27	27	27	10,000	40	NE

Notes:
ppm - parts per million
ppb - parts per billion

Table 7. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Parameter	DQL[1]
Volatile Organic Compounds (ug/L)	
Acetone	50
Benzene	1
2-Butanone	50
Carbon Disulfide	NE
Carbon Tetrachloride	5
Chlorobenzene+A1	5
Chloroethane	5
Chloroform	7
Dibromochloromethane	50
1,2-Dichlorobenzene	3
1,3-Dichlorobenzene	3
1,4-Dichlorobenzene	3
1,1-Dichloroethane	5
1,2-Dichloroethane	**0.6**
1,1-Dichloroethene	5
trans-1,2-Dichloroethene	5
1,3-Dichloropropane	5
Ethylbenzene	5
Freon 113	5
Methylene chloride	5
4-Methyl-2-pentanone	503
Tetrachloroethene	5
1,1,1-Trichloroethane	5
1,1,2,2-Tetrachloroethane	5
1,2,3-Trichloropropane	**0.04**
1,2,4-Trichlorobenzene	5
Toluene	5
Trichloroethene	5
Vinyl chloride	2
Xylenes	5
Isopropylbenzene	5
n-Propylbenzene	5
p-Isopropyltoluene	5
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
n-Butylbenzene	5
sec-Butylbenzene	5
t-Butylbenzene	5
MTBE	10

Table 7. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Parameter	DQL[1]
Semivolatile Organic Compounds (ug/L)	
Acenaphthene	20
Acenaphthylene	NS
Anthracene	50
Benzo(a)anthracene	**0.002**
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	**0.002**
Benzo(g,h,i)perylene	NE
Benzo(k)fluoranthene	**0.002**
Bis(2-ethylhexyl)phthalate	5
Butylbenzylphthalate	50
Chrysene	**0.002**
4-Chloroaniline	5
4-Chloro-3-methylphenol	**1**
2-Chlorophenol	**1**
Dibenzofuran	NE
Dibenz(a,h)anthracene	NE
3,3'-Dichlorobenzidine	5
2,4-Dichlorophenol	5
2,4-Dinitrophenol	**10**
2,6-Dinitrotoluene	5
Diethylphthalate	50
Dimethylphthalate	50
Di-n-butylphthalate	50
Di-n-octylphthalate	50
Fluoranthene	50
Fluorene	50
Hexachlorobenzene	**0.04**
Indeno(1,2,3-cd)pyrene	**0.002**
Isophorone	50
2-Methylnaphthalene	NE
2-Methylphenol	**1**
4-Methylphenol	**1**
Naphthalene	10
Nitrobenzene	**0.4**
2-Nitroaniline	5
2-Nitrophenol	**1**
4-Nitrophenol	**1**
3-Nitroaniline	5
Pentachlorophenol	**1**
Phenanthrene	50
Phenol	**1**
Pyrene	50
2,4,5-Trichlorophenol	**1**

Table 7. Groundwater Standards /Guidance Values
Quality Assurance Project Plan
Portion of K - Williamsburg Works Site
Brooklyn, New York

Parameter	DQL[1]
Total Metals (ug/L)	
Aluminum	NE
Antimony	**3**
Arsenic	25
Barium	1000
Beryllium	3
Cadmium	5
Calcium	NE
Chromium	50
Cobalt	NE
Copper	200
Iron	300
Lead	25
Magnesium	35,000
Manganese	300
Mercury	0.7
Nickel	100
Potassium	NE
Selenium	10
Silver	50
Sodium	20,000
Thallium	**0.5**
Vanadium	NE
Zinc	2000
Cyanide (ug/L)	
Cyanide	200

[1] DQL based on TOGS Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June, 1998)
[2] DQL listed is for total PCBs
DQL = Data Quality Level
NE = None established
ND = Not detected when analyzed by method listed in Table 7
Compounds which will not achieve the DQL are highlighted

Appendix A

Laboratory Quality Manual

QUALITY MANUAL

of

ESS LABORATORY
Division of Thielsch Engineering, Inc.

185 Frances Ave.
Cranston, RI 02910

QA Telephone: 401-461-7181x3060

Website: www.esslaboratory.com

Name	Function (Unit)	Signatures	Date
Laurel Stoddard	Laboratory Director		2/20/19
Sharyn Lawler	Quality Manager		2/14/2019
Eric Baanante	Operations Manager		2/22/2019
Eric Baanante	Technical Manager		2/22/2019

Revision Number:	**13**	**Effective Date:**	**Jan 1st 2014**
Revision Number:	**14**	**Effective Date:**	**Jan 1st 2015**
Revision Number:	**15**	**Effective Date:**	**Jan 1st 2016**
Revision Number:	**16**	**Effective Date:**	**Jan 1st 2017**
Revision Number:	**16-1***	**Effective Date:**	**Dec 19th 2017**
Revision Number:	**16-1****	**Effective Date:**	**July 1st 2018**
Revision Number:	**16-1*****	**Effective Date:**	**Oct 23rd 2018**
Revision Number:	**17**	**Effective Date:**	**March 1st 2019**

*Sections 6-2, 26-2; Appendices A, C, D; and Figure 26-2 updated to reflect current practice.
**Sections 16.1, 24.4 and 28; Appendices A, D updated to reflect current practice.
*** Section 23 updated to reflect current practice.

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Section 3

INTRODUCTION AND SCOPE
(TNI V1:M2 – Sections 1, 2, 3)

The purpose of this *Quality Manual* is to describe the management system for ESS LABORATORY. The *Quality Manual* defines the policies, procedures, and documentation that assure analytical services continually meet a defined standard of quality that is designed to provide clients with data of known and documented quality and, where applicable, demonstrate regulatory compliance.

The *Quality Manual* sets the standard under which all laboratory operations are performed, including the laboratory's organization, objectives, and operating philosophy. The *Quality Manual* has been prepared to assure compliance with the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 **–** Management and Technical Requirements for Laboratories Performing Environmental Analysis (EL-V1-M1 through M7-ISO-2009-Rev.0.2). This Standard is consistent with ISO/IEC 17025:2005 requirements that are relevant to the scope of environmental testing services and thus, the laboratory operates a quality system in conformance with ISO/IEC 17025:2005(E). In addition, the policies and procedures outlined are compliant with the requirements of other State and Federal accreditation and certification programs, as listed in Appendix D.

The *Quality Manual* is available to regulatory bodies and their representatives, in English.

3.1 Scope of Testing

The laboratory’s scope of analytical testing services includes those listed in Appendix D.

3.2 Table of Contents, References and Appendices

The Table of Contents is in Section 2 and Appendices are in Section 29.

This *Quality Manual* uses the references included in Modules 1, 2 and 4 of the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 – Management and Technical Requirements for Laboratories Performing Environmental Analysis; the International Standard ISO/IEC 17025:2005(E), Clause 2; USEPA SW-846 On-line; US Title 40 CFR, Parts 136, 141, 142, 143; Massachusetts 310 CMR 42.00; APHA/AWWA/WEF Standard Methods 20th and 22nd Editions; pertinent ASTM Methods, and various other references, as listed in ESS LABORATORY SOPs.

3.3 Glossary and Acronyms Used

Quality control terms are generally defined within the Section that describes the activity.

3.3.1 Glossary

The **Terms and Definitions** used by ESS Laboratory may be found in the references listed below.

3.3.1.1 **The TNI Standard:** Modules 1-7 in the 2009 TNI Environmental Laboratory Sector Standard – Volume 1 – Management and Technical Requirements for Laboratories Performing Environmental Analysis (EL-V1, M1 through M7, ISO-2009).

3.3.1.2 **ESS Laboratory Certificates of Analysis (Customer Reports) and SOPs.**

3.3.2 Acronyms

A list of acronyms used in this document and their definitions are:

AB	–	Accrediting Body
A2LA	–	American Association for Laboratory Accreditation
ANSI	–	American National Standards Institute
ASQC	–	American Society for Quality Control
ASTM	–	American Society for Testing and Materials
BLK	–	Blank
BS/BSD	–	Blank Spike/Blank Spike Duplicate (a/k/a LCS/LCSD)
°C	–	degrees Celsius
°F	–	degrees Fahrenheit
CAL	–	calibration
CAB	-	Conformity Assessment Body (A2LA)
CAS	–	Chemical Abstract Service
CCV	–	Continuing calibration verification
COC	–	Chain of Custody
DL	-	Detection Limit
DO	–	Dissolved oxygen
(I)DOC	–	(Initial) Demonstration of Capability
EPA	–	Environmental Protection Agency
g/L	–	grams per liter
GC/MS	–	gas chromatography/mass spectrometry
ICP-MS	–	inductively coupled plasma-mass spectrometry
ICV	–	Initial Calibration Verification
ISO/IEC	–	International Organization for Standardization/International Electrochemical Commission
lb/in2	–	pound per square inch
LCS/LCSD	–	Laboratory Control Sample/ Laboratory Control Sample Duplicate
LFB	–	Laboratory Fortified Blank
LIMS	-	Laboratory Information Management System (Promium "Element")
LOD	-	Limit of Detection
LOQ	-	Limit of Quantitation
LLOQ	-	Lower Limit of Quantitation
MB	-	Method Blank
MDL	–	Method Detection Limit
mg/Kg	–	milligrams per kilogram
mg/L	–	milligrams per liter
MRL	-	Method Reporting Limit

MS	–	Matrix Spike
MSD	–	Matrix Spike Duplicate
NELAC	–	National Environmental Laboratory Accreditation Conference
NELAP	–	National Environmental Laboratory Accreditation Program
NIST	–	National Institute of Standards and Technology
PE	-	Performance Evaluation
PT	–	Proficiency Test(ing)
PTP	-	Proficiency Testing Provider
PTPA	–	Proficiency Testing Provider Accreditor
QA	–	Quality Assurance
QC	–	Quality Control
QM	–	*Quality Manual*
RL	–	Reporting level
RPD	–	Relative percent difference
RSD	–	Relative standard deviation
SOPs	–	Standard operating procedures
SVOC	–	Semivolatile organic compound
SPK	–	spike
STD	–	standard
TNI	-	The NELAC Institute
µg/L	–	micrograms per liter
UV	–	Ultraviolet
VOC	–	Volatile organic compound
WET	–	Whole effluent toxicity

3.4 Management of the *Quality Manual*

The Quality Manager is responsible for maintaining the currency of the *Quality Manual*.

The *Quality Manual* is reviewed at least annually by the Quality Manager and laboratory personnel to ensure it still reflects current practices and meets the requirements of any applicable regulations or client specifications. Sections of the manual are updated by making a change to the Section and then increasing the revision number by one (x-xx in the case of a minor revision). The cover sheet of the *Quality Manual* (Section 1) must be re-signed and the Table of Contents (Section 2) is updated whenever a Section is updated.

The *Quality Manual* is considered confidential within ESS LABORATORY and may not be altered in anyway except by approval of the Laboratory Director and Quality Manager. If it is distributed to external users, it is for the purpose of reviewing ESS LABORATORY's management system and may not be used for any other purpose without written permission.

Section 4

ORGANIZATION
(TNI V1:M2 – Section 4.1; ISO/IEC 17025/2005(E) - Clause 4.1)

ESS LABORATORY, a DIVISION OF THIELSCH ENGINEERING INC, a legally responsible entity, is a commercial analytical testing laboratory specializing in environmental chemistry. ESS Laboratory, while owned by Thielsch Engineering, Inc., maintains independent management systems, has no conflicting interests, and does not support the functions of Thielsch Engineering, Inc.

ESS Laboratory was established in 1978 and was acquired by Thielsch Engineering, Inc. in June of 1996. The laboratory has evolved into a state-of-the art facility that provides a wide range of Analytical Services in support of:

- Soil and Water Pollution Monitoring
- Environmental Impact Assessment
- Industrial Process Control
- Effluent and Emission Pollution Control

These services are provided to various customers including:

- Federal and State agencies
- Engineering Firms
- Private Industry/Homeowners

The laboratory is responsible for carrying out testing activities that meet the requirements of the TNI Standard, the ISO/EIC 17025 Standard and that meet the needs of the client and appropriate regulatory authorities. These objectives are achieved through application of the policies and procedures outlined in this Section and throughout the *Quality Manual*:

- The laboratory assures that it is impartial and that personnel are free from undue commercial, financial, or other undue pressures that might influence their technical judgment.

- Management and technical personnel have the authority and resources to carry out their duties, including the implementation, maintenance and improvement of the management system, and have procedures to identify and correct departures from the laboratory's management system.

- Personnel understand the relevance and importance of their duties as related to the maintenance of the laboratory's management system.

- Ethics and data integrity policy and procedures (see Section 5 – "Management" and Section 19 – "Data Integrity Investigations") ensure personnel do not engage in activities that diminish confidence in the laboratory's capabilities.

- Confidentiality is maintained. Every effort to protect customers' confidential information and proprietary rights, including procedures for protecting the electronic storage and transmission of results, is made.

4.1 Organization

The laboratory is a commercial organization. The Tax ID number is available on request, when applicable.

The laboratory conducts analytical operations in Cranston, RI and operates a satellite in Hopkinton, Mass, the latter being solely for the purpose of subsidiary customer field services and courier services. The management system covers work at both locations.

The Corporate Organization Chart can be found in Figure 4-1 below:

The laboratory's organization chart can be found in Appendix B.

Additional information regarding responsibilities, authority and interrelationship of personnel who manage, perform or verify testing is included in Section 5 –"Management" and Section 20 – "Personnel". These Sections also include information on supervision, training, technical management, job descriptions, quality personnel, and appointment of deputies for key managerial personnel.

The laboratory has the resources and authority to operate a management system that is capable of identifying departures from that system and from procedures during testing, and initiates actions to minimize or prevent departures. It is the policy of ESS Laboratory not to engage in any activities that may endanger trust in the independence of its judgement regarding its testing activities.

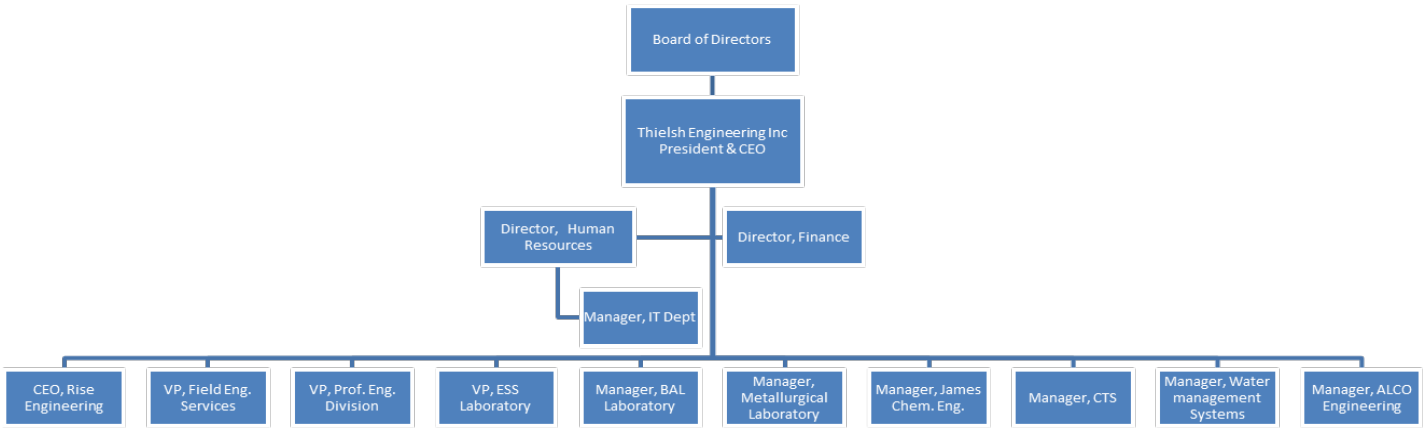
4.2 Conflict of Interest and Undue Pressure

The organizational structure indicated above minimizes the potential for conflicting or undue interests that might influence the technical judgment of analytical personnel.

Arrangements, such as policies and procedures to prevent commercial, financial or other influences that may negatively affect the quality of the work or negatively reflect on the competence, impartiality, judgment, quality of work or operational integrity are described in Appendix E.

In order to ease any scheduling pressures, employees are allowed flexible working hours, at the discretion of Management.

Figure 4-1 – Corporate Organization Chart



Section 5

MANAGEMENT
(TNI V1:M2 – Section 4.2; ISO/IEC 17025/2005(E) - Clause 4.2)

The laboratory maintains a management system that is appropriate to the scope of its activities.

5.1 Management Requirements

Top management ("Management") includes the Laboratory Director, Laboratory/ Operations/Technical Manager and the Quality Manager.

Management's commitment to good professional practice and to the quality of its products is defined in the Quality Policy statement, Section 5.3 below.

Management establishes, implements and maintains, by periodic review, a management system appropriate to the scope of its activities, ensuring that the laboratory documents its policies, systems, programs, procedures and instructions to the extent necessary to assure the quality of its data and ensures the integrity of the management system is maintained when changes to the management system are planned and implemented. Management ensures that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system.

Management has overall responsibility for the technical operations and has the authority needed to generate the required quality of laboratory operations. Management ensures communication within the organization to maintain an effective management system and to communicate the importance of meeting customer, statutory, and regulatory requirements. Management assures that management system documentation is known and available so that appropriate personnel can implement their part. When changes to the management system occur or are planned, managers ensure that the integrity of the system is maintained.

Management is responsible for carrying out testing activities that meet the requirements of the TNI Standard, the ISO/IEC 17025 Standard, various state-specific regulations, and that meet the needs of the client.

Managers implement, maintain, and improve the management system, and identify noncompliance with the management system of procedures by using available tools such as audit and surveillance results, control charts, participation in a suitable program of inter-laboratory comparisons where possible, data analysis, corrective and preventive actions, customer feedback and management reviews, in efforts to monitor trends. Managers initiate actions to prevent or minimize noncompliance.

Management ensures technical competence of personnel operating equipment, performing tests, evaluating results, or signing reports, and limits authority to perform laboratory functions to those appropriately trained and/or supervised.

Personnel are hired with sufficient education to meet written specified job requirements and undergo mandatory on-the-job training per SOP 80_0016, culminating in a formal Demonstration of Capability for each method they perform, at which time they may act independently, per written method requirements. See also Section 20 – Personnel, of this Quality Manual.

Management is responsible for defining the minimal level of education, qualifications, experience, and skills necessary for all positions in the laboratory and assuring that technical staff have demonstrated capabilities in their tasks and maintain records of such demonstrations. Training is kept up to date as described in Section 20 – "Personnel" by periodic review of training records and through employee performance review.

Management bears specific responsibility for maintenance of the management system. This includes defining roles and responsibilities to personnel, approving documents, providing required training and adequate supervision, providing a procedure for confidential reporting of data integrity issues, and periodically reviewing data, procedures, and documentation. The assignment of responsibilities, authorities, and interrelationships of the personnel who manage, perform, or verify work affecting the quality of environmental tests is documented in the ESS Laboratory Policy Manual (Job Descriptions) and in this section.

Management ensures that all sample acceptance criteria are verified and that samples are logged into the sample tracking system and properly labeled and stored.

Management is responsible for recording all analytical and operational activities of the laboratory and recording the quality of all data reported.

Management ensures that audit findings and corrective actions are completed within required time frames.

Designated deputies are appointed by management during the absence of the Laboratory Manager, Laboratory/Operations/Technical Manager or the Quality Manager, and always if the absence is more than 15 days.

5.2 Management Roles and Responsibilities

The following laboratory management staff members are considered key management personnel:

5.2.1 Laboratory Director

The Laboratory Director is responsible for the overall quality, safety, financial, technical, human resource and service performance of the laboratory. The Laboratory Director provides the resources necessary to implement and maintain an effective quality and data integrity program.

5.2.1.1 Responsibilities

The Laboratory Director is responsible for:

a. Planning, directing and controlling the operation and development of the laboratory to meet financial and operational performance standards.

b. Building and leading a strong, cohesive management team that is continually focused on ESS Laboratory's key success factors in the areas of data quality, customer service, people management and financial discipline.

c. Ensuring that all operations are in compliance with the laboratory's quality assurance manual. Suspending any activities which do not meet the standards set forth in this quality manual.

d. Ensuring that personnel are free from any conflicts/undue pressures that might adversely affect the quality of their work.

e. Reviewing and approving all SOPs and policies prior to their implementation and ensuring all approved SOPs and policies are provided to laboratory personnel and are adhered to.

f. Ensuring that appropriate corrective actions are taken to address analyses identified as requiring such actions by internal and external performance or procedural audits.

g. Continually improving the effectiveness of the management system.

5.2.2 Quality Manager

The Quality Manager (or Officer) is responsible for the oversight and review of quality control data, but is independent from laboratory operations, per the laboratory organizational chart (Appendix B). The Quality Manager's training and proof of experience in QA/QC procedures, knowledge of analytical methods, and the laboratory's management system are available in the employee's records, which are kept in the Quality Assurance Department.

5.2.2.1 Responsibilities

The Quality Manager is responsible for:

a. serving as a focal point for QA/QC;

b. arranging or conducting annual internal audits without outside (e.g., managerial) influence;

c. notifying management of deficiencies;

d. independent oversight and review of quality control data;

e. having knowledge of analytical methods for which data is reviewed.

f. monitoring corrective actions;

g. ensuring that the management system related to quality is implemented and followed at all times;

h. monitoring and maintaining laboratory certifications;

i. keeping this *Quality Manual* current by updating as needed;

j. has the authority and responsibility for ensuring all personnel understand their contribution to the quality system;

k. ensuring communication takes place at all levels within the laboratory regarding the effectiveness of the quality system;

l. evaluating the effectiveness of training;

m. ensuring that personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system; and

n. using available tools, such as audit and surveillance results, control charts, proficiency testing results, data analysis, corrective and preventive actions, customer feedback, daily operations reports and management reviews in efforts to monitor trends and continually improve the quality system.

5.2.3 Laboratory/Operations Manager/Technical Manager

The Technical Manager (or designee) is a full-time laboratory staff member and supervises laboratory operations and data reporting. The Technical Manager's proof of experience in the fields of accreditation may be found in the pertinent training file which is maintained by the Quality Assurance Department.

If the Technical Manager is absent for fifteen (15) calendar days or more, a deputy (see Table 5-1 below) with appropriate qualifications will perform the Technical Manager's duties. Beyond a thirty-five (35) calendar day absence, management will notify the primary accreditation body in writing of the absence of the Technical Manager and the appointment of the deputy.

The Technical Manager is not the technical manager of more than one accredited environmental laboratory.

5.2.3.1 Responsibilities

The Technical Manager is responsible for:

a. meeting the general and education requirements and qualifications found in Sections 4.1.7.2 and 5.2.6.1 of the TNI Standard - EL-V1M2-2009 and in Massachusetts 310 CMR 42.00;

b. ongoing monitoring of timeliness of response to client needs, performance data, and the validity of the analyses for the laboratory;

c. managing operations in accordance with laboratory policies pertaining to hiring, training and individual performance review;

d. ensuring operations meet laboratory budgetary control procedures;

e. providing opportunities for training and cross training to ensure smooth operations and enhancement of employees growth; and

f. continually improving the effectiveness of the management system.

5.2.4 Departmental Technical Supervisors

5.2.5 Support System and Administrative Managers

5.2.5.1 Project (Customer Services) Managers

5.2.5.2 Administration Department Supervisor

5.2.5.3 Sample Receiving Department Supervisor

5.2.5.4 IT/LIMS Administrator

5.2.5.5 Purchasing Agent

5.2.4.6 Sales Executives

5.2.6 Laboratory Key Personnel Deputies

The following table defines who assumes the responsibilities of key personnel in their absence:

Table 5-1 Key Personnel Deputies		
Key Personnel	**Deputy(ies)**	**Comment**
Laboratory Director	Operations/Technical Manager	
QA Manager	Laboratory Director /QA Officer	
Operations/Technical Manager	Laboratory Director	
Departmental Supervisors	Operations/Technical Manager	
Supervisor, Project Management	Other Project Managers	
Admin Supervisor	Laboratory Director	
Purchasing Agent	Corporate Purchasing	
IT/LIMS Administrator	Laboratory Director	
Sample Receiving Supervisor	Operations Manager	
Logistics Manager	Project Manager(s)	
Sales Executives	Other Sales Executives	

5.3 Quality Policy

Management's commitment to quality and to the management system is stated in the Quality Policy below, which is upheld through the application of related policies and procedures described in the laboratory's *Quality Manual*, SOPs and policies.

Quality Assurance/Quality Control (QA/QC) in the laboratory is a company-wide function that depends upon cooperative working relationships and multi-level review. Responsibilities for QA/QC functions begin with the bench scientist and extend to the Laboratory Director. The primary level of quality assurance resides with the bench scientist who, after matriculation in the laboratory training program, is responsible for:

- Precisely following the analytical methods as documented in the Standard Operating Procedures (SOP).
- Good Laboratory Practices (GLP)
- Good Automated Laboratory Practices (GALP)
- Good documentation skills
- Carefully documenting each step in the appropriate format
- Conscientiously obtaining peer review as required
- Promptly alerting laboratory managers and/or QA staff members to problems or anomalies.

The supervisor of each laboratory department is responsible for the quality of the data generated by the scientists in that department. The laboratory implements and monitors the specific QC protocols and QA programs within the laboratory to ensure a continuous flow of high-quality data. The laboratory provides its scientists with up-to-date resources including space, equipment, instrumentation, and time in order to accomplish top-quality performance.

All laboratory personnel are responsible for assisting the Laboratory Director with the implementation and maintenance of their quality functions. These responsibilities

may include monitoring QC practices, updating laboratory SOPs, and helping to manage analysis of Performance Evaluation samples.

Ultimately, the success of the QA program depends on the cooperation and support of the entire organization. ESS Laboratory's most valuable resource is its staff of dedicated professionals who take personal pride in the quality of their performance.

Management firmly believes that only by appropriately communicating the QA Plan to all employees, and ensuring that it is effectively implemented, can the needs of clients and regulatory bodies be met.

ESS Laboratory Quality Assurance Mission Statement

Our mission is to establish and implement a quality assurance program that provides our clients with data of known and documented quality in a timely manner.

From the moment an environmental sample arrives at the laboratory to the final reporting of reliable and accurate data, our quality assurance and quality control program is our key to continued success and, as company policy, is strictly enforced.

While the quality assurance manager directs and oversees all quality policies, we regard it as essential that employees at all levels of operation and management thoroughly understand the quality documentation and execute the program. The management of ESS Laboratory is committed to good professional practice, complying with all accreditation standards and improving the quality system and the effectiveness of the management system. Each ESS employee is individually responsible for realizing our commitment to quality and the achievement of our mission.

5.4 Ethics and Data Integrity System

The laboratory's Ethics and Data Integrity policy, program, training and investigations are discussed in Section 19 – "Data Integrity Investigations".

5.5 Documentation of Management/Quality System

The management system is defined through the policies and procedures provided in this *Quality Manual* and written laboratory Standard Operating Procedures (SOPs) and policies.

5.5.1 Quality Manual

The *Quality Manual* contains the following required items:

5.5.1.1 Document title;

5.5.1.2 Laboratory's full name and address;

5.5.1.3 Name, address (if different from above), and telephone number of individual(s) responsible for the laboratory;

5.5.1.4 Identification of all major organizational units which are to be covered by this quality manual and the effective date of the version;

5.5.1.5 Identification of the laboratory's approved signatories;

5.5.1.6 the signed and dated concurrence (with appropriate names and titles), of all responsible parties including the quality manager(s), technical manager(s), and the agent who is in charge of all laboratory activities, such as the laboratory director or laboratory manager;

5.5.1.7 The objectives of the management system and contain or reference the laboratory's policies and procedures;

5.5.1.8 The laboratory's official quality policy statement, which shall include management system objectives and management's commitment to ethical laboratory practices and to upholding the requirements of the referenced Standards; and

5.5.1.9 A table of contents, and applicable lists of references, glossaries and appendices.

This *Quality Manual* contains or references all required elements as defined by the TNI Standard - V1:M2, Section 4.2.8.4., and ISO/IEC 17025:2005(E), Clause 4.2.

5.5.2 Standard Operating Procedures (SOPs)

Standard operating procedures (SOPs) represent all phases of current laboratory operations including an effective date, revision number, and signature of the approving authorities, as designated in SOP 80_0012 (Document Control) and are available to all personnel. They contain sufficient detail such that suitably qualified personnel could perform the procedures. There are two types of SOPs used in the laboratory: 1) test method SOPs, which have specific requirements as outlined below, and 2) general use SOPs which document general procedures.

All technical SOPs (e.g., sample preparation, analytical procedures, sample storage, or sample receipt) shall be reviewed for accuracy and adequacy at least annually, and updated if necessary, and be readily accessible to all personnel. All such reviews shall be conducted by personnel having the pertinent background, are recorded, and made available for assessment.

Each accredited analyte or method has an SOP. Sometimes an SOP is a copy of a method, and any additions are clearly described. The laboratory's test method SOPs include the following topics, where applicable, per SOP 80_0012:

i. identification of the method;
ii. applicable matrix or matrices;
iii. limits of detection and quantitation;
iv. scope and application, including parameters to be analyzed;
v. summary of the method;
vi. definitions;
vii. interferences;
viii. safety;
ix. equipment and supplies;
x. reagents and standards;

xi. sample collection, preservation, shipment and storage;
xii. quality control;
xiii. calibration and standardization;
xiv. procedure;
xv. data analysis and calculations;
xvi. method performance;
xvii. pollution prevention;
xviii. data assessment and acceptance criteria for quality control measures;
xix. corrective actions for out-of-control data;
xx. contingencies for handling out-of-control or unacceptable data;
xxi. waste management;
xxii. references; and any tables, diagrams, flowcharts and validation data;
xxiii. data management and records;
xxiv. personnel qualifications;
xxv. equipment/instrument maintenance;
xxvi. computer hardware and software; and
xxvii. troubleshooting.

5.5.3 Order of Precedence

In the event of a conflict or discrepancy between policies, the order of precedence is as follows unless otherwise noted:

- Quality Manual
- SOPs and Policies
- Other (Work Instructions (WI), memos, flow charts, etc.)

Section 6

DOCUMENT CONTROL
(TNI V1:M2 – Section 4.3; ISO/IEC 17025/2005(E) - Clause 4.3

This Section describes how the laboratory establishes and maintains a process for document management. Procedures for document management include controlling, distributing, reviewing, and accepting modifications. The purpose of document management is to keep documents up to date and preclude the use of invalid and/or obsolete documents.

Documents can be SOPs, policy statements, standards, instruction manuals, specifications, calibration tables, charts, textbooks, posters, notices, memoranda, software, drawings, plans, etc. These may be on various media, whether hard copy or electronic, and they may be digital, analog, photographic or written.

The laboratory manages three types of documents: 1) controlled, 2) approved/uncontrolled, and 3) obsolete.

A controlled document is one that is uniquely identified, issued, tracked, and kept current as part of the management system. Controlled documents may be internal documents or external documents. Any documents providing instructions to laboratory personnel (e.g., operator aids) are considered part of the management system and are subject to document control procedures.

An approved document means it has been reviewed, and either signed and dated, or acknowledged in writing or by secure electronic means by the issuing authority(ies).

An uncontrolled document is watermarked with the ESS Logo and is watermarked "uncontrolled" at the top and bottom of the page.

Obsolete documents are documents that have been superseded by more recent versions or are no longer needed.

6.1 Controlled Documents

Documents will be reviewed, revised (as appropriate) and approved for use by authorized personnel in accordance with SOP 80_0012 (Document Control) and 80_0029 (Management of Procedure Documents), prior to issue.

Documents are reviewed (and revised, if necessary) at least annually to ensure their contents are suitable and in compliance with the current management systems requirements, and accurately describe current operations. Reviews (internal or external) of management system documentation shall be maintained and made available for assessment.

Approved hard copies of documents are available to staff at all locations where operations are essential to the effective functions of the laboratory; it is not laboratory policy to make SOPs available electronically.

Controlled internal documents are uniquely identified with 1) a unique name or number identification 2) date of issue, 3) revision identification, 4) page number, 5) the total number of pages (or a mark to indicate the end of the document), and 6) the signatures of the issuing authority (i.e. management) in accordance with SOPs 80_0012, 80_0016 and 80_0029. Documents are distributed by the Quality Assurance Manager in accordance with these SOPs.

A master list of controlled internal documents is maintained that includes location, and major revision number and dates. A master list of controlled external documents is also maintained that includes title, author, copyright date (where applicable), revision number or date of publication, and location. The controlled document list is maintained and kept in the QA Dept. files by the Quality Assurance Manager and is updated whenever revisions occur. Distribution lists of controlled documents are maintained by the Quality Assurance Manager. A list of active Standard Operating Procedures and major controlled internal documents is included as Appendix A.

6.1.1 Document Changes to Controlled Documents

Affected personnel are notified of changes to management systems documents and supporting procedures, including technical documents, in accordance with SOPs 80_0012, 80_0016 (Training) and 80_0029.

6.1.1.1 Paper Document Changes

Document changes are approved by the same function that performed the original review unless specifically designated otherwise.

The document management process allows for handwritten or minor modifications to documents. The date and approval is documented with the modifications and these changes are processed and tracked per SOP 80_0012.

All document modifications are approved. Changes that are not process modifications but clarifications may be performed without revision. Approval is required. The modified document is then copied and distributed, and obsolete documents are removed according to the master list of controlled documents.

Amendments/modifications to documents are incorporated into a new revision and reissued when the document is reviewed and updated on or before its scheduled review cycle.

A reason for the modification or change is provided as historical information in the revised document per SOP 80_0012.

6.1.1.2 Electronic Document Changes

Suggested revisions to electronic documents are presented to top management (Director, Operations and Quality) for review and approval. Changes to electronic documents are approved as outlined in SOP 80_0012.

Where practical, the altered text or new text in the draft is identified during the revision or review process to provide for easy identification of the modifications.

Procedures (Series 70 SOPs and 80_0040) have been established describing how changes in documents maintained in computerized systems are made and controlled.

6.2 Obsolete Documents

All invalid or obsolete documents are removed from general distribution, or otherwise prevented from unintended use.

Obsolete documents retained for legal use or historical knowledge preservation are appropriately marked and retained per SOP 80_0029. They are stamped "Archived" and initialed and dated by the QA Manager. Archived computer resident documents are kept on file in the QA Dept. for at least 10 years. Hardcopy documents may be retained, depending upon their nature.

Section 7

REVIEW OF REQUESTS, TENDERS AND CONTRACTS
(TNI V1:M2 – Section 4.4; ISO/IEC 17025/2005(E) - Clause 4.4)

The review of all new work assures that oversight is provided so that requirements are clearly defined, that the laboratory (lab) has adequate resources and capability and that the test method is applicable to the customer's needs. This process assures that all work will be given adequate attention without shortcuts that may compromise data quality.

NOTE: A request originates with a client who requires testing services; a tender is a proposal from the lab in response to the client's request, and a contract is the final agreement between lab and client.

Contracts for new work may be formal bids, signed documents, verbal, or electronic. The client's requirements, including the methods to be used, must be clearly defined, documented and understood. Requirements might include target analyte lists, project specific reporting limits (if any), project specific quality control requirements (if any), turnaround time, and requirements for data deliverables. The review must also cover any work that will be subcontracted by the laboratory.

7.1 Procedure for the Review of Work Requests

The Laboratory Director, Operations Manager, and Quality Manager determine if the laboratory has the necessary accreditations, resources, including schedule, equipment, deliverables, and personnel to meet the work request. The procedure is detailed in SOPs 80_0051 (Requests, Tenders & Contracts) and 80_0048 (Subcontracting).

Project Managers/Sales Representatives inform the client of the results of the review and if it indicates any potential conflict, deficiency, lack of accreditation, or inability of the lab to the complete the work satisfactorily.

The client is informed of any deviation from the contract including the test method or sample handling processes. All differences between the request and the final contract are resolved and recorded before any work begins. It is necessary that the contract be acceptable to both the laboratory and the client. Documentation of this process is described in SOP 80_0051.

The review process is repeated when there are amendments to the original contract by the client. The participating personnel are given copies of the amendments. The amendments are maintained per SOP 80_0051.

Note: For repetitive routine projects, the review might be made only at the initial inquiry stage, or on granting of a contract for on-going routine work performed under a general agreement with the client, provided the client's requirements don't change.

7.2 Documentation of Review

Records are maintained for every contract or work request, when appropriate. This includes pertinent discussions with a client relating to the client's requirements or the results of the work during the period of execution of the contract. Documentation of this process is outlined in SOPs 80_0051 and 70_0004 (Work Order Management). Records of all project-related communication with the client (including e-mails, fax, telephone conversation etc.) are kept per SOPs 80_0051, 70_0004 and 70_0008 (Sample Log-in).

Section 8

SUBCONTRACTING OF ENVIRONMENTAL TESTS
(TNI V1:M2 – Section 4.5; ISO/IEC 17025/2005(E) - Clause 4.5

When ESS Laboratory subcontracts work, whether because of unforeseen reasons (e.g. workload, need for further expertise, or temporary incapacity) or on a continuing basis (e.g. through permanent subcontracting, agency or franchising arrangements), this work is placed with a competent subcontractor. A competent subcontractor is one that complies with the appropriate standard for the work in question.

A subcontract laboratory is defined as a laboratory external to this laboratory, or at a different location than the address indicated on the front cover of this manual, that performs analyses for this laboratory. This also includes a laboratory under the same corporate umbrella.

When subcontracting analytical services, the laboratory assures work requiring accreditation is placed with an appropriately accredited laboratory or one that meets applicable statutory and regulatory requirements for performing the tests.

8.1 Procedure

ESS Laboratory maintains a list of subcontractors.

A copy of any required certificate and certified analyte list(s) from subcontractors is maintained as evidence of compliance. This information is maintained by the Quality Assurance Dept. and is kept in a network directory folder.

The certificate and analyte list are checked by the project manager(s) in conjunction with the Quality Manager/Officer, as needed, to ensure the subcontracting laboratory has the appropriate accreditation to do the work.

ESS Laboratory notifies the client of the intent to subcontract the work, in writing, gaining the approval of the client to subcontract their work prior to implementation, preferably in writing. Any verbal instructions are documented.

The laboratory performing the subcontracted work is identified in the final report. The laboratory assumes responsibility to the client for the subcontractor's work, except in the case where a client or a regulating authority specified which subcontractor is to be used. Procedure is detailed in SOP 80_0048.

The Quality Manager/Officer reviews the certification and supporting documentation on file prior to initiation of any work. A listing of all approved subcontracting laboratories and supporting documentation is filed in a network directory. A letter or e-mail is sent to the subcontracting laboratory, which will be NELAC-Accredited, if required, requesting the following information;

1. A copy of the quality manual (optional)
2. A copy of necessary certifications, if not available on company website.

Section 9

PURCHASING SERVICES AND SUPPLIES
(TNI V1:M2 – Section 4.6; ISO/IEC 17025/2005(E) - Clause 4.6)

The laboratory ensures that purchased supplies and services that affect the quality of environmental tests are of the required or specified quality, by using approved suppliers and products.

The laboratory has procedures for purchasing, receiving, and storage of supplies that affect the quality of environmental tests.

9.1 Procedure

Management reviews and approves the supplier of services and supplies and approves technical content of purchasing documents prior to ordering, in accordance with SOPs 80_0020 (Vendor Qualification) and 70_0003 (Purchasing).

Evaluation and selection of suppliers and vendors is performed, in part, on the basis of the quality of their products, their ability to meet the demand for their products, the overall quality of their services, their past history and competitive pricing. This is achieved through evaluation of objective evidence of quality furnished by the supplier, which can include certificates of analysis, recommendations, and proof of historical compliance with similar programs for other clients. To ensure that quality critical consumables and equipment conform to specified requirements, all purchases from specific vendors are approved by a member of the management staff (*standards and reagents must be of the appropriate analytical grade)*. No changes to brands or specifications is allowed without full review and approval by Management. Ongoing evaluation of suppliers is accomplished by ensuring the supplier ships the product or material ordered and that the material is of the appropriate quality, by signing packing slips or other supply receipt documents, after inspection. The purchasing documents contain the data that adequately describes the services and supplies ordered. The description may include type, class, grade, identification, specifications or other technical information.

The supplies received are inspected for breakage, leaks or any other damage. The supplies and chemicals are checked for description, vendor/source, quantity, receipt and expiration dates, concentration, lot/serial number certificate of analysis, calibration/verification records etc. per SOP 80_0013 (Supplies Review and Tracking). The supplies received are stored according to manufacturer's recommendations, laboratory SOPs or test method specifications.

Any documents received with the supplies and services, including specifications, certificates of analysis, warranties, maintenance records, calibration records etc., are kept on file, preferably electronically in the LIMS. Any such hard copy documents are filed by personnel in the department which ordered and received the supplies.

The purchased supplies and reagents that affect the quality of the tests are not used until they are inspected or otherwise verified as complying with requirements defined

in the test method, in accordance with SOP 80_0013 and related departmental SOPs 20_0001, 30_0003, 40_0039, 50_0006 and 60_0001; however, see following note.

NOTE: EPA Method 8270D, Section 9.6.7 states "When new reagents or chemicals are received, the lab should monitor the blanks associated with samples for any signs of contamination. It is not necessary to test every new batch of reagents or chemicals *prior to sample preparation* if the source shows no prior problems."

This ruling may also be considered for application to other methods.

9.2 Approval of Suppliers

The Purchasing Agent maintains a list of approved suppliers. The list is also included in 80_0020 (Vendor Qualification), a copy of which is available to all departments.

Section 10

SERVICE TO THE CLIENT
(TNI V1:M2 – Section 4.7; ISO/IEC 17025/2005(E) - Clause 4.7)

The laboratory collaborates with clients and/or their representatives in clarifying their requests and in monitoring laboratory performance related to their work. Each request is reviewed to determine the nature of the request and the laboratory's ability to comply with the request within the confines of prevailing statutes and/or regulations, without risk to the confidentiality of other clients.

10.1 Client Confidentiality

The laboratory confidentiality policy is to not divulge or release any information to a third party without proper authorization. Third party requests for data and information are referred to the client. Data and records identified as proprietary, privileged, confidential, or affecting national security are exempt from disclosure.

All electronic data (storage or transmissions) are kept confidential, based on technology and laboratory limitations, as required by client or regulation. Confidential client data and correspondence are stored electronically in the laboratory information management system, user e-mail records, internal network directories and secure online websites, which are password-protected and may only be accessed by authorized employees or clients.

Procedures are outlined in various administrative SOPs (70_0004, 70_0005 and 70_0008).

10.2 Client Support

Communication with clients, or their representative(s), is maintained in a timely manner, to provide proper instruction and modification for testing. Technical staff is available to discuss any technical questions or concerns the client may have.

The client, or their representative, may be provided reasonable access to laboratory areas for witnessing testing or substantiating qualifications.

Delays or major deviations to the testing are communicated to the client immediately (preferably within one hour, or at latest by close of business that day), in writing or by telephone, by the project manager.

The laboratory will provide the client with all requested information pertaining to the analysis of their samples. An additional charge may apply for additional data/information that was not requested prior to the time of sample analysis or previously agreed upon.

Value-added services include supplying data confidentially to clients as it is being generated, via the Element Data System *Client Connect* customer interface program.

The client will be notified by project management prior to changes in LIMS software or hardware configuration that will adversely affect customer electronic data.

10.3 Client Feedback

The laboratory seeks both negative and positive feedback following the completion of projects, and periodically for ongoing projects. Feedback provides acknowledgement, corrective actions where necessary, and opportunities for continuous improvement.

Negative customer feedback is documented as a customer concern (see Section 11 – "Complaints") in the ESS Incident Reporting system.

Feedback from clients is sought via a survey request on the ESS Laboratory website and by management/project managers/sales personnel during routine communications with clients, and is documented and circulated to staff members, normally by e-mail or verbally.

Section 11

COMPLAINTS
(TNI V1:M2 – Section 4.8; ISO/IEC 17025/2005(E) - Clause 4.8)

The purpose of this Section is to assure that customer complaints are addressed and corrected. This includes requests to verify results or analytical data. Complaints provide the laboratory an opportunity to improve laboratory operation and client satisfaction.

Complaints by customers or other parties are reviewed by management and an appropriate action is determined and implemented in a timely manner. All customer complaints are documented by the person receiving the complaint and addressed to the responsible manager.

If it is determined that the complaint has merit, the procedures outlined in Section 14 – Corrective Action are followed. If it is determined that a complaint is without merit, it is documented, and the client is contacted by project manager or sales executive.

A complaint, such as a concern that data is repeatedly late, should be reviewed for preventive action (see Section 15 – "Preventive Action") to minimize a future occurrence.

Section 12

CONTROL OF NON-CONFORMING ENVIRONMENTAL TESTING WORK
(TNI V1:M2 – Section 4.9; ISO/IEC 17025/2005(E) - Clause 4.9)

Non-conforming work is work that does not meet acceptance criteria or requirements. Non-conforming work can include departures from standard operating procedures or test methods or unacceptable quality control results (see Section 27 – "Quality Assurance for Environmental Testing"). Identification of non-conforming work can come through customer complaints, quality control, instrument calibration, evaluating consumable materials, staff observation, final report review, management reviews and internal and external audits.

12.1 Exceptionally Permitting Departures from Documented Policies and Procedures

Requests for departures from laboratory procedures are approved by top management and documented, and are only permitted after appropriate precision, accuracy and detection limit data have been generated and shown to satisfy client's criteria. The client must approve major modifications of any methods. Approved method variances are documented in the case narrative to the client. When SOPs representing different versions of the same method are available for use, the SOP title and method summary (which is found in the body of the SOP) describe the particular conditions of use for that method; such SOPs may only be used at client's direction or with client's approval, in writing.

Planned departures from procedures or policies do not require audits or investigations.

12.2 Non-Conforming Work

The lab policy for control of non-conforming work is to identify the nonconformance, determine if it will be permitted, and take timely and appropriate action commensurate with the risk to data quality. All employees have the authority to stop work on samples when any aspect of the process does not conform to laboratory requirements.

The responsibilities and authorities for the management of non-conforming work are detailed in SOP 80_0009 (Incident/Corrective Action). The procedure for investigating and taking appropriate corrective actions of non-conforming work are described in Section 14 – "Corrective Actions". Section 14.3 describes procedures for Technical Corrective Actions. Formal corrective action procedures must be followed for non-conforming work that could reoccur (beyond expected random QC failures) or where there is doubt about the laboratory's compliance to its own policies and procedures.

The investigation and associated corrective action of non-conforming work involving alleged violations of the company's Ethics and Data Integrity policies must follow the procedures outlined in Section 19 – "Data Integrity Investigations".

The laboratory evaluates the significance of the non-conforming work, and takes corrective action immediately. The customer is notified if their data has been impacted and work recalled, where necessary. The laboratory allows the release of non-conforming data only with approval by the Director or Operations Manager, on a case-by-case basis. Non-conforming data is clearly identified in the final report (see Section 28 – "Reporting the Results").

The discovery of a nonconformance for results that have already been reported to the customer must be immediately evaluated for significance of the nonconformance, its acceptability to the customer, and determination of the appropriate corrective action.

As stated above, the management of non-conforming work is detailed in SOP 80_0009 (Incident/ Corrective Action), which is a Quality Assurance Dept. SOP and copies of which are available to all departments; SOP 80_0009 is applicable to situations where non-conforming work could reoccur or where there is doubt that the laboratory is in compliance with its own policies and procedures. Corrective action for routine, non- recurring exceedances can be documented on raw data worksheets, logbooks, e-mail or other documents (e.g. temperature logs).

12.3 Stop Work Procedures

Halting work, or subsequent resumption of work, is authorized by top management, the LIMS administrator, departmental supervisors or analysts in accordance with SOP 80_0009 (Incident/Corrective Action) or pertinent SOPs.

Personnel will notify top management of any nonconformance, per SOP 80_0009 or pertinent SOPs. Management will review the significance of the nonconformance and develop a course of action. If data are questionable, client(s) will be notified, preferably within the hour, but definitely by close of business that day.

Should an investigation of a nonconformance indicate that its cause requires that use of method be limited until any necessary modifications are implemented, management will immediately notify affected personnel of the decision. The laboratory will hold relevant reports to clients pending the outcome of the review. The Quality Assurance Dept. will verify that the issue is resolved before work is allowed to resume; personnel will be notified by management accordingly. Management will document the incident, root cause and resolution using the corrective action procedures described in Section 14 – "Corrective Action".

The reporting of nonconformances involving alleged violations of the laboratory's Ethics and Data Integrity policies must be reported to the Quality Manager. Procedures described in Section 19– "Data Integrity Investigations" are followed.

Section 13

IMPROVEMENT
(TNI V1:M2 – Section 4.10; ISO/IEC 17025/2005(E) - Clause 4.10)

It is the policy of the laboratory to improve the overall effectiveness of the laboratory's management system and this is accomplished by the implementation of the various aspects of the management system: Quality policy and objectives (Section 5 – "Management"); internal auditing practices (Section 17 – "Internal Audits"); the review and analysis of data (Section 27 – "Quality Assurance for Environmental Testing"); the corrective action (Section 14 – "Corrective Action") and preventive action (Section 15 – "Preventive Action") processes; and the annual management review of the quality management system (Section 18 – "Management Reviews") where the various aspects of the management/quality system are summarized and evaluated, and plans for improvement are developed. Employees are encouraged to start discussions for improvements by initiating "Improvement Items" through the Incident Reporting system.

Section 14

CORRECTIVE ACTION
(TNI V1:M2 – Section 4.11; ISO/IEC 17025/2005(E) - Clause 4.11)

Corrective action is the action taken to eliminate the causes of an existing non-conformity, defect, or other undesirable situation, in order to prevent recurrence.

Deficiencies cited in incident reports, external assessments, internal quality audits, data reviews, customer feedback/complaints, control of nonconforming work or managerial reviews are documented and require corrective action. Corrective actions taken are commensurate with the magnitude of the problem and the degree of risk. All actions are documented.

14.1 General Procedure

The laboratory uses a database software program to document and track corrective actions (incident reports) in accordance with SOP 80_0009 (Incident/Corrective Action). This program is used to generate audit/code reports, which help management plan and assign priorities to corrective actions.

Employees are responsible for initiating incident reports, related corrective action (and also suggesting preventive action – see Section 15) on routine data reviews/activities where a nonconformance is found that could reoccur (beyond expected random QC failures) or where there is doubt about the compliance of the laboratory with its own policies and procedures, in accordance with SOP 80_0009. The Quality Assurance Dept. is responsible for monitoring and recording closure of the corrective action, per this SOP.

All deficiencies are investigated and a corrective action plan is developed and implemented if determined necessary. The implementation is monitored for effectiveness.

14.1.1 Cause Analysis

When failures due to systematic errors have been identified, the first step of the corrective action process starts with the initial investigation and determination of root cause(s) of the problem. A root cause investigation, which is a major tool for continuous process improvement, begins and ends with the question "Why did this deficiency occur". When a reason can no longer be identified then there is reasonable assurance that the cause has been isolated. Records are maintained in the database of nonconformances requiring corrective action to show that the root cause(s) was investigated, and include the results of the investigation.

Where there may be non-systematic errors and as such the initial cause is readily identifiable, or there are expected random failures (e.g. failed quality control), a formal root cause analysis is not performed and the process begins with selection and implementation of corrective action (also see Section 14.3 "Technical Corrective Actions").

14.1.2 Selection and Implementation of Corrective Actions

Where uncertainty arises regarding the best approach for analysis of the cause of a nonconformance that require corrective action, appropriate personnel will recommend corrective actions that are commensurate with the magnitude and risk of the problem and that will most likely eliminate the problem and prevent recurrence.

Management ensures that corrective actions are discharged by assigned personnel within the agreed upon time frame. The Quality Assurance Manager provides the necessary oversight by tracking progress.

14.1.3 Monitoring of Corrective Action

The Quality Assurance Manager will monitor implementation and documentation of the corrective action to assure that the corrective actions were effective. The Quality Assurance Manager will publish periodic status reports to top management, project managers and affected departmental managers, as well as Quality Assurance Dept. personnel, per SOP 80_0009. Normal expectation is to complete non-critical corrective action within thirty days. Critical corrective action is to be completed as soon as possible.

14.1.4 Improvement Items

The database software program is also used to compile employees' ideas for improvement. These ideas are ones that would increase quality and/or productivity in the laboratory or administrative procedures. There is no current limit to the type of improvement item that can be added to the database.

14.2 Additional Audits

Where the identification of nonconformances or departures from normal lab procedures cast doubt on the laboratory's compliance with its own policies and procedures, or on its compliance with the TNI or other regulatory Standards, the laboratory ensures that the appropriate areas of activity are audited in accordance with Section 17 – "Internal Audits" as soon as possible.

In many cases, the additional audits are follow-ups after the corrective action has been implemented to ensure it is effective. These are especially done when a serious issue or risk to the laboratory, or a repetitive nonconformance, have been identified.

14.3 Technical Corrective Action

Sample data associated with a failed quality control result are evaluated for the need to be reanalyzed or qualified. Unacceptable quality control results are documented, and if the evaluation requires cause analysis, the cause and solution are recorded (also see Section 12 – "Control of Nonconforming Environmental Testing Work").

Analysts routinely implement corrective actions for data with unacceptable QC measures. First level correction may include re-analysis without further assessment. If the test method SOP addresses the specific actions to take, they are followed. Otherwise, corrective actions start with assessment of the cause of the problem. Corrective actions shall be to a degree commensurate with the magnitude and the risk of the problem.

Corrective action for non-systematic errors, or expected random failures not subject to formal incident reporting, are documented in the comments section of respective logbooks, per SOP 80_0040. Corrective actions for any nonconformance that may reoccur (beyond expected random QC failures) or where there is concern that the laboratory is not in compliance with its own policies and procedures require that an incident report be completed (see Section 14.1).

Technical managers review incident reports and suggest improvements, alternative approaches and procedures, where needed.

If the data reported are affected adversely by the nonconformance, the affected data is clearly identified in the report and the customer is notified. If necessary, data will be recalled and a revised report meeting regulatory and client needs issued.

Section 15

PREVENTIVE ACTION
(TNI V1:M2 – Section 4.12; ISO/IEC 17025/2005(E) - Clause 4.12)

Preventive action is a proactive process to identify opportunities for improvement rather than a reaction to the identification of problems or complaints.

Preventive action includes, but is not limited to: review of nonconformance (incident report) database entries; review of QC (control chart) data to identify quality trends; regularly scheduled (daily) staff meetings to ensure client needs are being met; review of client feedback to look for improvement opportunities; review of proficiency testing data to look for borderline issues; annual managerial reviews; and review of scheduled instrument maintenance.

When improvement opportunities are identified or if preventive action is required, action plans are developed, implemented and monitored to reduce the likelihood of the occurrence of nonconformities.

Procedures for preventive actions include the initiation of such actions and subsequent monitoring to ensure that they are effective. The implementation and record maintenance of preventive action activities is outlined in SOPs 80_0009 (Incident/Corrective Action) and 80_0035 (Internal Assessment).

All personnel have the authority to offer suggestions for improvements and to recommend preventive actions, however management is responsible for implementing preventive action.

Section 16

CONTROL OF RECORDS
(TNI V1:M2 – Section 4.13; ISO/IEC 17025/2005(E) - Clause 4.13)

"Records" include all documents, such as this QA Manual and SOPs, data recordings that include annotations, such as daily refrigerator temperatures posted to a laboratory form, lists, spreadsheets, and analyst notes on a chromatogram. Records may be on any form of media, including electronic (a/k/a computer-resident) and hard copy. Records allow for the historical reconstruction of laboratory activities related to sample-handling and analysis. The terms "documents" and "records" are considered to be analogous.

The laboratory maintains a record system appropriate to its needs, records all laboratory activities, and complies with applicable standards or regulations as required. Records of original observations and derived data are retained to establish an audit trail. Records help establish factors affecting the uncertainty of the test and enable test repeatability under conditions as close as possible to the original.

16.1 Records Maintained

Records of all procedures to which a sample is subjected while in the possession of the laboratory are kept. The laboratory retains all original observations, calculations and derived data (with sufficient information to produce an audit trail), calibration records, personnel records and a copy of the test report, for a minimum of ten years from generation of the last entry in the records. At a minimum, the following records are maintained by the laboratory to provide the information needed for historical reconstruction:

i) All raw data, whether hard copy or electronic, for calibrations, samples and quality control measures, including analysts' worksheets and data output records (chromatograms, strip charts, and other instrument response readout records);

ii) A written description or reference to the specific method(s) used, which includes a description of the specific computational steps used to translate parametric observations into a reportable analytical value (all pertinent Standard Operating Procedures);

iii) Laboratory sample ID code;

iv) Date of analysis;

v) Time of analysis is always required if the regulatory holding time is stated in hours, or when time critical steps are included in the analysis (e.g., extractions and incubations);

vi) Instrumentation identification and instrument operating conditions/parameters (or reference to such data);

vii) All manual calculations (including manual integrations);

viii) Analyst's or operator's initials/signature or electronic identification;

ix) Sample preparation, including cleanup, separation protocols, incubation periods or subculture, ID codes, volumes, weights, instrument printouts, meter readings, calculations, reagents;

x) Test results (including a copy of the final report);

xi) Standard and reagent origin, receipt, preparation, and use;

xii) Calibration criteria, frequency and acceptance criteria;

xiii) Data and statistical calculations, review, confirmation, interpretation, assessment and reporting conventions;

xiv) Quality control protocols and assessment;

xv) Electronic data security, software documentation and verification, software and hardware audits, backups, and records of any changes to automated data entries;

xvi) Method performance criteria including expected quality control requirements;

xvii) Proficiency test results;

xviii) Records of demonstration of capability for each analyst;

xix) A record of names, initials, and signatures for all individuals who are responsible for signing or initialing any laboratory record;

xx) Correspondence relating to laboratory activities for a specific project;

xxi) Corrective action reports;

xxii) Preventive action records;

xxiii) Copies of internal and external audits including audit responses;

xxiv) Copies of all current and historical laboratory SOPs, policies and *Quality Manual*s;

xxv) Sample receiving records (including information on any interlaboratory transfers);

xxvi) Sample storage records;

xxvii) Data review and verification records;

xxviii) Personnel qualification, experience and training records;

xxviv) Archive records; and

xxviv) Management reviews.

16.2 Records Management and Storage

The laboratory maintains a record management system for control of laboratory notebooks, instrument logbooks, standards logbooks, and records for data reduction, validation, storage, and reporting, per SOPs 80_0040 (Logbooks), 70_0004 (Work Order Management), 70_0007 (Data Entry & Data Reporting) and 70_0008 (Sample Login). Hard copy data is recorded immediately and legibly in permanent ink while data generated by automated data collections systems are recorded electronically per SOP 80_0040 and various test SOPs. Hard copy corrections are initialed and dated with the reason noted for corrections other than transcription errors. A single line strikeout is used to make corrections so that the original record is not obliterated. In the case of electronic records, software audit tracking features provide an audit trail and notes may be added to electronic document fields, as required by SOP 80_0040 and various test SOPs.

All laboratory data is saved to computer systems which are networked to a Windows 2012 R2 server, which is the destination of all files. Daily backups to disk are done at 3:45 AM. Full backups are performed on Saturday and differential backups Sunday through Friday. 14 disk backups are kept on disk. Full disk backups are copied to tape on Sundays. The weekly tapes are kept for 4 weeks, the monthly tapes for 4 months, the quarterly tapes for 4 quarters, and the yearly tapes for 10 years.

Records, including electronic records, are easy to retrieve, legible, and protected from deterioration, computer viruses or damage; held secure and in confidence; and are available to accrediting bodies for a minimum of ten years or as required by regulation or contract. Records that are stored only on electronic media are supported by the hardware and software necessary for their retrieval. Access to protected records is limited to employees on a need to know basis, as determined by the Laboratory Director, to prevent unauthorized access or amendment. Access is password protected. Individual user names and passwords are required for all LIMS users.

Additional information regarding control of data is included in Section 22.5 – "Control of Data".

Procedures for identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and technical records are found in the SOPs listed above and also in SOPs 80_0012 (Document Control) and 80_0029 (Management of Procedure Documents). Quality records shall include reports from internal audits and management reviews as well as records of corrective and preventive actions. Electronic storage is the primary medium for long-term storage of vital records.

Archived information are protected against fire, theft, loss, environmental deterioration, vermin, and in the case of electronic records, electronic or magnetic sources. Archived records have limited access and are kept in a secured and locked area. Electronic and hard copy records are archived onsite.

In the event that the laboratory transfers ownership or goes out of business, records are maintained or transferred according to client instructions. Appropriate regulatory and state legal requirements concerning laboratory records shall be followed.

16.3 Legal Chain of Custody Records

Evidentiary sample data are used as legal evidence. Procedures for evidentiary samples can be found in SOPs 10_0001, 10_0017 and the Sample Acceptance Policy.

A sample is in someone's custody if;

1. It is in one's actual physical possession;
2. It is in one's view, after being in one's physical possession;
3. It is in one's physical possession and then locked up so that no one can tamper with it;
4. It is kept in a secured area, restricted to authorized personnel only.

Section 17

AUDITS
(TNI V1:M2 – Section 4.14; ISO/IEC 17025/2005(E) - Clause 4.14)

Audits measure laboratory performance and verify compliance with the TNI, ISO 17025 and other regulatory Standards, and accreditation/ certification and project requirements. Audits specifically provide management with an on-going assessment of the management system. They are also instrumental in identifying areas where improvement in the management/quality system will increase the reliability of data. Audits are of four main types: internal, external, performance, and system. Section 17.5 discusses the handling of audit findings.

17.1 Internal Audits

Annually, the laboratory prepares a schedule of internal audits to be performed during the year. These audits verify compliance with the requirements of the management/quality system, including analytical methods, SOPs, the *Quality Manual*, ethics policies, data integrity, other laboratory policies, and the TNI/ISO 17025 Standards. Annual internal audits are carried out per SOP 80_0035.

It is the responsibility of the Quality Manager to plan and organize audits as required by the schedule and requested by management. These audits are carried out by trained and qualified personnel who are independent of the activity to be audited. The Laboratory Director shall determine the training and qualification requirements for audit personnel, including quality managers, and shall establish procedures to ensure that audit personnel have the necessary education or experience required for their assigned positions. These requirements and procedures must be recorded. Personnel conducting independent assessments shall have sufficient authority, access to work areas, and organizational freedom necessary to observe all activities affecting quality and to report the results of such assessments to laboratory management.

In addition to the scheduled internal audits, it may sometimes be necessary to conduct special audits as a follow-up to corrective actions, PT results, complaints, regulatory audits or alleged data integrity issues. These audits address specific issues.

The area audited, the audit findings, and corrective actions are recorded. Audits are reviewed after completion to assure that corrective actions were implemented and effective. If findings are observed that cast doubt on the validity of results, top management shall be informed immediately, the incident documented and timely corrective action implemented per Sections 12, 14 and 17.5, which includes notification of clients, when data is impacted.

17.2 External Audits

It is the laboratory's policy to cooperate and assist with all external audits, whether performed by clients or an accrediting body. Management ensures that all areas of

the laboratory are accessible to auditors as applicable and that appropriate personnel are available to assist in conducting the audit.

17.2.1 Confidential Business Information (CBI) Considerations

During on-site audits, on-site auditors may come into possession of information claimed as business confidential. A business confidentiality claim is defined as "a claim or allegation that business information is entitled to confidential treatment for reasons of business confidentiality or a request for a determination that such information is entitled to such treatment." When information is claimed as business confidential, the laboratory must place on (or attach to) the information at the time it is submitted to the auditor, a cover sheet, stamped or typed legend or other suitable form of notice, employing language such as "trade secret", "proprietary" or "company confidential". Confidential portions of documents otherwise non-confidential must be clearly identified or redacted. CBI may be purged of references to client identity by the responsible laboratory official at the time of removal from the laboratory. However, sample identifiers may not be obscured from the information.

17.3 Performance Audits

Performance audits may be Proficiency Test Samples, internal single-blind samples, double-blind samples through a provider or client, or anything that tests the performance of the analyst and method.

Proficiency Test Samples are discussed in Section 27 – "Quality Assurance for Environmental Testing".

17.4 System Audits

The Laboratory's management system is audited through Quality Dept. annual systems audits and annual management reviews. Refer to Section 18 – "Management Reviews" for further discussion of management reviews.

17.5 Handling Audit Findings

Internal or external audit findings are responded to within the time frame agreed to at the time of the audit. The response may include action plans that could not be completed within the response time frame. A completion date is established by management for each action item and included in the response.

Development and implementation of corrective actions to findings is the responsibility of the Quality Assurance Manager. Corrective actions are documented through the corrective action process described in Section 14 – "Corrective Actions".

Audit findings that cast doubt on the effectiveness of the laboratory operation to produce data of known and documented quality or that question the correctness or validity of sample results must be investigated. Corrective action procedures described in Section 14 – "Corrective Action" must be followed. Clients must be notified in writing if the investigation shows the laboratory results have been

negatively affected and the client's requirements have not been met. The client must be notified by close of business on the day the laboratory discovers the issue. Laboratory management will ensure that this notification is carried out within the specified time frame.

All investigations that result in findings of inappropriate activity are documented and include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of clients. See Section 19 (Data Integrity Investigation) for additional procedures for handling inappropriate activity.

Section 18

MANAGEMENT REVIEWS
(TNI V1:M2 – Section 4.15; ISO/IEC 17025/2005(E) - Clause 4.15)

Top management reviews the management system on an annual basis and maintains records of review findings and actions.

18.1 Management Review Topics

The following are reviewed to ensure their suitability and effectiveness:

- The suitability of policies and procedures;
- Reports from managerial and supervisory personnel;
- The outcome of recent internal audits;
- Corrective and preventive actions;
- Assessments by external bodies;
- The results of interlaboratory comparisons or proficiency tests;
- Changes in the volume and type of the work;
- Customer feedback;
- Complaints;
- Recommendations for improvement;
- Other relevant factors, such as quality control activities, resources, and staff training.

18.2 Procedure

The procedure for management review is included in SOP 80_0035 (Internal Assessment).

Findings and follow-up actions from management reviews are recorded. Management will determine appropriate completion dates for action items and ensures they are completed within the agreed upon time frame.

Section 19

DATA INTEGRITY POLICY & DATA INTEGRITY INVESTIGATIONS
(TNI V1:M2 – Section 4.16; ISO/IEC 17025/2005(E) - Clause 4.16)

ESS Laboratory is committed to ensuring the integrity of its data and providing valid data of known and documented quality to its clients. Top management endorses its support for data integrity by implementing the specific requirements of the laboratory's data integrity program. The elements in ESS Laboratory's Ethics and Data Integrity program include:

- Documented data integrity procedures, signed and dated by top management,
- Documented data integrity training,
- An Ethics and Data Integrity Training Agreement signed by all management and staff, at the time of hire and annually thereafter following annual data integrity training. This Ethics Agreement includes a requirement that all suspected violations of the policy be reported to senior management.
- Procedures for confidential reporting of alleged data integrity issues, handling data integrity investigations and client notifications,
- An audit program that addresses in-depth, periodic monitoring of data integrity (see Section 17 – "Audits"). The Quality Assurance Manager has the responsibility of overseeing the Ethics and Data Integrity program.

19.1 Ethics and Data Integrity Procedures

The Ethics and Data Integrity Policy provides an overview of the program. Written procedures that are considered part of the Ethics and Data Integrity program include:

- Manual integration procedures (SOP 110_0016)
- Corrective action procedures (Section 14 of this QA Manual)
- Procedures for Data Integrity Investigations are detailed below
- Data recall procedures (Section 14 of this QA Manual)
- Data Integrity training procedures are detailed below and in SOP 80_0049

Management reviews data integrity procedures yearly and updates these procedures as needed. These procedures and the associated implementation records are properly maintained and made available for assessor review.

19.2 Training

Data integrity training is provided as a formal part of new employee orientation and a refresher is given annually for all employees; in the latter case, such training may be asynchronous* (see below). Employees are required to understand that

any infractions of the laboratory data integrity procedures shall result in a detailed investigation that could lead to very serious consequences including immediate termination, debarment or civil/criminal prosecution. This is discussed in the Ethics and Data Integrity Policy that every employee is required to sign at the time of hire. Attendance for required training is monitored through a signature attendance sheet demonstrating all staff have participated and understand their obligations related to data integrity.

An agenda is provided to each trainee prior to the training session. The following topics and activities are covered:

- The organizational mission and its relationship to the need for honesty and full disclosure in all analytical reporting;
- An ethics policy must be read and signed by all personnel;
- How and when to report data integrity issues;
- Recordkeeping;
- Analysts must record an explanation and sign off on all manual changes to data; and
- Where available in the instrument software, all electronic tracking and audit functions must be enabled.
- Discussion regarding all data integrity procedures;
- Data integrity training documentation;
- In-depth data monitoring;
- Data integrity procedure documentation;
- Improper data manipulations (detailed in SOP 80_0049);
- Adjustments of instrument time clocks;
- Inappropriate changes in concentrations of standards;
- The importance of proper written narration on the part of the analyst with respect to those cases where analytical data may be useful, but are in one sense or another partially deficient;
- Written ethics agreements;
- Examples of improper practices (detailed in SOP 80_0049);
- Examples of improper chromatographic manipulations (detailed in SOPs 80_0049 and 110_0016);

- Requirements for external ethics program training;
- Any external resources available to employees; and
- Consequences for data integrity infractions.

*Asynchronous online training tools enable communication and collaboration over a period of time through a "different time-different place" mode. These tools allow people to connect together at each person's own convenience and own schedule. Asynchronous tools are useful for sustaining dialogue and collaboration over a period of time and providing people with resources and information that are instantly accessible, day or night.

When contracted technical or support personnel are used, top management is responsible for ensuring that they are trained to the laboratory's management system and data integrity procedures, competent to perform the assigned tasks, and appropriately supervised.

Topics covered are provided in writing and provided to all trainees.

19.3 Confidential Reporting of Ethics and Data Integrity Issues

Confidential reporting of data integrity issues is assured as follows: A data integrity officer/advisor/ombudsman shall be appointed by senior management to determine the need for a detailed investigation when data integrity is in question. This will normally be the Quality Assurance Manager. The data integrity officer shall insure confidentiality and a receptive environment in which to privately discuss personal ethical dilemmas with staff or observed unethical practices by others. Confidential records of such discussions shall be kept by the data integrity advisor, who will keep top management informed of the need for any further detailed investigation.

19.4 Investigations

All investigations resulting from data integrity issues are conducted confidentially. They are documented and notifications are made to clients who received any negatively affected data that did not meet the client's data quality requirements. Procedures for investigation are included in SOP 80_0049.

Section 20

PERSONNEL
(TNI V1:M2–Section 5.2; ISO/IEC 17025/2005(E)-Clause 5.2)

ESS Laboratory employs competent personnel based on education, training, experience and demonstrated skills, as required. The laboratory's organization chart can be found in Appendix B.

20.1 Overview

All personnel are responsible for complying with all quality and data integrity policies and procedures that are relevant to their area of responsibility.

All personnel who are involved in activities related to sample analysis, evaluation of results or who sign test reports, must demonstrate competence in their area of responsibility. Appropriate supervision is given to any personnel in training and the trainer is accountable for the quality of the trainee's work. Personnel are qualified to perform the tasks for which they are responsible based on education, training, experience and demonstrated skills as required for their area of responsibility.

The laboratory management provides goals with respect to education, training and skills of laboratory staff. These goals are outlined in the ESS Policy Manual (Job Descriptions) and SOP 80_0016 (Training). Training needs are identified at the time of employment and when personnel are moved to a new position, or new responsibilities are added to their job responsibilities; appropriate training is provided. Ongoing training, as needed, is also provided to personnel in their current jobs. The effectiveness of the training must be evaluated before the training is considered complete.

Contracted personnel, when used, must meet the same competency standards and follow the same policies and procedures that laboratory employees must meet.

20.2 Job Descriptions

Job descriptions are available for all positions that manage, perform, or verify work affecting data quality, and are located in the ESS Laboratory Policy Manual (Job Descriptions). An overview of top management's responsibilities is included in Section 5 – "Management".

Job descriptions include the specific tasks, minimum education and qualifications, skills, and experience required for each position.

20.3 Training

All personnel are appropriately trained and are competent in their assigned tasks before they contribute to functions that can affect data quality. It is management's responsibility to assure personnel are trained in accordance with SOP 80_0016 (Training). Training records are used to document management's approval of personnel competency. The date on which authorization and/or competence is confirmed is included.

Training records are maintained by the Quality Assurance Manager and include safety training certificates. The latter are also kept track of in an online database by the corporate safety manager.

20.3.1 Training for New Staff

New staff members are given the following training, per SOP 80_0016 (Training Process):

Orientation (General Policies, Ethics and Data Integrity Agreement, Good Documentation and SOP/QA Manual training plan checklist), Initial Demonstrations of Capability, specialized training and formal safety training.

All new staff members are given introductory training and orientation upon arrival. The training is documented on training forms that outline what was covered during the training. The new employee also receives Data Integrity training and must sign-off on the Ethics and Data Integrity Policy.

The initial training for a new task contains the following steps:

- All documentation involved with a new and unfamiliar task is read and understood by the trainee.
- Training is under the direct supervision of a qualified senior analyst. During the time the trainee is in training, he/she may sign laboratory notebooks, logbooks, worksheets, etc., but they must be co-signed by the trainer, who is responsible for the data generated.
- The trainee demonstrates competency in the new task before they can operate independently. The competency for a test method is accomplished by a demonstration of capability as defined in Section 22 – "Environmental Methods and Method Validation". Approval of competency is noted by the date and initials or signature of the Technical Manager and Quality Assurance Manager on a training form.
- Each step of the training process is documented.
- The documentation is maintained in the employees training record.

Part-time, temporary, contracted and administrative personnel are trained, at a minimum, in the basic quality assurance and health and safety programs.

20.3.2 Ongoing Training

Staff members are given the following ongoing training:

- Annual Data Integrity per SOP 80_0049
- Annual QA Manual - current revision
- Annual Continuing Demonstration of Capability per Appendix F.2 of this manual and SOP 80_0016
- Annual Safety (Corporate, online)
- Any pertinent specialized training

Section 21

ACCOMODATIONS AND ENVIRONMENTAL CONDITIONS
(TNI V1:M2 – Section 5.3)

21.1 Environmental

The laboratory facility is designed and organized to facilitate correct testing of environmental samples. Environmental conditions are monitored to ensure that conditions do not invalidate results or adversely affect the required quality of any measurement. Such environmental conditions include lighting, energy sources, humidity, voltage, temperature, atmospheric cross-contaminants (via storage blanks) and vibration levels which could affect balance operation.

If the laboratory environment is required to be controlled by a method or regulation, the adherence is recorded. An example would be the recording of temperature during TCLP extraction.

Environmental tests are stopped when the environmental conditions jeopardize the results.

When conducting external sampling procedures, any mobile equipment such as pH meters or ISCO samplers are only operated under the environmental conditions for which they were designed and in accordance with pertinent SOPs.

21.2 Work Areas

Work areas may include access and entryways to the laboratory, sample receipt area, sample storage area, sample process area, instrumental analysis area, chemicals, gas cylinders and waste storage area, and data handling and storage area.

Access to, and use of, areas affecting the quality of the environmental tests is controlled by restriction of areas to authorized personnel only. See Section 21.4 below.

The laboratory work spaces are adequate for their use, and appropriately clean to support environmental testing and ensure an unencumbered work area.

Laboratory space is arranged to minimize cross-contamination between incompatible areas of the laboratory. Prep labs are isolated from instrumental labs; samples suspected of containing high concentrations of volatile analytes shall be isolated from other samples. Refrigerator storage and trip blanks shall be used to determine if cross-contamination may have occurred. Laboratory temperature/humidity/ ventilation are controlled via separate, dedicated HVAC units.

Testing occurs only within dedicated laboratory departments. Laboratory space is maintained and monitored to the specifications required for laboratory space and the testing performed. Electronic balances are located away from drafts and doorways and mounted on a marble slab in areas where their use is affected by vibrations. Neighboring test areas of incompatible activities are effectively separated. Specific work areas are defined and access is controlled. (Only authorized laboratory personnel and escorted signed-in visitors may enter the work area.)

Good housekeeping measures are employed to avoid the possibility of contamination. The laboratory procedure for good housekeeping includes such measures as:

- Janitorial service (internal) is in operation.
- Each employee is responsible for keeping their work area clean and tidy.
- A kitchen area, isolated from the testing labs, is the only place where eating/drinking is allowed.
- Smoking is prohibited in the laboratory. Employees are not allowed to wear cologne, perfumes or other personal care products that might contaminate the samples for volatile organics. Live plants and animals are prohibited in the laboratory area.

21.3 Building Security

The laboratory is a secure (locked) facility, accessible to authorized personnel only and is kept secure during off hours with an alarm system.

A visitor's logbook is maintained for every visitor to sign in and out. Visitors must be accompanied by laboratory personnel when in secure areas.

Signs are used to designate secure areas.

Security procedure is described in SOP 110_0015 (Lab Security).

Section 22

ENVIRONMENTAL METHODS AND METHOD VALIDATION
(TNI V1:M2 – Section 5.4; TNI V1:M4 - Sections 1.4, 1.5 and 1.6; and ISO/IEC 17025/2005(E)-Clause 5.4)

Methods and/or procedures are available and are used for all activities associated with the sampling, handling, transport, storage and analysis of the sample including preparation and testing. For purposes of this Section, "method" refers to both the sample preparation and determinative methods. A master list of analytical methods is located in Appendix C.

Before being put into use, a test method is confirmed by a demonstration of capability or method validation process.

All methods are published or documented. Deviations from the methods are allowed only if the deviation is documented, technically justified, authorized by management and accepted by the customer

22.1 Method Selection

A reference method is a method issued by an organization generally recognized as competent to do so (when ISO refers to a standard method, that term is equivalent to reference method). When a laboratory is required to analyze a parameter by a specified method due to a regulatory requirement, the parameter/method combination is recognized as a reference method.

The laboratory will use methods that meet the needs of the customer. Such methods will be based on the latest edition of the method unless it does not meet the needs of the customer.

The laboratory selects methods that are appropriate to the customer needs. When the regulatory authority mandates or promulgates methods for a specific purpose, only those methods will be used.

If a method proposed by a customer is considered to be inappropriate or out-of-date, the customer is informed and the issue resolved before proceeding with analysis of any samples (see Section 7 – Review of Requests, Tenders and Contracts).

If a method is not specified by the customer or is inappropriate, a method appropriate to the end use of the data will be selected using the process outlined below.

- If the data are to be submitted to a regulatory authority, the method(s) specified by the regulatory authority will be used.

- For drinking water compliance a method will be selected from those specified in 40 CFR Part 141, or the applicable state regulations.
- For NPDES permits, the method will be selected from those specified in 40 CFR Part 136.
- If the end use of the data is not regulatory or if the regulatory authority does not specify a method, the laboratory will determine the customer needs in terms of reporting level (e.g., LOD, LLOQ), bias (e.g., screening versus quantitative) and the laboratory capabilities and capacity. Based on these criteria, the laboratory will select an appropriate method based on the following hierarchy:
    - Resources published in regional, national or international standards;
    - Methods published by other technical organizations such as ASTM, Standard Methods, NIOSH or AOAC;
    - Methods develop by the instrument manufacturer; or
    - Laboratory–developed methods.

The customer will be informed of the selected method and must approve its use before being used to report data.

All communications between the laboratory and the customer are documented.

22.2 Non-Standard and Laboratory-Developed Methods

If the laboratory develops a method, the process of designing and validating the method is carefully planned and documented. All personnel involved in the method design, development and implementation will be in constant communication during all stages of development.

The procedure for methods development and validation is outlined below and in SOP 80_0024.

22.3 Method Validation

Validation is the confirmation, by examination and objective evidence, that the particular requirements for a specific intended use are fulfilled.

At a minimum, reference methods are validated by performing an initial demonstration of capability. Additional requirements are discussed for each technology.

All methods that are not reference methods are validated before use. The validation is designed so that the laboratory can demonstrate that the method is appropriate for its intended use. All records (e.g., planning, method procedure, raw data and data analysis) shall be retained while the method is in use. Based on the validation process, the laboratory will make a statement of the intended use requirements and whether or not the validated method meets the use requirements, in a specific Process Validation Protocol form per SOP 80_0024. The form will be filed in the QA Dept.

Method validation and Demonstration of Capability procedures can be found in:

- Appendix F.1 – Chemistry
- Appendix F.2 – Demonstration of Capability

22.4 Estimation of Analytical Uncertainty

Analytical Uncertainty: A subset of Measurement Uncertainty that includes all laboratory activities performed as part of the analysis.

When requested, the laboratory will provide an estimate of the analytical uncertainty, using quality control measurement data, as determined by SOP 110_0014:

a) The exact nature of some test methods may preclude rigorous, statistically valid estimation of analytical uncertainty. In these cases the laboratory shall attempt to identify all components of analytical uncertainty and make a reasonable estimation, and shall ensure that the form of data reporting does not give a wrong impression of the uncertainty. A reasonable estimation shall be based on knowledge of method performance and previous experience. When estimating the analytical uncertainty, all uncertainty components which are of importance in the given situation shall be taken into account.

b) In those cases where a well-recognized test method specifies limits to the values of the major source of uncertainty of measurement and specifies the form of presentation of calculated results, the laboratory is considered to have satisfied the requirements on analytical uncertainty by following the test method and reporting instructions.

c) The laboratory is only responsible for estimating the portion of measurement uncertainty that is under its control. Test reports shall include a statement of the estimated analytical uncertainty only when required by the customer. If a project requires analytical uncertainty to be reported, the laboratory shall report the estimated uncertainty based on project-specific procedures or, if not available, any other scientifically valid procedures.

The estimated analytical uncertainty can be expressed as a range (±) around the reported analytical results at a specified confidence level. A laboratory may report the in-house, statistically-derived Laboratory Control Sample (LCS) control limits based on historical LCS recovery data as an estimate of the minimum laboratory contribution to analytical uncertainty at a 99% confidence level. For testing laboratories, the laboratory shall ensure that the equipment used can provide the analytical portion of measurement uncertainty needed by the customer.

22.5 Control of Data

To ensure that data are protected from inadvertent changes or unintentional destruction, the laboratory establishes and uses procedures to check calculations and data transfers (both manual and automated).

22.5.1 Computer and Electronic Data Requirements

The laboratory assures that computers, user-developed computer software, automated equipment, or microprocessors used for the acquisition, processing, recording, reporting, storage, or retrieval of environmental test data are:

- Documented in sufficient detail and validated as being adequate for use;
- Protected for integrity and confidentiality of data entry or collection, data storage, data transmission and data processing;
- Maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of environmental test data; and
- Held secure including the prevention of unauthorized access to, and the unauthorized amendment of, computer records. Data archive security is addressed in Section 16 – "Control of Records" and building security is addressed in Section 21- "Accommodations and Environmental Conditions".

The Laboratory Director controls access to all programs that are used to acquire, process, record or report data. All programs have limited access and capabilities. All programs are password-protected or are protected by electronic ID. Each employee is granted access only to those programs that he or she uses, depending on his/her responsibilities and job description. Each employee is provided with an ID with electronic information unique to that individual. The ID must be read by the card reader before any employee can input bar-coding data. Passwords are unique to the individual, and cannot be shared. A programmer is given access to change the underlying code, but may not access or modify any data entry. A reviewer may review the data input, and may change entries only when a second reviewer concurs with the modification. Analysts input data, and have an opportunity to check data entries before permanently saving them. After the data has been saved,

modifications may be made only with the authorization of the supervisor. Validators may only review data and assign any validation codes necessary to help interpret the data. Once the data have been reviewed, the technical manager authorizes the data for release to the client. The technical manager may not change data, but may alert the applicable supervisor and analyst of any errors.

The laboratory uses spreadsheets to calculate final results from the raw data, per the test methods. Before reporting any results derived from these programs, the laboratory validates the underlying calculations per SOP 80_0047 (Computer Review & Validation).

After the spreadsheet is validated, the calculations are protected from inadvertent manipulations by access limitation, as described above. If any changes are made to the spreadsheet program, the laboratory revalidates the entire system before reporting results.

Data from all electronic media are backed up and backed up copies are stored as described in Section 16, to ensure that data are not lost.

22.5.2 Data Reduction

The analyst calculates final results from raw data, or appropriate computer programs provide the results in a reportable format. The test methods provide required concentration units, calculation formulas and any other information required to obtain final analytical results. As a part of the management system, the laboratory ensures that all manual calculations are checked by another individual (when possible) at a rate of one per project of all calculations. In addition all data transfers (data entry, transcribing raw or calculated data, etc.) will be similarly spot-checked for checked for accuracy. If checked values are found to be incorrect, the laboratory will recheck all entries. In addition, if the errors are attributed to one individual, 100% of the work done by the individual will be checked until the work is error-free.

The laboratory has a manual integration procedure, SOP 110_0016 (Manual Integration Policy & Procedure) that must be followed when integrating peaks during data reduction. This SOP is available to analysts in all departments where manual integration may be necessary.

The laboratory will report numerical data to three significant figures unless required to do otherwise by regulations.

All raw data must be retained electronically and it is maintained as described in Section 16 – "Control of Records".

22.5.3 Data Review Procedures

Data review procedures are located in Section 27.4 – "Data Review".

Section 23

CALIBRATION REQUIREMENTS
(TNI V1:M2 – Section 5.5; TNI V1:M4 - Section 1.7; ISO/IEC 17025/2005(E) - Clause 5.5)

23.1 General Equipment Requirements

The laboratory provides all the necessary equipment required for the correct performance of the scope of environmental testing performed by the laboratory.

All equipment and software used for testing and sampling are capable of achieving the accuracy required for complying with the specifications of the environmental test methods as specified in the laboratory SOPs.

Equipment is operated only by authorized and trained personnel (see Section 20 – "Personnel").

The laboratory has procedures for the use, maintenance, handling, transportation and storage of equipment and they are readily available to laboratory personnel. Manuals provided by the manufacturer of the equipment provide information on use, maintenance, handling and storage of the equipment. The laboratory maintains an inventory of equipment that includes additional information on storage location. Table 23-5 (below) summarizes planned equipment maintenance. These procedures ensure proper functioning of the equipment and prevent contamination or deterioration.

All equipment is calibrated or verified before being placed in use to ensure that laboratory specifications and relevant standard specifications are met, per SOP 110_0018 (Balance Calibration), 110_0005 (Volumetric Ware Calibration) and 110_0010 (Thermometer Calibration). Completed forms and related raw data are kept in the laboratory department electronic files, except for SOP 110_0010 which is maintained in the QA Department files.

Test equipment, including hardware and software, are safeguarded from adjustments that would invalidate the test result measurements by limiting access to the equipment (see Section 21-3 – "Building Security") and using password protection where possible (see Section 22-5 – "Control of Data").

Equipment that has been subject to overloading, mishandling, that has given suspect results, or shown to be defective or outside specifications is taken out of service. The equipment is isolated to prevent its use or clearly labeled as being out of service until it has been shown to function properly. If it is shown that previous tests are affected, then procedures for nonconforming work are followed and results are documented (see Section 12 – "Control of Nonconforming Environmental Testing Work" and Section 14 – "Corrective Action").

Should equipment be needed for a test that is outside of permanent control of the laboratory, the lab ensures the equipment meets the requirements of this manual by inspecting or otherwise testing prior to use.

When using external calibration services, traceability of measurement shall be assured by the use of calibration services from laboratories that can demonstrate competence, measurement capability and traceability. The calibration certificates issued by these laboratories shall contain:

1. The measurement results, including the conditions (e.g. Environmental) under which the calibrations were made that have an influence on the measurement results;

2. The measurement uncertainty and/or a statement of compliance with an identified metrological specification (when a statement of compliance with a specification is made omitting the measurement results and associated uncertainties, the laboratory shall record those results and maintain them for possible future reference);

3. When an instrument for calibration has been adjusted or repaired, the calibration results before and after adjustment or repair, if available, shall be reported;

4. A calibration certificate (or calibration label) shall not contain any recommendation on the calibration interval except where this has been agreed with the customer;

5. The calibration certificate shall relate only to quantities and the results of functional tests. If a statement of compliance with a specification is made, this shall identify which clauses of the specification are met or not met; this requirement may be superseded by legal regulations;

6. When opinions and interpretations are included, the laboratory shall document the basis upon which the opinions and interpretations have been made. Opinions and interpretations shall be clearly marked as such in a test report;

7. When a calibration has been subcontracted, the laboratory performing the work shall issue the calibration certificate to the contracting laboratory.

Each item of equipment and software used for testing and significant to the results is uniquely identified. Records of equipment and software are maintained in the ESS Inventory (a limited access computer database), equipment validation records, and maintenance records as well as various testing SOPs. This information includes the following:

a) identity of the equipment and its software;

b) manufacturer's name, type identification, serial number or other unique identifier;

c) checks that equipment complies with specifications of applicable tests;

d) current location;

e) methods performed on the specific instrument;

f) manufacturer's instructions, if available, or a reference to their location;

g) dates, results and copies of reports and certificates of all calibrations, adjustments, acceptance criteria, and the due date of next calibration;

h) maintenance plan where appropriate, and maintenance carried out to date; documentation on all routine and non-routine maintenance activities and reference material verifications;

i) any damage, malfunction, modification or repair to the equipment;

j) date received and placed into service

k) condition when received (new, used, reconditioned)

l) operational status

23.2 Support Equipment

Support Equipment includes, but is not limited to: balances, weights, ovens, refrigerators, freezers, incubators, water baths, temperature measuring devices, volumetric/non-volumetric dispensing devices, water purification system, radiation monitors and thermal/pressure sample preparation devices.

All support equipment is maintained in proper working order. Electronic or hard copy records are kept for all repair and maintenance activities, including service calls, per SOP 40_0040 (Logbook Use and Control).

All raw data records are retained to document equipment performance. These records include logbooks, data sheets, or equipment computer files.

Regular maintenance of support equipment, such as balances and fume hoods is conducted at least annually. Fume hood air flow is checked at least monthly.

Maintenance on other support equipment, such as ovens, refrigerators, and thermometers is conducted on an "as needed" basis.

Records of maintenance to support equipment are documented in Instrument Maintenance Logs. Each piece of support equipment does not necessarily have its *own* logbook but is documented. Maintenance logbooks may be shared with equipment that is housed in the same laboratory area. See also Tables 23-2 below.

Table 23-2 Summary of Support Equipment Calibration And Maintenance

Instrument	Activity	Frequency	Documentation
Balance	1. Clean (check before use) 2. Check alignment 3. Service Contract	1. After use 2. Before use 3. Annually	Worksheet/log book Post annual service date on balance
ASTM Class 1 Weights	1. Only use for the intended purpose 2. Use plastic forceps to handle 3. Keep in case	Re-calibrate every 5 years	Certificate of Calibration from ISO/IEC 17025 accredited calibration laboratory

Table 23-2 Summary of Support Equipment Calibration And Maintenance			
Instrument	**Activity**	**Frequency**	**Documentation**
	4. Re-calibrate		
NIST Traceable Thermometer	Accuracy determined by established calibration laboratory using NIST traceable equipment and procedures	At purchase and then annually	Certificate of Calibration
Thermometers: 1. Glass and electronic 2. Dial thermometers 3. IR thermometer	Check at the temperature used, against a reference NIST certified thermometer	1. Annually for glass 2. Quarterly for electronic and IR thermometers	ID, Calibration factor and date of calibration on worksheet/log book Thermometer stickered with initials/ date of calibration
pH electrometers	Calibration: 1. pH buffer aliquots are used only once 2. Buffers used for calibration will bracket the pH of the media, reagent, or sample tested	Before use	Log book
pH probe	Maintenance: Per manufacturer's recommendations	As needed	Log book
Photometer	1. Keep cells clean 2. Service contract, Check wavelength settings with color standards	Annually	Certificate of Calibration Post service date on instrument
Automatic or digital type pipettes	Calibrate for accuracy and precision per SOP 110_0005	Weekly (or daily, if convenient)	Log book
Refrigerators, Freezers, and BOD incubator.	1. Thermometers are immersed in liquid. 2. The thermometers are graduated in increments of 1°C or less	Temperatures are recorded twice each day in use Digital Min/Max temp record for weekend/holidays	Worksheet/log book Refrigerators: 0°C to 6°C Freezers: ≤-10°C
DO electrometer	Calibrate as specified in SOP	Before use	Log book
DO probe	Maintenance as specified by manufacturer	As needed	Log book
Conductivity Meter	Maintenance as specified by manufacturer	When more than 5% drift	Log book

The water purification system and radiation monitoring devices are checked daily prior to use, per SOPs 110_0003 (Water System Testing) and 10_0010 (Radiation Monitor Operation).

23.2.2 Support Equipment Calibration

All support equipment (except for weights) is calibrated or verified at least annually over the entire range of use using NIST traceable references where available. The results obtained from the calibration of support equipment needs to meet requirements found in Tables 23-3, or (1) the equipment is removed from service until repaired, or (2) records are maintained of correction factors to correct all measurements. If correction factors are used this information is clearly marked on or near the equipment.

Support equipment such as balances, ovens, refrigerators, freezers, and water baths are verified with a NIST traceable reference, if available, each day prior to use, to ensure operation is within the expected range for the application for which the equipment is to be used.

Volumetric dispensing devices are checked for accuracy per SOP 110_0005 (Volumetric Ware Calibration) to meet TNI & ISO 17025 Standards criteria. See also Table 23-3 below.

Table 23-3 Calibration Verification Acceptance Criteria for Support Equipment				
Equipment	**Type of Calibration/ Number of Standards**	**Frequency**	**Acceptance Limits**	**Corrective Action**
Balances	Accuracy determined using A2LA-accredited NIST weights, which are verified every 5 years. Minimum of 2 weights bracketing the range of interest. Inspected and adjusted annually by a qualified service person.	Daily accuracy verification, prior to use Annual service	± 0.2% (TNI) Top-loading balance: ±2% or ±0.02g, whichever is greater Analytical balance: ±0.1% or ±0.5 mg, whichever is greater.	Clean, check level, insure lack of drafts, and that unit is warmed up, recheck. If fails, call service
Thermometer	Against NIST-traceable thermometer [Using a thermometer traceable to the SI through an NMI] [Performed at two temperatures that bracket the target temperatures when the spread exceeds 10°. Assume linearity between the two bracketing temperatures] [If only a single temperature is used, perform at the temperature of use]	Liquid in glass: Before first use and annually	± 1.2°C	Apply correction factors or replace thermometer
Minimum-Maximum Thermometers	Against NIST-traceable thermometer [if only a single temperature is used, at the temperature of use]	Electronic: Before first use and quarterly	± 2.0°C	Apply correction factors or replace thermometer
Infrared Temperature Guns	Against NIST-traceable thermometer [if only a single temperature is used, at the temperature of use]	Quarterly at appropriate temperature range for intended use	± 1.5°C	Repair/replace

Table 23-3 Calibration Verification Acceptance Criteria for Support Equipment				
Equipment	**Type of Calibration/ Number of Standards**	**Frequency**	**Acceptance Limits**	**Corrective Action**
Volumetric Dispensing Devices (Eppendorf ® pipette, automatic dilutor or dispensing devices)	One delivery by weight. Using DI water, dispense into tared vessel. Record weight with device ID number.	Weekly (or daily, if needed for convenience)	± 1% Per SOP 110_0005	Adjust/ Replace
Volumetric labware	Per SOP 110_0005	Class B: By lot before first use. Class A and B: Upon evidence of deterioration	Bias: Mean within ± 2% of nominal volume Precision: RSD ≤1% of nominal volume (based on 10 replicate measurements)	Replace
Non-volumetric labware [Applicable only when used for measuring initial sample volume and final extract/ digestates volume]	Per SOP 110_0005	By lot before first use or upon evidence of deterioration	Bias: Mean within ±3% of nominal volume Precision: RSD ≤3% of nominal volume (based on 10 replicate measurements)	Replace
Glass microliter syringe	Per SOP 110_0005	Upon receipt and upon evidence of deterioration	General Certificate of Bias & Precision upon receipt	Replace if deterioration is evident
Drying oven temperature check		Daily prior to and after use	Within ±5% of set temperature	Adjust

23.3 Analytical Equipment

23.3.1 Maintenance for Analytical Equipment

All equipment is properly maintained, inspected, and cleaned.

Maintenance of analytical instruments and other equipment may include regularly scheduled preventive maintenance or maintenance on an as-needed basis. See

Table 23-5 below. Instrument malfunction is documented in Maintenance logs, which become part of the laboratory's permanent records. A description of what was done to repair the malfunction and proof of return to control are also documented in the log. If repair was done by an outside source, invoice record is filed and reference to it made in the maintenance log; indicate proof of return to control by recording that a QC sample met criteria. Instruments and related maintenance procedures (which may be routine) are documented per the test SOPs.

Table 23-5 Analytical Equipment Maintenance

Instrument	Procedure	Frequency
AA (Graphite Furnace)	Clean lens and furnace head Replace windows Clean atomizer cell/furnace hood Nebulizer cleaned/dried Clean filters Change graphite tube/platform Empty waste container Check sample introduction probe	Daily As required Daily Weekly or as required Weekly As required Daily Daily
Mercury Analyzer	Check tubing for wear Fill rinse tank with 3% HCl Fill reductant bottle with Stannous Chloride	Daily Daily Daily
ICP	Check pump tubing Check liquid argon supply Check fluid level in waste container Check filters Clean or replace filters Check torch Check sample spray chamber for debris Clean and align nebulizer Replace pump tubing	Daily Daily Daily Weekly As required Daily As required As required Daily
ICPMS1	Replace tubing TUNE Clean cones	Daily Daily As required
ICPMS2	Replace tubing Check torch alignment TUNE Clean cones	Daily Daily Daily As required
UV-Vis Spectrophotometer	Clean ambient flow cell Precision check/alignment of flow cell Wavelength verification check	As required As required Annually (daily auto-check)
Auto Analyzers	Clean sampler Check all tubing Oil rollers/chains/side rails Clean optics and cells	As required As required As required As required

Table 23-5 Analytical Equipment Maintenance		
Instrument	**Procedure**	**Frequency**
Hewlett Packard GC/MS	Pump oil-level check Pump oil changing Analyzer bake-out Analyzer cleaning Resolution adjustment	Monthly Annually or as required As required As required As required
Gas Chromatograph	Compare standard response to previous day or since last initial calibration Check carrier gas flow rate in column Check temp. of detector, inlet, column oven Septum replacement Glass wool replacement Check system for gas leaks with SNOOP Check for loose/fray wires and insulation Bake injector/column Change/remove sections of guard column Replace connectors/liners Change/replace column(s)	Daily Daily via use of known compound retention Daily As required As required Each cylinder change as req'd Monthly As required As required As required As required
Electron Capture Detector (ECD)	Detector wipe test (Ni-63) Detector cleaning	Semi-annually As required
Flame Ionization Detector (FID)	Detector cleaning	As required
Hall 700A Detector Hall 1000 Detector	Electrolyte change Reactor tube/teflon connecting tube change Clean detector cell	As required by noise As required As required
Photoionization Detector (PID)	Change O-rings Clean lamp window	As required As required
HPLC	Change guard columns Change lamps Change pump seals Replace tubing Change fuses in power supply Filter all samples and eluents (auto-filtered) Change autosampler rotor/stator	As required As required As required As required As required Daily As required
Computers/Printers	Keyboard cleaning (air) Printer nozzle/head cleaning Platen cleaning	As required As required As required
Balances	Class "1" or "3" traceable weight check Clean pan and check if level External service	Daily, when used Daily Annually
Conductivity Meter	0.01 M KCl calibration Conductivity cell cleaning	As required As required
Turbidimeter	Check light bulb	Daily, when used

Table 23-5 Analytical Equipment Maintenance		
Instrument	**Procedure**	**Frequency**
	Service by qualified technician	Annual
Deionized/Distilled Water	Check conductivity System cleaning Replace cartridge & large mixed bed resins	Daily As required As required
Drying Ovens	Temperature monitoring Temperature adjustments	Daily As required
Refrigerator/Freezer	Temperature monitoring Temperature adjustment Defrosting/cleaning	Daily As required As required
Vacuum Pumps/ Air Compressor	Drained Belts checked Lubricated	Weekly Monthly Semi-annually
pH/Specific Ion Meter	Calibration/check slope Clean electrode	Daily As required
BOD Incubator	Temperature monitoring	Daily
Centrifuge	Check brushes and bearings	Every 6 months or as needed
Water Baths	Temperature monitoring Water replaced	Daily when used As needed
Other	Per SOP	Per SOP

23.3.2 Instrument Calibration

Information on instrument calibration can be found in Appendix F (Chemistry)

Initial instrument calibration and continuing instrument calibration verification are an important part of ensuring data of known and documented quality. If more stringent calibration requirements are included in a mandated method or by regulation, those calibration requirements override any requirements outlined here or in laboratory SOPs (although SOPs should reflect method stipulations). Generally, procedures and criteria regarding instrument calibrations are provided in test methods.

Section 24

MEASUREMENT TRACEABILITY
(TNI V1:M2 – Section 5.6; ISO/IEC 17025/2005(E) - Clause 5.6)

Measurement quality assurance comes in part from traceability of standards to certified materials.

All equipment used affecting the quality of test results is calibrated prior to being put into service and on a continuing basis. These calibrations are traceable to national standards of measurement where available. When using external calibration services, traceability of measurement shall be assured by the use of calibration services from organizations that can demonstrate competence, measurement capability and traceability to the International System of Units (see Section 23 – "Calibration Requirements").

If traceability of measurements to SI units is not possible or not relevant, evidence for correlation of results through interlaboratory comparisons, proficiency testing, or independent analysis is provided.

24.1 Reference Standards

Reference standards are standards of the highest quality available at a given location, from which measurements are derived. Reference standards shall be calibrated before and after any adjustment.

The laboratory uses ASTM Class 1 or 3 weights for daily checks and the lab sends out their ASTM Class 1 weights for a calibration check every five years. It has been established historically (no change between indicated periodic calibrations) that their performance as reference standards has not been invalidated by daily use.

Reference standards, such as ASTM Class 1 or 3 weights, are calibrated by an entity that can provide traceability to national or international standards. The following reference standards are sent out to be calibrated to a national standard as indicated in Section 23 – "Calibration Requirements"

- Class 1 weights
- Class 3 weights
- NIST traceable reference thermometers

24.2 Reference Materials

Reference materials are substances that have concentrations that are sufficiently well established to be used for calibration or as a frame of reference.

Reference materials, where commercially available, are traceable to SI/ national standards of measurement, or to Certified Reference Materials, usually by a Certificate of Analysis.

Purchased reference materials require a Certificate of Analysis meeting ISO Guide 34 requirements, where available. If a reference material cannot be purchased with a valid Certificate of Analysis, it is verified by analysis and comparison to a certified reference material and/or demonstration of capability for characterization. Records for standards, reagents, and reference materials shall include lot numbers. Documentation for reagents and solvents shall be checked to ensure that the stated purity will meet the intended use, and the supporting records of the checks shall be filed electronically.

Internal reference materials, such as working standards or intermediate stock solutions, are checked as far as is technically and economically practical, in accordance with SOPs 20_0001 (Standards Tracking – VOA Dept.), 30_0003 (Standards Tracking – Metals Dept.), 40_0039 (Reagent & Standards Tracking – Wet Chem. Dept.), 50_0006 (Reagent & Standards Tracking – Org. Prep. Dept.), 60_0001 (Reagent & Standards Tracking – SVOA Dept.), 80_0013 (Reagent Review and Tracking) and 110_0003 (Deionized Water System Testing)

Additional working standards such as internal thermometers, etc. are checked using the frequency summarized in Table 23-3 in Section 23 – "Calibration Requirements" or in the test SOPs.

24.3 Transport and Storage of Reference Standards and Materials

The laboratory handles and transports reference standards and materials in a manner that protects the integrity of the materials. Reference standard and material integrity is protected by separation from incompatible materials and/or minimizing exposure to degrading environments or materials.

Reference standards and materials are stored according to manufacturer's recommendations, method SOP requirements and separately from samples, extracts and digestates, per SOPs listed above.

24.4 Labeling of Reference Standards, Reagents, and Reference Materials

The laboratory has procedures for purchase, receipt and storage of standards, reagents and reference materials. Purchase procedures are described in Section 9 – "Purchasing Services and Supplies".

Reagent quality is verified per SOPs listed above. The quality of water sources is monitored and documented per SOP 110_0003 and shall meet method specified requirements.

24.4.1 Stock Standards, Reagents, Reference Materials and Media

Records for all standards, reagents, reference materials, and media include:

- the manufacturer/vendor name (or traceability to purchased stocks or neat compounds)

- the manufacturer's Certificate of Analysis or purity (if supplied)
- the date of receipt
- recommended storage conditions

If the original container does not have an expiration date provided by the manufacturer or vendor it is not required to be labeled with an expiration date. If an expiration date is provided, it must be labeled with the expiration date.

In methods where the purity of reagents is not specified, analytical reagent grade is used. If the purity is specified, that is the minimum acceptable grade. Purity is verified and documented according to Section 9 – "Purchasing Services and Supplies".

24.4.2 Prepared Standards, Reagents, Reference Materials and Media

Records for standards, reagents, reference materials, and media preparation include:

- traceability to purchased stock or neat compounds
- reference to the method of preparation
- date of preparation
- an expiration date after which the material shall not be used
- preparer's initials (if prepared)

Refer to SOPs listed above.

All containers of prepared standards, reagents, or materials are labeled with a unique ID and an expiration date per SOPs listed above. The expiration date of the prepared standard shall not exceed the expiration date of the primary standard.

Prepared reagents are verified to meet the requirements of the test method per SOPs listed above. Verification can usually be achieved through the use of laboratory control standards.

Section 25

COLLECTION OF SAMPLES
(TNI V1:M2 – Section 5.7; ISO/IEC 17025/2005(E) - Clause 5.7)

When ESS Laboratory is not required to provide sampling services, the laboratory's responsibility in the sample collection process lies in supplying the sampler with the necessary coolers, reagent water, sample containers, preservatives, sample labels, custody seals, COC forms and packing materials required to properly preserve, pack, and ship samples to the laboratory.

When ESS Laboratory provides sampling and courier services, these procedures are described in the following SOPs:

10_0006	PCB Wipe Field Sampling Procedure
10_0007	Industrial Wastewater Sampling
10_0011	ISCO Maintenance
10_0012	Field Soil Sampling
10_0013	Groundwater Well Sampling
10_0016	Field pH Testing
10_0017	Sample Courier Service
10_0021	Drinking Water Sample Collection
10_0022	General Field Wipe Sampling Procedure

These SOPs include procedures for recording relevant data and operations relating to sampling that form part of the testing that is undertaken. These records include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant) and diagrams or other equivalent means to identify the sampling location as necessary and, if appropriate, the statistics upon which the sampling procedures are based. These SOPs are available for use by the sampler at the location where sampling is undertaken.

Where the customer requires deviations, additions or exclusions from the documented sampling procedure, these shall be recorded in detail with the appropriate sampling data and shall be included in all documents containing test results, and shall be communicated to the appropriate personnel.

25.1 Sampling Containers

The laboratory offers clean sampling containers for use by clients. These containers, which may or may not contain preservative, are frequently purchased as such. Lots of pre-cleaned containers are only obtained from vendors who can supply certificates of compliance to USEPA OSWER directive #9240.0-05A (Specs/Guidance for Contaminant-free Sample Containers). In the event that ESS has to purchase containers without certificates of compliance, these containers are lot-checked for contamination and the check results are tracked per SOP 80_0013 (Supplies Tracking).

25.1.1 Preparing Container Orders

Containers (containing any required preservatives) are provided to the client upon request per SOP 10_0017 (Courier Service). Bottle orders are made by telephone, e-mail or via the ESS Lab website; in all cases a bottle order request form is completed per SOP 10_0017.

25.1.2 Sampling Containers, Preservation Requirements, Holding Times

Sampling container, preservation and holding time requirements can be found in SOP 10_0001, Attachment A, which is also available to clients on the ESS website as a pdf document.

If preservation or holding time requirements are not met, the procedures in Section 12 – "Control of Nonconforming Environmental Testing Work" are followed.

25.2 Sampling Plan

The laboratory uses sampling plans provided by clients or prepared in consultation with the client. The plan must include any factors that must be controlled to ensure the validity of the test. Sampling plans and written sampling procedures are used for sampling substances, materials or products for testing. The plan and procedures are made available at the sampling location.

The laboratory's procedures for dealing with nonconformances are used when the client requests any deviations from the sampling plan or sampling procedures. The requests are documented and included in the final test report.

25.3 Sampling Records

The following relevant sampling data are recorded: sampling procedure used, the date and time of sampling, the identification of the sampler, environmental conditions (if relevant), the sampling location, and any other pertinent information which may be necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the customer.

Section 26

HANDLING SAMPLES AND TEST ITEMS
(TNI V1:M2 – Section 5.8 and Section 1.7 of Technical Modules TNI V1:M4; ISO/IEC 17025/2005(E)-Clause 5.8)

26.1 Sample Receipt

When samples are received at the laboratory, chain-of-custody is reviewed, condition is documented, samples (and bottles/vials) are given unique identifiers, and they are logged into the sample tracking system, in accordance with SOPs 10_0001 (Sample Receiving), 70_0006 (Bar Coding) and 70_0008 (Sample Login).

26.1.1 Chain of Custody

The chain of custody or sample submission sheets from the field are reviewed. This documentation is completed in the field and provides a written record of the handling of the samples from the time of collection until they are received at the laboratory. Section 25 – "Collection of Samples" outlines what information is needed on this record. The chain of custody form also provides information on what type of testing is being requested and can act as an order for laboratory services in the absence of a formal contract. A typical chain of custody form can be found in Figure 26-1 below and in SOP 10_0001. Chain of custody and any additional records (which may include special instructions, reporting limit requirements etc.) received at the time of sample submission are maintained by the laboratory. These are scanned by the sample receiver, filed as PDFs in an appropriate network directory and are available for use by analysts should testing need to begin before work has been formally logged into the LIMS. These scanned chains are also available for use in subcontracted record keeping.

26.1.1.1 Legal Chain of Custody

The laboratory has procedures (see above) for legal chain of custody services. If samples are noted as being used for legal/evidentiary purposes, the chain of custody followed by the laboratory ensures that pertinent regulatory requirements are met.

The legal COC protocol records shall establish an intact, continuous record of the physical possession, storage and disposal of used sample containers, collected samples, sample aliquots, and sample extracts or digestates, collectively referred to below as "samples". The COC records shall account for all time periods associated with the samples. For ease of discussion, the above-mentioned items shall be referred to as samples:

a) A sample is in someone's custody if:

   i) It is in one's actual physical possession;
   ii) It is in one's view, after being in one's physical possession;

iii) It has been in one's physical possession and then locked or sealed so that no one can tamper with it; and/or
iv) It is kept in a secure area, restricted to authorized personnel only.

b) The COC records shall identify all individuals who physically handled individual samples. Proof of custody is accomplished via the laboratory's bar-coding and LIMS.

c) Should it become necessary to subcontract any testing to an off-site facility (refer to Section 8), custody must continue to be maintained.

d) Normal practice is for a laboratory courier to deliver sampling containers in accordance with SOP 10_0017 (Sample Courier Service).

26.2 Sample Acceptance

Procedures for opening shipping containers and examining samples are provided in SOP 10_0001 (Sample Receiving).

When samples are received outside of normal business hours, the second shift sample receiver takes care of all samples that still need to be received; bar coding samples, scanning the COCs as PDFs, logging COCs into the LIMS (except where projects need to be set up) and placing the bar coded samples onto carts (in order) to be 2nd level reviewed by the end of the second shift. If necessary, the carts with non-volatile samples are stored in a "Walk-in" refrigerator and samples for volatiles analysis are stored in their appropriate fridges/freezers.

The laboratory has a sample acceptance policy that is followed by sample collection personnel and is posted in the sample receiving area and on the company website. It emphasizes the need for use of water-resistant ink, providing proper documentation (to include sample ID, location, date and time of collection, collector's name, preservation type, sample type and any special remarks about the sample), labeling of sample containers to include a unique sample ID, use of appropriate containers, adherence to holding times, and sample volume requirements. ESS has strict policies in effect that limit the acceptance of hazardous chemical samples without an accompanying Safety Data Sheet (SDS). No radioactive samples are accepted. In addition the laboratory has nonconformance/corrective action procedures to handle samples that don't meet the requirements above or show signs of damage, contamination or inadequate preservation. Data will be appropriately narrated where samples are reported that do not meet sample acceptance requirements.

The laboratory checks samples for the conditions above per SOP 10_0001, where appropriate, to evaluate sample acceptance. Criteria regarding preservation, holding time and sample volume requirements can be found in SOP 10_0001, Attachment A. If these conditions are not met, the client is contacted by the project manager prior to any further processing, then 1) the sample is rejected as agreed with the client, 2) the decision to proceed is documented and agreed upon

with the client, 3) the condition is noted on the Chain of Custody form and/or lab receipt documents, and 4) the data are qualified in the report.

26.2.1 Preservation Checks

The following preservation checks are performed and documented upon receipt:

26.2.1.1 *Thermal preservation:*

a) For temperature preservation of samples at 4°C, the acceptable range is from just above freezing to ≤6°C. Samples which need to be kept frozen are stored at ≤-10°C.

b) Samples that are delivered to the lab the same day as they are collected are likely not to have reached a fully chilled temperature. This is acceptable if the samples are received on ice and the chilling process has begun.

c) Record on the receipt form if ice is present and the temperature.

26.2.1.2 *Chlorine checks:*

d) Laboratories that receive samples from potable water supplies (including source water) that have a demonstrated history of acceptable preservation may check a sample from each client at a frequency of once per month if:

i) the laboratory can show that the received sample containers are from their laboratory;

ii) sufficient sodium thiosulfate was in each container before sample collection to neutralize at minimum 5 mg/l of chlorine for drinking water and 15 mg/l of chlorine for wastewater samples;

iii) one container from each batch of laboratory prepared containers or lot of purchased ready-to-use containers is checked to ensure efficacy of the sodium thiosulfate to 5 mg/l chlorine or 15 mg/l chlorine as appropriate and the check is documented;

iv) chlorine residual is checked in the field and actual concentration is documented with sample submission.

26.2.1.3 *Chemical Preservation:*

e) Chemical preservation should be checked at the time of sample receipt unless it is not technically acceptable to do so (e.g., VOC analyses; samples received after hours when sample receiver might be working alone) and this requirement will normally be followed. When other programs (e.g. TNI, MCP, RCP) permit, then procedures for checking sample preservation using readily available techniques (such as pH or chlorine) at the time of sample preparation or analysis, shall be implemented. Chemical preservation of samples for volatile organic compound analysis may be checked after

analysis. The sample receiving procedure is detailed in SOP 10_0001.

If any of the following conditions exist, chemical preservation must be rechecked in the laboratory:

i) Continued preservation of the sample is in question (e.g., the sample may not be compatible with the preservation); or

ii) Deterioration of the preservation is suspected.

26.2.2 Rush/Short Hold Time Samples

The laboratory ensures that the appropriate laboratory personnel are notified when samples are received with a quick turn-around time request, short hold times, or a short amount of hold time is remaining, per SOPs 10_0001 and 10_0002.

26.2.3 Radioactive Samples

The laboratory does not accept radioactive samples. The laboratory routinely tests samples for radioactivity per SOP 10_0001. Samples found to be radioactive samples will be isolated and arrangements made to return them to sender.

26.2.4 Non-routine Samples

Samples that require non-routine or additional sample preparation steps are accepted by pre-arrangement with the client.

26.2.5 On-Hold Samples

Samples may be stored in the Sample Receiving area refrigerator, pending client's instructions on when and how to proceed with testing.

26.3 Sample Identification

Samples, including subsamples, extracts and digestates, are uniquely identified in a permanent chronological record in the LIMS, per the aforementioned SOPs, to prevent mix-up and to document receipt of all sample containers.

Samples are assigned sequential numbers that reference more detailed information kept in the Project Number Login, per SOP 10_0001.

The following information is included in this log:

- Client or project name
- Container type
- Unique laboratory identification number
- Signature or initials of person making the entries
- Subcontracting information
- Turn Around Time

In addition, the following information is maintained and linked to the log-in record:

- Date and time of sampling linked to the date and time of laboratory receipt.
- Unique field identification number linked to the laboratory sample ID.
- Analyses requested (including applicable approved method numbers) linked to the laboratory sample ID, per COC.
- Cooler receipt information.
- Comments regarding rejection (if any).

All documentation received regarding the sample, such as memos or chain of custody, are scanned into an electronic project folder for permanent retention.

26.4 Sample Aliquots / Subsampling

In order for analysis results to be representative of the sample collected in the field, the laboratory has subsampling procedures. See SOP 10_0001 Attachment G.

26.5 Sample Storage

Storage conditions are monitored for any required criteria, verified, and the verification recorded in logbooks.

Samples that require thermal preservation are stored under refrigeration that is ±2°C of the specified preservation temperature unless regulatory or method specific criteria require something different. For samples with a specified storage temperature of 4°C, storage at a temperature above the freezing point of water to ≤6°C is acceptable.

Samples are held secure, as required. Samples are accessible only to laboratory personnel.

Samples are stored apart from standards, reagents, food or potentially contaminating sources and such, so that cross-contamination is minimized/eliminated. All portions of samples, including extracts, digestates, leachates, or any product of the sample is maintained according to the required conditions.

Samples with potentially high levels of volatile organics, cyanide or restricted (foreign) soil are stored in refrigerators/freezers designated for these purposes.

Refrigerator blanks are stored with samples in volatile sample refrigerators, and are analyzed weekly to check for possible cross-contamination.

26.6 Sample Disposal

Samples are retained a minimum of 30 days after completion of testing unless other arrangements have been made with the client; samples are then disposed of appropriately or returned to client (if requested).

Samples are disposed of according to Federal, State and local regulations. Procedures are described in SOP 10_0002 (Sample Storage) and 90_0002 (Hazardous Waste Contingency), for the disposal of samples, digestates, leachates, and extracts.

26.7 Sample Transport

Samples that are transported under the responsibility of the laboratory, where necessary, are done so safely and according to storage conditions. This includes moving bottles within the laboratory. Specific safety operations are addressed outside of this document.

Sample shipping procedures are described in SOP 10_0017 (Courier Service).

Figure 26-1 Example Chain of Custody

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #

Turn Time 5-Day **Rush**

Regulatory State

Is this project for any of the following?:
◯CT RCP ◯MA MCP ◯RGP

Reporting Limits

Electonic Deliverables ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →)

Company Name	**Project #**	**Project Name**	
Contact Person	**Address**		
City	**State**	**Zip Code**	**PO #**
Telephone Number	**FAX Number**	**Email Address**	

Analysis

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Number of Containers per Sample:

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: °C

Sampled by :

Comments: **Please specify "Other" preservative and containers types in this space**

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

Figure 26-2 Sample Acceptance Policy

ESS Laboratory Sample Acceptance Policy

The following criteria are used by ESS Laboratory to define its sample acceptance policy for regulatory samples:

ESS Laboratory is an environmental analytical laboratory and as such is prepared to handle environmental samples. These include soils, sediments, ground waters, surface waters, and drinking waters. All other samples require notification prior to sending to the laboratory. ESS Laboratory will make provisions to accept caulk, oil, tissue, concrete and other types of matrices. ESS Laboratory will not receive radioactive samples, untreated sewage, samples containing body fluids, or acutely hazardous materials. If client is sending any type of chemical, it must be accompanied by a material safety data sheet.

Samples should be received in coolers on ice and clearly labeled. Tissue samples must be shipped and stored frozen at less than -10°C.

Samples must be received with paperwork (Chain of Custody – available in .pdf or .xls formats) detailing name of sample, date collected, time collected, number of bottles, and analyses required. Chain of Custody (COC) should also include client contact information and any special handling requirements. All samples must be relinquished to the laboratory and received by the laboratory and this information must be documented clearly and legibly on the COC in indelible ink.

Samples should be taken in appropriate containers with appropriate preservation. Refer to the ESS Guide to Sample Handling and Preparation table. Bottles will be furnished upon request.

Upon arrival at the laboratory, ESS will take the temperature of the cooler and record it on the COC and the cooler receipt form. The sample receiver will ensure that the samples are not radioactive and are in good condition (no leaks, air bubbles, broken caps, etc). Samples will be lined up and compared to chain of custody. The COC is signed, formally indicating receipt.

Samples will be assigned a unique barcode ID. A cooler receipt form will be generated and reviewed by the Customer Services Department. All deviations such as temperature, inadequate preservation, insufficient volumes and hold time issues will be recorded. The client will be notified and required to address all deviations before work is initiated on the samples. If the laboratory is required to preserve unpreserved samples, a notation will be made on the cooler receipt form. If the preservation is outside of regulations, the report will contain a statement recording this issue. All deviations outside of regulatory controls will be qualified in the report narrative.

Section 27

QUALITY ASSURANCE FOR ENVIRONMENTAL TESTING *(TNI V1:M1, V1:M2 - Section 5.9, V1:M4 - Section 1.7; ISO/IEC 17025/ 2005(E)-Clause 5.9)*

ESS Laboratory has procedures for monitoring the validity of the testing it performs. The qualities of test results are recorded in such a way that trends are detectable, and where practicable, are statistically evaluated. To evaluate the quality of test results, the laboratory uses certified reference materials, control charting, replicate or confirmational analyses, retesting of retained sample(s) (which may be at a dilution) and correlation of results for different characteristics of a sample.

In addition to procedures for calibration (Section 23 & Appendix F), the laboratory monitors quality control measurements such as blanks, laboratory control samples or blank spikes (LCS/BS), matrix spikes (MS), duplicates, surrogates and internal standards to assess precision and accuracy. Proficiency Testing samples are also analyzed to assess laboratory performance.

Quality control data are analyzed and, when found to be outside pre-defined criteria, action is taken to correct the problem and to prevent incorrect results from being reported. Data associated with quality control data outside of criteria and still deemed reportable will be qualified so the end user of the data may make a determination of the usability of the data - see Section 28 – "Reporting of Results".

27.1 Essential Quality Control Procedures

The quality control procedures specified in test methods are followed by laboratory personnel. The most stringent of control procedures is used in cases where multiple controls are offered. If it is not clear which are the most stringent, those mandated by test method or regulation are followed.

Acceptance criteria are commonly defined in the QC sections of the test method SOPs. For test methods that do not provide acceptance criteria for an essential quality control element or where no regulatory criteria exist, acceptance criteria are developed per SOP 110_0014 (Control Charts). In some instances, the client may set criteria. In any event, acceptance criteria are entered in the Element LIMS under the pertinent test code.

Written procedures to monitor routine quality controls including acceptance criteria are located in the test method SOPs, except where noted, and include such procedures as:

- Use of laboratory control samples and blanks to serve as positive and negative controls for chemistry methods.
- Use of laboratory control samples to monitor test variability of laboratory results;

- Use of calibrations, continuing calibrations, certified reference materials and/or PT samples to monitor accuracy of the test method;
- Measures to monitor test method capability, such as limit of detection, limit of quantitation, and/or range of test applicability, such as linearity;
- Use of regression analysis, internal/external standards, or statistical analysis to reduce raw data to final results;
- Use of reagents and standards of appropriate quality and use of second source materials as appropriate;
- Procedures to ensure the selectivity of the test method for its intended use; &
- Measures to assure constant and consistent test conditions, such as temperature, humidity, rotation speed, etc., when required by test method.

27.2 Internal Quality Control Practices

Analytical data generated with QC samples that fall within all prescribed acceptance limits indicate the test method is deemed to be in control.

QC samples that fall outside QC limits indicate the test method are deemed to be out of control (nonconforming) and that corrective action is required and/or that the data are qualified (see Section 12 – "Control of Nonconforming Environmental Testing Work" and Section 14 - "Corrective Actions").

Detailed QC procedures and QC limits are included in test method standard operating procedures (SOPs), or where unspecified in the SOPs, are detailed in e-mail directives pending formal addition to SOPs.

All QC measures are assessed and evaluated on an on-going basis, so that trends are detected and prompt corrective action may be scheduled, if needed.

27.2.1 General Controls

The following general controls are used:

27.2.1.1 Positive and Negative Controls such as:

a) Blanks (negative)
b) Laboratory control sample (positive)

27.2.1.2 Selectivity is assured through:

a) Absolute and relative retention times in chromatographic analyses (referenced in sops);
b) GC/MS (full scan or SIM) or two-column (dissimilar stationary phases) confirmation if composition of samples is not well characterized, as is the case when using non-specific detectors;

c) Use of acceptance criteria for mass-spectral tuning (found in test method SOPs); and

d) Use of the correct method according to its scope, assessed during method validation.

27.2.1.3 Consistency, Variability, Repeatability, and Accuracy are assured through:

a) Proper installation and operation of instruments according to manufacturer's recommendations or according to the processes used during method validation;

b) Monitoring and controlling environmental conditions (temperature, access, proximity to potential contaminants);

c) Selection and use of reagents and standards of appropriate quality (referenced in SOPs); and

d) Cleaning glassware appropriate to the level required by the analysis as demonstrated with method blanks, per glassware cleaning SOPs 30_0001 (metals) and 50_0001 (organic prep).

e) following sops and documenting any deviation, assessing for impact, and treating data appropriately;

f) Testing to define the variability and/or repeatability of the laboratory results, such as via replicates;

g) Use of measures to assure the accuracy of the test method, including calibration and/or continuing calibrations (detailed in Appendix F), use of certified reference materials, proficiency test samples, or other measures.

27.2.1.4 Test Method Capability (also see Section 22 – "Environmental Methods and Method Validation") is assured through:

a) Establishment of the limit of detection, where appropriate;

b) Establishment of the limit of quantitation or reporting level; and/or

c) Establishment of the range of applicability such as linearity.

27.2.1.5 Data reduction is assured to be accurate by:

a) Selection of appropriate formulae to reduce raw data to final results such as regression;

b) Following specific procedures for data reduction such as manual integration procedures; and

c) Periodic review of data reduction processes to assure applicability;

27.2.1.6 Sample Specific controls are used to evaluate the effect of sample matrix on the performance of the selected analytical method (not a measure of laboratory performance):

Examples:

- Matrix Spike and Matrix Spike Duplicate (MS/MSD)
- Surrogate Spikes
- Sample Duplicates

27.2.1.7 Tables summarizing the required elements of a quality control system (data quality objectives) by various regulatory bodies may be found in the pertinent test SOPs.

27.2.2 Specific Controls

27.2.2.1 Method Blanks

Method blanks are processed along with and under the same conditions as the associated samples to include all steps in the method. A method blank must be analyzed at a minimum of one per preparation batch. When no separate preparation method is used the batch is defined as the environmental samples that are analyzed with the same method and personnel, using the same lots of reagents, not to exceed the analysis of twenty environmental samples, not including method blanks, LCS, BS, matrix spikes and matrix duplicates. The matrix of the method blank must be similar to the associated samples and be free from any analytes of interest. Method blanks are not required for some analyses such as pH, conductivity, flashpoint, temperature.

Contaminated blanks are identified according to the acceptance limits in the test method SOPs or laboratory documentation.

The laboratory identifies a blank as contaminated when analyte results are greater than the reporting limit and greater than 1/10th the amount measured in any associated sample, or 1/10th the regulatory limit, whichever is greater; or where the contaminant affects the sample results, per test method requirements or client data quality objectives.

When a blank is determined to be contaminated, the cause must be investigated and measures taken to minimize or eliminate the problem.

Data that are unaffected by the blank contamination (non-detects or other analytes) are reported unqualified.

Sample data that are suspect due to the presence of a contaminated blank are reanalyzed, qualified, or voided.

27.2.2.2 Laboratory Control Samples (Blank Spikes)

Laboratory Control Samples (LCS; BS) are prepared from analyte free water or other clean matrix, and spiked with verified and known amounts of analytes for the purpose of establishing precision or bias measurements.

The matrix spike (Section 27.2.2.3 below) may be used in place of this control as long as the acceptance criteria are as stringent as for the LCS.

Alternatively, the LCS may consist of a media containing known and verified concentrations of analytes or as Certified Reference Material (CRM). All analyte concentrations shall be within the calibration range of the methods. The following shall be used in choosing components for the spike mixtures:

The components to be spiked shall be as specified by the mandated method or regulation or as requested by the client. In the absence of specified spiking components, the laboratory shall spike per the following:

a) for those components that interfere with an accurate assessment, such as spiking simultaneously with technical chlordane, toxaphene and PCBs, the spike shall be chosen that represents the chemistries and elution patterns of the components to be reported; and

b) for those methods that have extremely long lists of analytes, a representative number may be chosen. The analytes selected shall be representative of all analytes reported.

The following criteria shall be used for determining the minimum number of analytes to be spiked. However, the laboratory shall insure that all targeted components are included in the spike mixture over a two (2) year period:

Laboratory control samples are analyzed at a frequency mandated by method, regulation, or client request, whichever is more stringent. The standard frequency of LCS preparation and analysis is at least one per analytical batch or as otherwise stated in a laboratory SOP. Exceptions would be for those analytes where no spiking solution is available, such as pH, color, odor, temperature. When no separate preparation method is used, the batch is defined as the environmental samples that are analyzed with the same method and personnel, using the same lots of reagents, not to exceed the analysis of twenty environmental samples, not including method blanks, LCS, matrix spikes and matrix duplicates.

The analytes to be spiked in the LCS are specified in the test method SOP. In some cases a client may specify a list of analytes for spiking and the request is handled using the laboratory’s nonconformance procedures.

The results of laboratory control samples (LCS) are calculated in percent recovery or other appropriate statistical technique that allows comparison to established acceptance criteria. The laboratory documents the calculation in the pertinent test method SOP.

The individual LCS is compared to the acceptance criteria as published in the mandated test method, or where there are no established criteria,

the laboratory uses in-house established limits as described in SOP 110_0014.

The TNI Standard allows certain marginal exceedances for target analytes, as follows (these are also specified in the test SOPs):

Number of analytes in LCS	Number of allowed exceedances
> 90	5
71 – 90	4
51 – 70	3
31 – 50	2
11 – 30	1
< 11	0

When the acceptance criteria for the positive control are exceeded high (i.e., high bias) and there are associated samples that are non-detects, then those non-detects may be reported with data qualification; or when the acceptance criteria for the positive control are exceeded low (i.e., low bias), those sample results may be reported if they exceed a maximum regulatory limit/decision level, with data qualifying codes.

27.2.2.3 Matrix Spikes and Matrix Spike Duplicates

Matrix Spikes and Matrix Spike Duplicates (MS/MSD) are environmental samples fortified with a known amount of analyte to help assess the effect of the matrix on method performance.

The laboratory procedure for MS/MSD includes spiking appropriate analytes at appropriate concentrations, calculating percent recoveries and relative percent difference (RPD), and evaluating and reporting the results. The procedure can be found in the pertinent method SOP.

Where there are no established criteria, MS/MSD criteria are established in the same manner as that described above for LCS.

For MS/MSD results outside established criteria, corrective action is documented or the data are reported with appropriate data qualification; an inability to meet QC criteria may result from matrix interference and if this is the case, then it will be so narrated in the final report. Only data from the parent spiked sample is qualified.

27.2.2.4 Surrogate Spikes

Surrogate spikes are substances with chemical properties and behavior similar to the analytes of interest and are used to assess method performance in individual samples. Surrogates are added to all samples (in test methods where surrogate use is appropriate) prior to sample preparation or extraction.

Surrogate recovery results are compared to the acceptance criteria as published in the mandated test method. Where there are no established criteria, the laboratory follows the procedures described above in Section 27.2.2.2 to derive surrogate control limits.

For surrogate results outside established criteria, data are evaluated to determine the impact. Corrective actions are detailed in the respective SOPs.

27.3 Proficiency Test (PT) Samples or Interlaboratory Comparisons

27.3.1 Compliance to Accreditation Requirements

The laboratory analyzes at least two TNI-compliant PT samples per calendar year for each of the Fields of Proficiency Testing (FoPT) for which the laboratory is NELAC accredited. An exception is made for analytes where there is no PT available from any PTPA approved PT provider at least twice per year. In these cases the lab will run the PTs in the minimum time frame the PTs are available and not at all if they are not available.

The successive PTs are analyzed at least five months apart and no more than 7 months apart unless the PT is being used for corrective action to maintain or reinstate accreditation, in which case the dates of successive PT samples for the same accreditation FoPT is at least fifteen days apart.

27.3.2 PT Sample Handling, Analysis and Reporting

The laboratory does not share PT samples with other laboratories, does not communicate with other laboratories regarding current PT sample results, and does not attempt to obtain the assigned value of any PT sample from the PT provider.

Proficiency Testing samples are treated as typical samples in the normal production process where possible, including the same analysts, preparation, calibration, quality control and acceptance criteria, sequence of analytical steps, number of replicates, and sample log-in. PT samples are not analyzed multiple times unless routine environmental samples are analyzed multiple times. Where PT samples present special problems in the analysis process, they will be treated as laboratory samples where clients have special requests.

The type, composition, concentration and frequency of quality control samples analyzed with the PT samples are the same as with typical samples.

Prior to the closing date of a study, laboratory personnel do not:

- Subcontract analysis of a PT sample to another laboratory being run for accreditation purposes.
- Knowingly receive and analyze a PT for another laboratory being run for accreditation purposes.

- Communicate with an individual from another laboratory concerning the analysis of the PT sample.

- Attempt to find out the assigned value of a PT from the PT Provider.

A result for any PT study parameter which is at a concentration above or equal to the LOQ (defined in Appendix F) shall be reported as the resultant value.

A result for any PT study parameter which is at a concentration less than the LOQ shall be reported as less than the value of the LOQ.

When a PT sample assigned value falls below the range of the routine method, a low level procedure needs to be used. The laboratory's procedures for testing low level samples (including PT samples) are outlined in the pertinent laboratory SOPs. The laboratory reports PT study results to the PT provider, in the provider's specified format, on or before the study closing date. The frequency at which PT study results are reported to a regulatory body is determined by the agency in question. On or before the closing date of a study the laboratory authorizes the PT Provider to release the laboratory's final evaluation report directly to pertinent regulatory bodies.

The laboratory institutes corrective action procedures for failed PT samples following the guidelines in Section 14 – "Corrective Action".

Retention of PT records, including data necessary to reconstruct results, is similar to that maintained for regular environmental samples, as specified in test SOPs. In addition the lab maintains a copy of the online data entry summary when the PT results are submitted online.

27.4 Data Review

The laboratory reviews all data generated in the laboratory for compliance with method, laboratory and, where appropriate, client requirements, in accordance with SOPs 70_0004 (Work Order Management), 70_0005 (Levels III and IV Data Review) and 70_0007 (Data Entry and Data Reporting in Element LIMS):

Electronic preparation bench sheets, instrumental analysis run logs and the Element LIMS are used to record the information required for traceability of the analysis. These records include quality control measurements and acceptance criteria. Data are recorded on the bench sheets/run logs promptly at the time of analysis, per SOP 80_0040 (Logbooks). The reportable values are highlighted in a new XLS workbook by the first reviewer and the preparation bench sheet is added to it to produce a combined document.

Analysts (Level I review) review sample data and QC information at the time of the analysis and indicate necessary information by marking the run log. The analyst signs the run log (dating/time is done automatically by the software program) to indicate that they have performed the steps listed and that the analysis meets acceptance criteria or has exceptions that are noted in the comments column of the run log.

When the analyst has finished the primary analysis review, the combined record is then used by the appropriate personnel to enter the data into the LIMS.

Another person, either in the QA Dept. or in the originating laboratory dept. (Level II review), checks the combined record for the following items:

a) All required information has been recorded in the combined record.
b) QC acceptance criteria or exceptions are documented in the comments column of the run log.
c) Manual calculations are checked for accuracy.

When these checks have been completed, the second reviewer signs the combined record to show that the review has been performed.

When reporting data for methods requiring two column confirmation, project-specific reporting requirements are followed. If not available, method reporting requirements are followed. If these are not specified, report primary column results unless there is a scientifically valid and documented reason for not doing so, as specified in the test SOP and client agrees. These shall also be qualified in the test report and explained in the case narrative. Analyte presence is only indicated when confirmation is positive or cannot be discerned from interference.

The report is printed as a pdf and submitted to the approved signatories, who will normally be a QA Dept. data validator for final technical review (Level III review) and Admin. Dept. personnel for final administrative review (Level IV review). The final technical review includes verifying that the data entered on the worksheet has been appropriately transferred to the LIMS and that the data is coherent, that the QC results are acceptable, QC exceptions are appropriately reflected on the final report and that the results are in line with historical values, if known. Correlation of results for different characteristics of an item may also be considered.

The Level IV review is a final check of the work order to ensure that the three prior levels have been completed, any deviations have been noted in the project narrative, all sample analyses have been performed based on comparison with the COC, the final report was delivered to the client electronically or otherwise, and electronic data deliverables have been generated and submitted to the client as requested.

In addition, the Quality Manager or QA Officer shall review a minimum of 10% of all data packages for technical completeness and accuracy. This review (Level V review) is considered a part of overall data review and does not need to be completed before the data package is issued to the customer.

If electronic audit trail functions are available, they must be in use at all times, and associated data must be accessible. If the instrument does not have an audit trail, the laboratory must have procedures to record the integrity of the data. Refer to SOP 80_0040.

Section 28

REPORTING THE RESULTS
(TNI V1:M2 – Section 5.10; ISO/IEC 17025/2005(E) - Clause 5.10)

The result of each test performed is reported accurately, clearly, unambiguously, and objectively and complies with all specific instructions contained in the test method.

Laboratory results are reported in a test report that includes all the information requested by the client and necessary for the interpretation of the test results and all information required by the method used. Any information listed below in Section 28.1 which is not reported to the customer shall be readily available in the laboratory department/LIMS, which carried out the tests and/or calibrations.

Data are reported without qualification if they are greater than the lowest calibration standard, lower than the highest calibration standard, and without compromised sample or method integrity.

Test reports meeting the TNI/ISO 17025 standards are issued by electronic data transfer in PDF or, if requested, in spreadsheet format.

28.1 Test Reports

The report format has been designed to accommodate each type of test performed and to minimize the potential for misunderstanding or misuse.

Each test report generated contains the following information, unless dictated otherwise by contractual agreement:

a) A title, such as Certificate of Analysis;

b) The name and address of the laboratory, the location of the laboratory if different from the address; phone/fax number and web address;

c) Unique identification of the test report, such as a serial number, on each page and a pagination system that ensures that each page is recognized as part of the test report and a clear identification of the end of the report, such as 3 of 10;

d) The name, address of the client;

e) The project identification and location (if available);

f) The identification of the method used to detect and quantify the analytes of interest. Sample preparation procedures, if not included in the referenced analytical procedures, must also be referenced or described;

g) A description of, the condition of, and unambiguous identification of the sample(s) tested, including the client identification code;

h) The date of sample receipt when it is critical to the validity and application of the results, date and time of sample collection, dates the tests were performed, the time of sample preparation and analysis if the required holding time for either activity is less than or equal to 72 hours;

i) Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;

j) The test results, units of measurement, an indication of when results are reported on any basis other than as received (e.g. dry weight), failures identified by narrative and/or use of qualifiers (see SOP 70_0002 – Data Flagging).

k) The name, function, and signature or an equivalent electronic identification of the person authorizing the test report, and the date of issue;

l) Where relevant, a statement to the effect that the results relate only to the samples;

m) Any non-accredited tests or parameters shall be clearly identified as such to the client when claims of accreditation to regulatory standards are made in the analytical report or in the supporting electronic or hardcopy deliverables;

n) A statement that the report shall not be copied except in full without approval of the laboratory;

o) An Adobe® custom dynamic stamp stating "REVIEWED by ESS Laboratory at '*Time*' '*Date*' ";

p) Table of Contents, which may be generated electronically by the Adobe® software;

q) Date of issuance;

r) The date of sample extraction, if applicable to the analytical method performed, and the date of sample analysis.

28.2 Supplemental Test Report Information

When necessary for interpretation of the results or when requested for regulatory compliance, or when requested by the client, test reports include the following additional information (case narrative):

a) Deviations from, additions to, or exclusions from the test method, information on specific test conditions, such as environmental conditions, and any non-standard conditions that may have affected the quality of the results, and any information on the use and definitions of data qualifiers;

b) A statement of compliance/non-compliance when requirements of the management system are not met, including identification of test results that did

not meet the laboratory and regulatory sample acceptance requirements, such as holding time, preservation, etc.;

c) Where applicable and when requested by the client, a statement on the estimated uncertainty of the measurement; information on uncertainty is needed in test reports when it is relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit.

d) Where appropriate and needed, opinions and interpretations. When opinions and interpretations are included, the basis upon which the opinions and interpretations are documented. Opinions and interpretations are clearly marked as such in the test report case narrative.

e) Additional information which may be required by specific methods, regulatory agency or client (such as dates of extraction for test methods including extraction prodedures); and

f) Qualification of results with values outside the calibration range, as appropriate.

In addition to the items above, for test reports that contain the results of sampling, the following is provided when necessary for the interpretation of the results:

a) The date of sampling;

b) Unambiguous identification of the material sampled;

c) The locations of the sampling, including diagrams, sketches, or photographs;

d) A reference to the sampling plan and procedures used;

e) Details of any environmental conditions during sampling that may affect the interpretations of the test results;

f) Any standard or other specification for the sampling method or procedure, and deviations, additions to or exclusions from the specification concerned.

In addition to the requirements listed above, calibration certificates shall include the following, where necessary for the interpretation of calibration results:

28.3 Environmental Testing Obtained from Subcontractors

Test results obtained from tests performed by subcontractors are clearly identified on the test report by subcontractor name and/or accreditation number.

The subcontractors report their results in writing or electronically. A copy of the subcontractor's report, as received on their letterhead, is included in the test report.

28.4 Electronic Transmission of Results

All test results transmitted by telephone, fax, telex, e-mail, or other electronic means comply with the requirements of the TNI/ISO 17025 Standards and associated procedures protecting the confidentiality and proprietary rights of the client (see Section 22- "Environmental Methods and Method Validation").

28.4.1 Electronic Data Deliverables

The preparation and submission of electronic data deliverables in a prescribed format (e.g. SEDD, AECOM, CLP-Like) created using special software programs (Element LIMS, EDD Writer) is by contractual agreement and is designed to accommodate each type of test or calibration carried out and to minimize the possibility of misunderstanding or misuse.

28.5 Amendments to Test Reports

Material amendments (revisions) to a test report after it has been issued are made only in the form of another document or data transfer and must be approved by management. All supplemental reports meet all the requirements for the initial report and the requirements of this *Quality Manual*.

Amended test reports include the statement, "This report has been revised to……" in bold letters or an equivalent form of wording to assure they can be differentiated from other test reports.

When it is necessary to issue a complete new report, the new report is uniquely identified and contains a reference to the original that it replaces.

Appendix A

Master List of Controlled Documents

SOP#	Rev#	SOP METHOD TITLE
10_0000		**Sample Receiving Department**
10_0001	10	Sample Receiving
10_0002	3	Storage of Samples
10_0003	2	Refrigerator/Freezer Temperature Maintenance
10_0006	4	PCB Wipe Field Sampling Procedure
10_0007	1	Industrial Waste Water Sampling
10_0010	0	Operation of Radalert Radiation Monitor
10_0011	1	ISCO Maintenance
10_0012	1	Field Soil Sampling
10_0013	1	Groundwater Well Sampling
10_0016	2	Field pH testing
10_0017	2	Sample Courier Service
10_0020	3	Restricted Soil
10_0021	0	Drinking Water (SDWA) Sample Collection
10_0022	0	General Field Wipe Sampling Procedure
10_0023	0	Wood Chip Sample Size Reduction Procedure
20_0000		**VOA Department**
20_0001	2	Reagent and Standard Tracking VOC Lab_
20_0002A	4	Measurement of Purgeable Organic Compounds in Water By Capillary Column GC/MS (EPA Method 524.2)
20_0004	9	Gasoline Range Organics(GRO)
20_624_1	0	Volatile Organic Compounds by GC/MS: Capillary Column Technique (EPA Method 624.1)
20_1311	3	TCLP SW846 Method 1311 (VOA)
20_8260B	11	Volatile Organic Compounds by GC/MS: Capillary Column Technique (SW-846 Method 8260B)
20_8260C	1	Volatile Organic Compounds by GC/MS: Capillary Column Technique (SW-846 Method 8260C)

20_5035	10	Volatile Organic Compounds by GC/MS: Capillary Column Technique (SW-846 Method 5035/A)
20_VPH	5	Volatile Petroleum Hydrocarbons
30_0000		**Metals Department**
30_0003	7	Reagent and Standard Tracking Metals Lab
30_0004	1	Acid Volatile Sulfides & Simultaneously Extracted Metals in Sediment
30_1311	6	TCLP SW846 Method 1311
30_2009	9	Determination of Trace Elements by Stabilized Temperature Graphite Furnace Atomic Absorption (Method 200.9/7010)
30_2451	5	Mercury Analysis for Aqueous Samples (Methods 245.1/ SW846 7470A)
30_3005	8	Acid Digestion of Waters for Total Recoverable or Dissolved Metals for analysis by GFAA or ICP Spectroscopy (EPA 200.7 PREP/SW846 3005A)
30_3050B	7	Acid Digestion for Metals in Soil/Sediment Samples for ICP And GFAA (SW-846 Method 3050B)
30_3060	1	Hexavalent Chromium Alkaline Digestion Procedure
30_6010	15	ICP-AES (SW 846 Method 6010C/D, EPA Method 200.7)
30_6020	2	ICP-MS (SW 846 Method 6020A/B, EPA Method 200.8/MCP Method)
30_7196	4	Hexavalent Chromium Method (SM3500-Cr B/SW846 Method 3060A/7196A)
30_7471	4	Mercury Analysis for Soil Samples (SW846 Method 7471A/ B)
40_0000		**Wet Chemistry Department**
40_0001	3	Conductivity (SM2510; EPA 120.1; SW9050A)
40_0003	3	Alkalinity (SM2320B)
40_0005	6	BOD and CBOD (SM5210B)
40_0006	4	COD (EPA 410.4/SM5220D)
40_0007L	3	Chloride (Lachat) (SM4500-Cl-E and EPA 9250)
40_0008	3	Residual Chlorine (SM4500-Cl G)
40_0008Amp	3	Residual Chlorine (SM4500-Cl D)
40_0009	8	Total Cyanide by Distillation (All Methods)
40_0010L	5	Nitrogen, Nitrate (Lachat) (EPA 353.2)
40_0011	4	Nitrogen, Nitrite (Manual) (EPA 353.3; SM4500-NO2 B)
40_0011L	3	Nitrogen, Nitrite (Lachat) (EPA 353.2)
40_0014B	3	Phosphorus (all forms) (EPA 365.3)
40_0014L	6	Phosphorus (all forms) (Lachat) (EPA 365.1)

40_0015	2	Phenols, Total Recoverable (EPA 420.1; SW9065)
40_0016	3	pH (EPA 150.1; SW9040C; SM4500-H^+B)
40_0017	2	Sulfate (SW9038; SM4500-SO4-E)
40_0018	1	Sulfide (SM4500-S^{2-}D)
40_0019B	1	TKN (EPA 351.2)
40_0019-ISE	4	TKN (SM4500- NH_3 D)
40_0020A	5	Total Dissolved Solids(SM2540 C)
40_0021A	3	Total Suspended Solids(SM2540 D)
40_0022A	3	Total Solids (SM2540 B)
40_0023	3	Turbidity (EPA 180.1)
40_0024L	4	Ammonia by Lachat (EPA Method 350.1)
40_0024ISE	3	Ammonia by Ion Selective Electrode (SM4500-NH_3 D)
40_0025W	1	Anions by Ion Chromatography (Method EPA 300.0/SW846-9056A -Waters Instrumentation)
40_0026	1	Reactivity (SW846 Methods 7.3.3.2 & 7.3.4.2)
40_0029	1	Total Volatile Solids(EPA 160.4; SM2540 E)
40_0030	0	Settleable Solids(SM2540 F)
40_0033	0	Color (HACH Method)
40_0039	4	Reagent and Standard Tracking
40_0040	0	Silica, Dissolved (HACH Method; SM4500-SiO_2 D)
40_0041	2	Acidity (SM2310B)
40_0042	1	Salinity (SM2520B)
40_0044	1	Mc Laughlin Oil Testing Procedure
40_0045	0	Sulfite(SM4500-$S0_3$ B)
40_0046	0	ORP/Eh – Electrometric Measurement (SM2580)
40_0047	0	Determination of Formaldehyde by HPLC
40_0048	1	Iron, Ferrous by HACH Method 8146
40_0049	0	% Fasteners, % Plastics, % Non-Wood
40_9060-Aq	2	Total Organic Carbon (Methods 5310B and 9060A)
40_9060-LK	0	Total Organic Carbon (Lloyd-Kahn Method)
40_9041A	0	pH Paper Method (SW846 9041A)
40_9045	1	Soil and Waste pH (SW846 9045C)
40_9071	0	Oil and Grease in Sludge and Sediment (SW846 9071)
40_9095A	2	Paint Filter (SW846 9095A)
50_0000		**Organic Preparation Department**
50_EPH	6	EPH (State of Mass_)

50_NJ-EPH	1	Extractable Petroleum Hydrocarbons per NJDEP Method 10/08 Rev 3
50_0001	2	Glassware Cleaning Organic Prep
50_0006	4	Reagent and Standard Tracking Organic Prep
50_1664	4	Organic Prep for TPH and O&G by Hexane Extraction
50_1010	3	Flashpoint (Closed Cup) and Ignitability
50_3510	12	Sep_ Funnel Liquid-Liquid Extraction
50_3511-mod	0	MSE Aqueous Extraction
50_3520C	5	Continuous Liquid-Liquid Extraction
50_3535_diox	0	Solid Phase Extraction of 1,4-Dioxane
50_3540	4	Soxhlet Extraction
50_3546	1	Microwave Extraction
50_3570-mod	0	MSE Solids Extraction
50_3580A	3	Organic Prep_ Waste Dilution
50_3620B	1	Florisil Cleanup for Pest/PCBs
50_3660B	1	Sulfur Cleanup by Copper Powder
50_3665A	0	Sulfuric Acid/Permanganate Clean-up For PCBs
50_CarboPrep	1	Carbo-Prep Sep-Pak Cartridge Cleanup for Pesticides
60_0000		**Semi-VOA Department**
60_0001	3	Reagent and Standard Tracking SVOC Lab
60_0002	1	PCBs in Transformer Fluid and Waste Oils
60_5041	3	EDB, DBCP & 1,2,3-Trichloropropane (EPA Methods 504.1 and 8011)
60_5522	3	Haloacetic acids
60_8151A	3	Chlorinated Herbicides by GC/ECD (EPA Method 8151A)
60_8081	8	Pesticides by GC/ECD (Methods 608.3 and 8081B)
60_8082	7	PCB Aroclors by GC/ECD (Methods 608.3 and 8082A)
60_8082Cong	2	PCB Congeners by GC/ECD
60_8100-mod	5	TPH (Methods 8100-Mod and CT ETPH)
60_8270	11	Semivolatile Organics by GC/MS (8270D)
60_DRO	8	Diesel Range Organics (Methods 8015 B,C & D)
60_RSK-175	1	Methane, Ethane and Ethene by GC of Sample Headspace (RSK-175)
60_Glycols	2	Glycols by GC/FID
60_8100-MOD-FA	0	Alkane Hydrocarbons-FA
60_8270-MOD	3	MAH/PAH by GC/MS-FA
60_8270-BIO	0	Petroleum Biomarkers by GC-FA

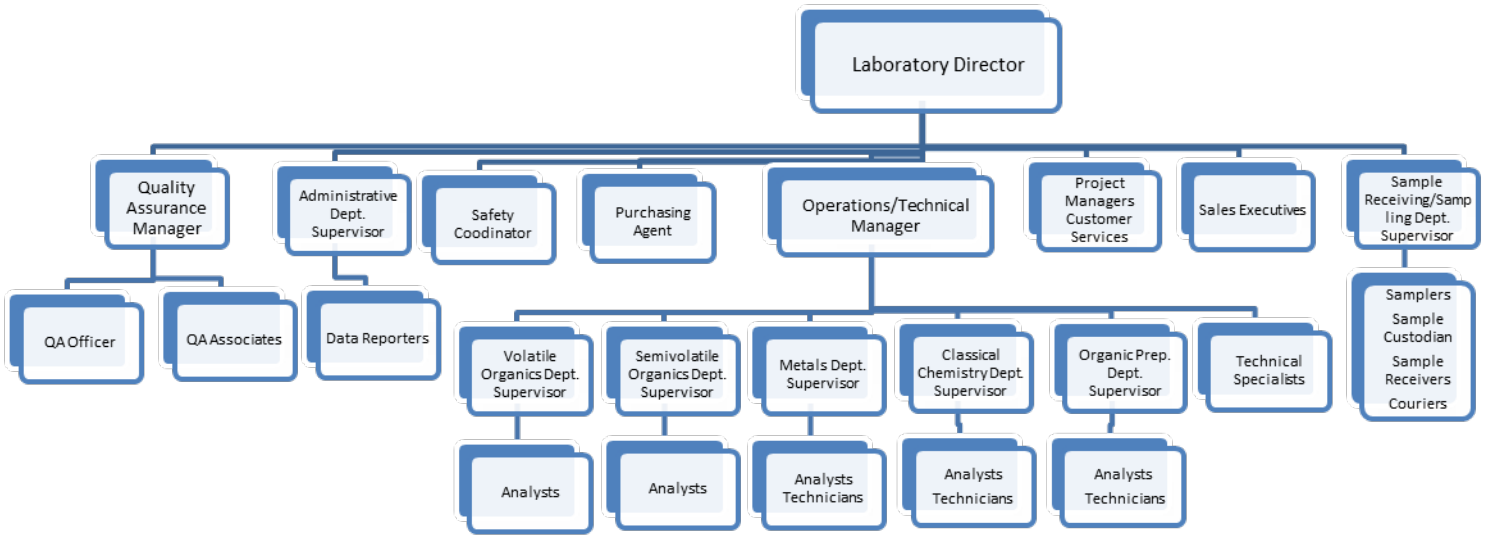
70_0000		**Administration Department**
70_0002	5	Data Flagging
70_0003	4	Purchasing
70_0004	5	Work Order Management Procedure
70_0005	4	Level III and IV Data Review
70_0006	1	Barcoding
70_0007	3	Data Entry and Data Reporting – Element LIMS
70_0008	2	Sample Login
70_0009	0	SDWA Reporting
80_0000		**Quality Assurance**
80_0004	5	QA Data Package Review
80_0009	4	Incident/Corrective Action
80_0012	3	Document Control
80_0013	4	Reagent Review and Tracking
80_0015	1	Review of QA
80_0016	3	Training
80_0018	0	Continuing Education Process
80_0020	0	Vendor Qualification
80_0024	2	Process Validation
80_0026	2	Proficiency Testing
80_0028	0	QC Procedure
80_0029	1	Management of Procedure Documents
80_0035	3	Internal Assessment
80_0040	2	Logbook Use, Review, and Control
80_0044	0	Laboratory Contingency Plan
80_0047	1	Computer Validation
80_0048	2	Sub-contract
80_0049	2	Data Integrity Plan
80_0051	0	Requests, Tenders and Contracts
LQAP	17	Laboratory Quality Assurance Plan
Policy Manual	0	Job Descriptions
GMP/GLP	3	Good Manufacturing Practices/Good Laboratory Practice Training
EQMT INV	2019	Equipment Inventory
SAP	2018	Sample Acceptance Policy
LOGLIST	2019	List of Log Books by Department

SOPMASLIST	2019	Current SOP Master List
INITIALS & SIGNATURES	2019	List of Employee Initials & Signatures
90_0000		**Safety**
90_0001	4	Laboratory Chemical Hygiene Plan
90_0002	4	Pollution Prevention and Haz Waste Cont and Emergency Response Plan
90_0003	3	Hazard Communication Program
90_0004	2	Safety and Hazardous Communication Program Training
90_0005	0	Respiratory Protection Policy
110_0000		**Quality Control**
110_0003	1	De-ionized Water System Testing
110_0005	4	Volumetric Ware Calibration
110_0010	1	In-House Thermometer Calibration and Tracking
110_0013	5	Method Detection Limit
110_0014	3	Control Charts
110_0015	1	Lab Security
110_0016	1	Manual Integration Policy and Procedure
110_0017	0	Tentatively Identified Compounds
110_0018	0	Balance Calibration and Verification
120_0000 (ESS Lab Internal Ref Nos_)	***Rev # or Date***	***ISO/ NELAC/State Documents and Checklists/Audits (ISO/ NELAC/State incorporated by reference)***
120_0007	2	ISO/IEC 17025:2005
120_0012	9/09	The NELAC Institute Standard EL-V1M2_V1M4 - 2009
120_0013		Commonwealth of Massachusetts DEP Regulations 310 CMR 22.0, 42.0 & 40.1600
120_0014		State of Rhode Island Drinking Water, Lab Certification & Remediation Regs
120_0016		Checklist: TNI Standard Module 4 - Quality Systems for Chemical Testing
120_0017		Checklist: TNI Standard Module 2 - Quality Systems for Chemical Testing
120_0018		Annual Systems Audit – TNI Module 2
120_0019		Annual Systems Audit – TNI Module 4
120_0020		Annual Systems Audit – TNI Module 1

Appendix B

Laboratory Organization Chart

(The most current chart can be obtained from the Quality Manager or Lab Director)



Appendix C

Analytical Methods

ANALYTE	POTABLE	NON-POTABLE	SOLIDS/WASTE
Metals			
Aluminum	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Antimony	200.5, 200.9, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Arsenic	200.5, 200.9, 200.8	200.7, SM3113B, 6010C/D, 7010, 7060A, 2008, 6020A/B	6010C/D, 7010, 6020A/B
Barium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Beryllium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D
Boron	200.7	200.7, 6010C/D	6010C/D, 6020A/B
Cadmium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Chromium	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Chromium - Hexavalent	SM3500-Cr B	SM3500-Cr B, 7196A	7196A
Cobalt	200.7	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Copper	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Iron	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Lead	200.5, 200.9, 200.8	200.7, 6010C/D, 6020A/B	6010C/D, 6020A/B
Manganese	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Mercury	245.1	245.1/7470A	7471A
Molybdenum	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Nickel	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Selenium	200.5, 200.9, 200.8	200.7, SM3113B, 6010C, 7010, 7740, 200.8, 6020A	6010C/D, 7010, 6020A/B
Silver	200.7, 200.8	200.7, 6010C, 200.8	6010C/D
Strontium	X	200.7, 6010C/D	6010C/D
Thallium	200.9, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Tin	X	200.7, 6010C/D	6010C/D
Titanium	X	200.7, 6010C/D	6010C/D
Vanadium	200.7, 200.8	200.7, 6010C/D	6010C/D, 6020A/B
Zinc	200.7, 200.8	200.7, 6010C/D, 200.8, 6020A/B	6010C/D, 6020A/B
Minerals			
Calcium	200.7	200.7, 6010C/D	6010C/D
Hardness	200.7	SM2340 B	X
Magnesium	200.7	200.7, 6010C/D	6010C/D
Potassium	200.7	200.7, 6010C/D	6010C/D
Sodium	200.7	200.7, 6010C/D	6010C/D
Volatile Organic Compounds	524.2	624.1, 8260B/C	8260B/C
Haloacetic Acids	552.2	X	X

EDB/DBCP	504.1	8011	X
Methane, Ethane & Ethene, by head- space Analysis	X	RSK-175	X
Pesticides	X	608.3, 8081B	8081B
PCBs	X	608.3, 8082A	8082A
PCBs in Oil	X	8082A EPA 600/4-81-045	EPA 600/4-81-045 8082A
BNA Extractables	X	625.1, 8270D	8270D
Low Level PAHs	X	8270SIM	8270SIM
Oil and Grease (Hexane)	X	1664A/B	9071B
Total Petroleum Hydrocarbons	X	1664A/B/8100M/TPH/CtEPH	8100M/TPH/CtEPH
Volatile Petroleum Hydrocarbon	X	GRO (8015C/D), MADEP VPH	GRO (8015C/D), MADEP VPH
Extractable Petroleum Hydrocarbon, Mass , Maine & New Jersey	X	DRO(8015C/D), MADEP EPH, NJDEP EPH	DRO(8015C/D), MADEP EPH, NJDEP EPH
Herbicides	X	8151A	8151A
Inorganics			
Acidity	SM2310B	SM2310B	X
Alkalinity	SM2320B	SM2320B	SM2320B*
Ammonia	X	350.1, SM4500-NH3 D	350.1
BOD	X	SM5210B	X
COD	X	410.4, SM5220-D, HACH 8000	X
Chloride	300.0	300.0, SM4500-Cl-E, 9056A, 9250	9056A*, 9250*
Cyanide	4500-CN C,E	9014, SM4500-CN C,E	9014
Flashpoint	X	X	1010A
Fluoride	300.0	300.0, 9056A	X
Formaldehyde	X	8315A/1667 Rev. A Mod	X
Hardness	SM2340B	SM2340B, 6010C/D	6010C
Iron, Ferrous	X	HACH 8146	X
MBAS	5540C	5540C	5540C
Nitrate	353.2	353.2,	353.2*
Nitrite	353.2	300.0, 353.2, SM4500-NO2 B, 9056A	353.2*, 9056A*
Orthophosphate	365.1	365.1, 365.3	365.1*, 365.3*
Paint Filter	X	X	9095A
pH	150.1 SM4500-H^+ B	SM4500-H^+ B	9040, 9045C

Reactive Cyanide	X	X	7.3.3.2
Reactive Sulfide	X	X	7.3.4.1
Settleable Solids	X	SM2540F	X
Silica	X	SM4500-SiO_2 D	X
Specific Conductance	SM2510B	120.1, SM2510B	9050A*
Sulfate	300.0, 4500-SO_4-E	300.0, 9038, 9056A	9038*, 9056A*
Sulfide	HACH	HACH, SM4500-S^{2-}D	X
Sulfite	X	SM4500-SO_3^-B	X
Total Dissolved Solids	SM2540C	SM2540C	X
Total Suspended Solids	X	SM2540D	X
Total Kjehdahl Nitrogen	X	351.2, SM4500-NH3 D, SM4500 NORG B	X
Total Phenolics	X	420.1	9065
Total Phosphorous	X	365.1, 365.3	365.1, 365.3
Total Residual Chlorine	SM4500-Cl D, G	SM4500-Cl D, G	X
Total Solids	X	SM2540B	SM2540B
Turbidity	180.1	180.1	X
Volatile Solids	X	160.4, SM2540 E	X
Total Organic Carbon	SM5310B	SM5310B/9060A	9060A
TCLP	X	X	1311
SPLP	X	X	1312

***** Water Leach

Appendix D

Laboratory Accreditation/Certification/Recognition

ESS Laboratory maintains the following certifications and accreditations with numerous state and national entities:

State/Federal Organization	Certificate Number
Connecticut DPH	PH-0750
Maine DEP	RI00002
Massachusetts DEP	M-RI002
New Hampshire DOH (NELAP Primary Accreditation Agency)	2424
New York State DOH	11313
Rhode Island DOH	LAI00179
New Jersey DEP	RI006
Pennsylvania DEP	68-01752
USDA (Foreign Soil Permit)	P330-18-00249

The certificates (with expiration dates) and parameter lists (which may differ) for each organization are filed in the QA Dept. files and may also be found in client reports, on the ESS Laboratory website and on the websites of the organizations identified above. Links to these organization websites are supplied in all clients' certificates of analysis. Certificates are on display in the ESS Laboratory conference room.

If accreditation is terminated or suspended, the laboratory will immediately cease to use the certificate number reference in any way and inform clients impacted by the change.

Appendix E

CONFLICT OF INTEREST AND UNDUE PRESSURE

It is the policy of ESS Laboratory to identify conflicts of interest involving the Laboratory and related parties, as well as to identify situations which may give rise to the appearance of a conflict of interest, and to address such conflicts and situations in a manner that will fully protect the integrity and reputation of the Laboratory, as well as related parties. All employees are expected to use good judgment, to adhere to high ethical standards, and to act in such a manner as to avoid any actual or potential conflict of interest. A conflict of interest occurs when the secondary personal, professional, or business interests of an employee conflict with the primary interests of the Laboratory.

When a secondary interest has inappropriate weight in a decision and distorts the pursuit of a primary interest, it is exerting undue influence.This policy is intended to supplement but not replace any applicable state and federal laws governing conflict of interest which are applicable to commercial organizations.

Such a policy works best when it is preventive and corrective rather than punitive. However, when a professional's judgment is actually distorted by the acceptance of a gift, the violation is no longer principally a conflict of interest but becomes a different kind of offense, one that may involve malpractice, scientific misconduct, or kickbacks.

Procedures:

- Upon or before hire or appointment and subsequently during annual performance review, each employee (manager, supervisor or analyst) shall disclose all direct or indirect financial interests that might benefit their private interest or may give the appearance of undue influence from outside parties thereby potentially resulting in a conflict of interest. This disclosure will be kept on file and will be updated as needed.

- Should there be any dispute as to whether a conflict of interest exists, the Director shall determine whether a conflict of interest exists for an employee, and shall determine the appropriate, fair and reasonable response.

- If the Director has reason to believe an individual has failed to disclose actual or potential conflicts of interest, the Director will inform the member and allow him/her to explain the alleged failure to disclose. If the Director still has reason to believe a conflict of interest exists after the alleged conflict is explained, the Director will take appropriate corrective action.

Principles for Identifying and Assessing Conflicts of Interest

The problem of conflict of interest is more complex than is often appreciated. As a result, both critics and defenders of conflict of interest policies sometimes misunderstand or misapply them.

A conflict of interest is not an actual occurrence of bias or a corrupt decision, but rather a set of circumstances that past experience and other evidence have shown poses a risk that primary interests may be compromised by secondary interests. Examples might be having financial interest in or working during off-hours for customer, competing or other companies, substance abuse etc. The existence of a conflict of interest does not imply that any individual is improperly motivated. To avoid these and similar misunderstandings and to provide guidance for formulating and applying such policies, a framework for assessing conflicts of interest is desirable.

Conflicts should be assessed by considering various factors that determine their likelihood and seriousness. Likelihood depends on the value of the secondary interest, the scope of the relationship between the professional and the secondary interest, and the extent of a professional's discretion. Seriousness depends on the value of the primary interest, the scope of the consequences that affect it, and the extent of accountability of the professionals. Conflict of interest policies should be evaluated by considering their effectiveness, transparency, accountability, and fairness.

Appendix F

Chemistry
(Sections 1.5 and 1.6 of Technical Module TNI V1:M4)

The lab is considered to have satisfied the requirements on analytical uncertainty by following recognized test methods and reporting instructions, in the absence of project specific instructions. Refer to Section 27.

F.1 Method Validation

Reference methods are validated by determining the LOD or LOQ, and precision and bias using the procedures outlined below.

Unless otherwise specified, the procedure for validating chemistry methods must include procedures for determining:

Establishment of SOPs

Limit of Detection (LOD) (must be in each quality system matrix to be used in the laboratory)

Limit of Quantitation/ Lower Limit of Quantitation (LOQ/LLOQ) - must be in each quality system matrix to be used in the laboratory

Evaluation of Precision and Accuracy (Bias)

Evaluation of Selectivity (see Section 27.2.1.2)

Demonstration of Capability

Calibration and calibration verification

Before any non-standard method is used in the laboratory, the laboratory determines the data quality indicators that must be used to ensure that the data are acceptable for the intended use. Based on the intended use, the laboratory establishes quality control acceptance criteria for precision, accuracy, selectivity (if applicable). Quality control procedures and acceptance criteria are consistent with those of similar standard methods or technologies, and must include the following:

i) Scope;

ii) Calibration and calibration verification;

iii) Interferences/Contamination, method/calibration blanks;

iv) Analyte identification;

v) Analyte quantitation;

vi) Selectivity;

vii) Sensitivity;

viii) Precision; and

ix) Bias.

Methods must be validated when modifications cause changes in stoichiometry, technology, mass tuning acceptance criteria, or quantitation ions to occur. Method modifications, as described in the Nov 20, 2007 USEPA Memorandum (incorporated here by reference) on method flexibility, are allowed.

a) Limit of Detection (LOD) (also see SOP 110_0013)

The Limit of Detection (LOD) is the laboratory's estimate of the minimum amount of an analyte in a given matrix that an analytical process can reliably detect in their facility (also known as Method Detection Limit, MDL)

LODs are not required for any component for which spiking solutions or quality control samples are not available. These include tests such as pH, temperature, BOD and specific conductance. If the laboratory is not reporting a value below the Limit of Quantitation, a Limit of Detection study is not required for many methods. The Method Detection Limit study is required for Clean Water Act methods

The laboratory will select methods with LODs that are expected to meet the intended data use.

LODs are determined in samples that represent the quality system matrices to be evaluated. All sample processing/preparation steps and all determinative steps are used to validate the method for all targeted analytes. The representative quality system matrix will be free from the target analytes of interest or interfering analytes that impact the LOD.

When the method or applicable regulation specifies a LOD study, only the specified method will be used. The laboratory documents the process used to derive the LOD and retains all the supporting data.

A Detection Limit (DL) is established based upon historical data or 40CFR Part 136 Appendix B (if required). The DL is used to determine the LOD for each analyte and matrix as well as for all preparatory and cleanup methods routinely used on samples.

After each DL determination, the laboratory establishes the LOD by spiking a quality system matrix at a concentration of at least 2 times but no greater than four times the DL (this procedure is based on the DoD QSM Standard requirement). This spike concentration establishes the LOD and the concentration at which the LOD shall be verified. It is specific to each suite of analyte, matrix, and method (including sample preparation/cleanup).

The "Definition and Procedure for the Determination of Method Detection Limit" revision 2, in 40 CFR part 136, Appendix B is followed for methods that fall under the Clean Water Act, as detailed in SOP 110_0013, Appendix C. For all other methods, as appropriate, the following requirements apply to the initial LOD establishment and to the LOD verifications:

Once the LOD has been determined, the validity of the LOD is verified by detection of each target analyte in a quality control sample of a representative quality system matrix. The concentration of the analytes in the sample will be no more than 3 times the derived LOD unless the test contains multiple analytes. In the latter case, the concentration of the target analytes will be no greater than 4 times the LOD, per the TNI 2009 Standard. This verification will be performed on each instrument that is used for the test.

The LOD, if required, shall be verified for each quality system matrix, technology, and analyte. However, not all possible combinations of preparation and cleanup techniques are required to have LOD/LOQ verifications. If LOD/LOQ verifications are not performed on all combinations, the laboratory must base the LOD/LOQ verifications on the worst case basis (preparation method with all applicable cleanup steps).

i) The apparent signal to noise (S/N) ratio at the LOD must be greater than zero and should normally be at least three; the results must meet all method requirements for analyte identification (e.g., ion abundance, second column confirmation, or pattern recognition). For data systems that do not provide a measure of noise, the signal produced by the verification sample should produce a result that is at least three standard deviations greater than the mean method blank concentration. This is initially estimated based on a minimum of four method blank analyses and later established with a minimum of 20 method blank results.

ii) If the LOD verification fails, then the laboratory must perform and pass two consecutive LOD verifications at a higher spike concentration and set the LOD at the higher concentration.

iii) The laboratory shall maintain documentation for all DL determinations and LOD verifications.

The LOD shall be verified annually. In situations where methods are setup and used on an infrequent basis, the laboratory may choose to perform LOD (and LOQ) verifications on a one per batch basis. All verification data will be in compliance, reported, and available for review.

LODs are performed/repeated:

- before reporting the LOD for a given analyte,
- any time there is a change that affects how the method is performed,
- when there is a change in instrumentation that affects the sensitivity of the analysis.

b) Limit of Quantitation (a/k/a Lower Limit of Quantitation)

The Limit of Quantitation (LOQ, LLOQ) is the minimum amount of a substance that can be reported with a specified degree of confidence.

If an LOD study is not performed, concentration values less than the Limit of Quantitation are not reported.

LOQs are not required for components or properties for which spiking solutions or QC samples are not available. These include tests such as pH, temperature, BOD and specific conductance

An LOQ study includes all sample processing and analysis steps in the analytical method. The study is performed for each analyte in each quality system matrix for which the test will be performed. The procedure is documented and all supporting data are retained.

The laboratory will verify the LOQ by the analysis of a QC sample containing the analytes of concern at a concentration of 1 to 2 times the derived (claimed) LOQ. The LOQ is considered verified if recovery of each analyte is within the laboratory's acceptance limits, or the client's data quality objectives. The LOQ must be greater than the LOD.

The LOQ will be verified annually for each quality system matrix, technology and analyte. However, the annual LOQ verification is not required if the LOD was determined or verified annually on that instrument.

c) Precision and Bias

Precision is the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves. Precision is usually expressed as standard deviation, variance, or range, in either absolute or relative terms.

Bias is the systematic error that contributes to the difference between the mean of a significant number of test results and the accepted reference value.

Precision and bias of a reference method is determined by using the Demonstration of Capability procedure (Section F.2 below).

Precision and bias using non-reference, modified reference or laboratory-developed methods are established using the procedure outlined as follows, and compared to the criteria established by the client (when requested), the method, or the laboratory.

Precision and bias are determined by processing samples through all phases of the method (sample preparation, cleanup, analysis, etc.) and are evaluated across the analytical calibration range of the method. This study is performed for all quality system matrices for which the test is to be used and the typical procedure is as follows:

1. Analyze in triplicate QC samples containing the analytes of concern at or near the limit of quantitation, at the upper-range of the calibration (upper 20%) and at a mid-range concentration.
2. Process these samples on different days as 3 sets of samples through the entire measurement system for each analyte of interest.
3. Each day, one QC sample at each concentration is analyzed.
4. A separate method blank shall be subjected to the analytical method along with the QC samples on each of the three days. (Note that the three samples at the LOQ concentration can demonstrate sensitivity as well).
5. For each analyst, calculate the mean recovery for each day, for each level over each day, and for all nine samples.
6. Calculate the relative standard deviation for each of the separate means obtained.
7. Compare the standard deviations for the different days and the standard deviations for the different concentrations.
8. If the different standard deviations are all statistically insignificant (e.g. F-test), then compare the overall mean and standard deviation with the established criteria from above.

d) Selectivity

Selectivity is the capability of a test method or instrument to respond to a target substance or constituent in the presence of non-target substances.

The laboratory evaluates selectivity using the procedures described in Section 27.2.1.2 of this QA Manual and is defined further in the test method SOPs.

F.2 Demonstration of Capability

Demonstration of Capability (DOC): A procedure to establish the ability of the analyst to generate analytical results of acceptable accuracy and precision.

Before reporting any data with a given method, a satisfactory initial DOC is performed in accordance with F.2.(a) below and SOP 80_0016 (Training) Thereafter, each analyst demonstrates continuing proficiency through the procedures outlined in Ongoing Demonstration of Capability below.

a) Initial Demonstration of Capability (IDOC)

An IDOC is performed:

- Before using any method
- Each time there is a change in instrument type, personnel or method (or any change that could potentially affect the precision and bias, sensitivity or selectivity of the output), and

- If the laboratory or analysts has not performed the method in a preceding twelve-month period.

The IDOC(s) for each analyst is documented in the analysts' training files kept by the QA Dept. The document identifies the analyst(s) involved in preparation and/or analysis; matrix; analyte(s), class of analyte(s), or measured parameter(s); the method(s) performed; the laboratory-specific SOP used for analysis (including revision number); the date(s) of analysis; and a summary of the results used to calculate the mean recovery and standard deviations.

All raw data, preparation records, and calculations for each IDOC are retained and are available for review.

When methods specify procedures to be followed only those procedures will be used. If no procedures are specified, the laboratory uses its own procedure (per SOP 80_0016 and below). SOP 80_0016 is documented in the QA Dept. master SOP files and also in the relevant departmental files.

Process for Initial DOC:

a) A quality control sample is obtained from an outside source. If not available, the QC is prepared using stock standards that are prepared independently from those used in instrument calibration.

b) The analyte(s) is diluted in a volume of clean quality system matrix sufficient to prepare four aliquots at the concentration specified, or if unspecified, to a concentration of 1-4 times the limit of quantitation.

c) At least four aliquots are prepared and analyzed according to the test method either concurrently or over a period of days.

d) Using all of the results, calculate the mean recovery in the appropriate reporting units and the standard deviations of the population sample (in the same units) for each parameter of interest. When it is not possible to determine mean and standard deviations, such as for presence/absence and logarithmic values, the performance is assessed against established and documented criteria.

e) Compare the information from (d) above to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory-generated acceptance criteria (if mandatory criteria have not been established). If all parameters meet the acceptance criteria, the analysis of actual samples may begin. If any one of the parameters do not meet the acceptance criteria, the performance is unacceptable for that parameter. The acceptance criteria must be defined prior to the analyst performing the method.

f) When one or more of the tested parameters fail at least one of the acceptance criteria, the analyst must proceed according to 1) or 2) below.

    1. Locate and correct the source of the problem and repeat the test for all parameters of interest beginning with c) above.

2. Beginning with c) above, repeat the test for all parameters that failed to meet criteria.

Repeated failure, however, confirms a general problem with the measurement system. If this occurs, the source of the problem is located and corrected and the test repeated for all compounds of interest beginning with c).

b) Ongoing Demonstration of Capability

After the demonstration of capability is completed, on-going proficiency is maintained and demonstrated at least annually. Each analyst is expected to consistently meet the QC requirements of the method, the laboratory SOP, client requirements and/or the TNI Standard. Ongoing DOCS are documented in the analysts' training files kept by the QA Dept. and all records related to the demonstration are retained.

The laboratory uses the following procedure described in SOP 80.0016 and below to demonstrate ongoing DOC:

Process for Ongoing (a/k/a Continuing) DOC:

a) Acceptable performance of a blind sample (single blind to the analyst). Successful analysis of a blind performance sample on a similar method using the same technology (e.g., GC/MS volatiles by purge and trap for Methods 524.2, 624 or 5030/8260) would only require documentation for one of the tests.;

b) Another initial DOC;

c) At least four (4) consecutive (as listed chronologically in the LIMS database) laboratory control samples with acceptable levels of precision and accuracy. The laboratory shall determine the acceptable limits for precision and accuracy prior to analysis. The laboratory shall tabulate or be able to readily retrieve four (4) consecutive passing laboratory control samples (LCS) for each method for each analyst each year;

d) A documented process of analyst review using quality control (QC) samples. QC samples can be reviewed to identify patterns for individuals or groups of analysts and determine if corrective action or retraining is necessary; or

e) If a) through d) are not technically feasible, then analysis of real-world samples with results within predefined acceptance criteria (as defined by the laboratory or method) shall be performed.

F.3 Calibration

Section 23.2.2 includes information on calibration of support equipment. This Section covers calibration of analytical equipment.

Initial instrument calibration and continuing instrument calibration verification are an important part of ensuring data to be of known and documented quality. If more stringent calibration requirements are included in a mandated method or by regulation, those calibration requirements override any requirements outlined here or in laboratory SOPs. Generally, procedures and criteria regarding instrument calibrations are provided in test SOPs.

F.3.1 Initial Instrument Calibration

- Records:

  Initial instrument calibration includes calculations, integrations, acceptance criteria, and associated statistics referenced in the test method SOP. Sufficient raw data records are collected and retained to allow reconstruction of the initial instrument calibration. These include, at a minimum, calibration date, test method, instrument, analysis date, analyte names, analysts signature or initials, concentration and response, calibration curve or response factor, or unique equation or coefficient used to reduce instrument responses to concentration. Calibration date and expiration date (when recalibration is due) is documented for equipment requiring calibration, where practicable (see Section 23.1).

- Number of Standards and Concentrations:

  If the reference or mandated method does not specify the number of calibration standards to use, the minimum number is three for inorganic analyses and five for organic analyses, not including blanks or a zero standard, except as noted below. All reported analytes and surrogates shall be included in the initial calibration. Reported results for all analytes and surrogates shall be quantified using a multipoint calibration curve, except as noted above. Exclusion of calibration points without a scientifically valid technical justification is not permitted.

  For instrumentation where single point calibration is recommended by manufacturer's instructions, such as with some ICP and ICP/MS technologies (with a zero and single point calibration), the following apply:

  a) For single point plus zero blank calibrations, the zero point and the single point standard are analyzed prior to the analysis of samples, and the linear range of the instrument established by analyzing a series of standards, one of which is at the lowest quantitation level.

  b) Zero blank and single point calibration standards are analyzed with each analytical batch for methods where they are specified.

  c) A standard corresponding to the limit of quantitation is analyzed with each analytical batch and must meet established acceptance criteria when using single point plus zero blank calibrations.

  d) The linearity of single point plus zero blank calibrations is verified at a frequency established by the method or the manufacturer.

The lowest calibration standard is the lowest concentration for which quantitative results can be reported without qualification. The lowest calibration standard is at or below the Limit of Quantitation (LOQ) and is greater than the Limit of Detection. Results that are less than the LOQ are considered to have increased uncertainty, and are either reported with a qualifier code or explained in the case narrative.

The highest calibration standard is the highest concentration for which quantitative results can be reported. Data reported exceeding the highest calibration standard without dilutions (which must be done if sufficient sample volume and holding time permit) is considered to have increased uncertainty and are reported with a qualifier code or reanalyzed and explained in the case narrative. However, for metals analysis with a single point calibration, the laboratory may report a sample result above the quantitation range if the laboratory analyzes and passes a CCV that exceeds the sample concentration but is within the linear dynamic range.

- Evaluation, Verification and Corrective Action

  All initial instrument calibrations are verified with a standard obtained from a second source traceable to a national standard when commercially available. If a second source is not available, a standard prepared from a different lot (independently prepare from different source materials) may be used. Concentration of the second source shall be at or near the midpoint of the calibration range.

  Criteria for the acceptance of an initial instrument calibration is established (e.g., correlation coefficient or relative percent difference) and defined in the test SOP. The criteria used are appropriate to the calibration technique and must be at least as stringent as those for the continuing calibration verification (CCV).

  Where appropriate, the laboratory has manual integration procedures (SOP 110_0016 (Manual Integration Policy and Procedure) that are adhered to when evaluating calibration data.

  Any samples that are analyzed after an unacceptable initial calibration are re-analyzed or the data are reported with qualifiers, appropriate to the scope of the unacceptable condition (see Section 12 – "Control of Nonconforming Environmental Testing").

  Quantitation is always determined from the initial calibration unless the test method or applicable regulations require quantitation from the continuing instrument calibration verification.

  Corrective actions are performed when the initial calibration results are outside acceptance criteria. Calibration points are not dropped from the middle of the curve unless the cause is determined and documented. If the cause cannot be determined, the calibration curve is re-prepared. If the low or high calibration point is dropped from the curve, the working curve is adjusted and sample results outside the curve are qualified.

F.3.2 Continuing Instrument Calibration

- Records

  The calculations and associated statistics for continuing instrument calibration are included or referenced in the test method SOPs. The concentration of the CCV standard is greater than the low calibration standard and less than or equal to the midpoint of the calibration range. All CCVs must be analyzed and reported. If a CCV fails, reanalysis or corrective action must be taken.

  Sufficient raw data records are retained to allow reconstruction of the continuing instrument calibration verification. Continuing instrument calibration verification records connect the continuing verification date to the initial instrument calibration.

  Where appropriate, the laboratory has manual integration procedures, detailed in SOP 110_0016 that are adhered to when evaluating calibration data.

- Frequency

  Calibration shall be verified for each compound, element, or other discrete chemical species, except for multi-component analytes such as Aroclors, Chlordane, Total Petroleum Hydrocarbons, or Toxaphene, where a representative chemical, related substance or mixture can be used.

  Calibration verifications are performed:

  - At the beginning and end of each analytical batch. For methods employing internal standards, a single verification is performed at the beginning of the analytical batch, per the TNI Standard. Some methods have more frequent CCV requirements (see specific SOPs). Many inorganic methods require the CCV to be analyzed after every 10 samples.
  - Whenever it is expected that the analytical system may be out of calibration or might not meet verification acceptance criteria.
  - When the time period for calibration or the most recent calibration verification has expired.
  - For all analytical systems that have a calibration verification requirement. Requirements can be found in the method SOPs.
  - Before sample analysis, after every 10 field samples, and at the end of the analysis sequence, with the exception of CCVs for Pesticides multi-component analytes (i.e. Aroclors, Toxaphene, Chlordane, total petroleum hydrocarbons), where a representative chemical, related substance or mixture can be used.

- Evaluation, Verification and Corrective Actions

  The validity of the initial calibration is verified prior to sample analysis by use of a continuing instrument calibration verification (CCV) standard. CCV acceptance criteria are included in the test method SOPs.

Corrective action is initiated for CCV results that are outside of acceptance criteria (see Section 12 – "Control of Nonconforming Environmental Testing" and below).

F.3.3 Unacceptable Continuing Instrument Calibration Verifications

If routine corrective action for continuing instrument calibration verification fails to produce a second consecutive (immediate-must start within one hour; no samples can be run between the failed CCV and the two additional CCVs) calibration verification within acceptance criteria, then a new calibration is performed or acceptable performance is demonstrated after corrective action with two consecutive calibration verifications.

For any samples analyzed on a system with an unacceptable calibration, some results may be useable if qualified and under the following conditions:

a) If the acceptance criteria are exceeded high (high bias) and the associated samples are below detection, then those sample results that are non-detects may be reported as non-detects.

b) If the acceptance criteria are exceeded low (low bias) and there are samples that exceed the maximum regulatory limit, then those exceeding the regulatory limit may be reported.

Saturated Hydrocarbons and Alkylated MAH and PAH:

ESS Laboratory performs the forensic GCFID and GCMS analysis using the following procedures:

Soil Extraction: Samples are extracted by Microscale Solvent Extraction- MSE (EPA Method 3570 Modified):

Initial volume: 5g

Final volume 2 mL

Water Extractions: Samples are extracted by MSE (EPA Method 3511 Modified):

Initial volume: 35mL

Final Volume: 2mL

Saturated Hydrocarbons, Isoprenoids and Aliphatic Ranges (DRO and TPH): GC/FID analysis

Alkylated MAH and PAH: GC/MS analysis (Analytes evaluated from SIM with full scan also collected)

QC Criteria: Surrogates 50-120%, Blank Spike 60-140%

GC-FID CCV +/-20%D w/ 15% <25%D

GC-MS CCV +/- 25%D w/ Average <15%D

Soil samples are dried with sodium sulfate in glass vials, spiked with surrogate and extracted for 4 hours using method 3570-Mod. Once complete samples are filtered through sodium sulfate and concentrated to a final volume of 2mL. If high levels of contamination are present the final volume may be adjusted. The extract is spiked with internal standard and aliquots removed for GC-FID and GC-MS analysis.

Water samples have sodium chloride, surrogate and 2mLs of DCM added and are extracted for 4 hours using method 3511-Mod. Once complete a portion of the DCM is removed, spiked with internal standard and aliquots removed for GC-FID and GC-MS analysis.

For saturated hydrocarbons the extracts are analyzed by wide-range GC-FID using method 8015-Mod. This method provides gas chromatographic conditions for the detection of some volatile and all semi-volatile petroleum fractions including gasoline, kerosene, diesel fuel or No. 2 fuel oil (home heating oil), lubricating oil, No. 6 oils, and crude oil. In addition, the method can be used to identify pyrogenic materials such as coal tar, creosote, and pitch. Extracted samples are injected into a capillary column that is temperature programmed to facilitate separation of organic compounds. Detection and quantitation are based on FID detection response compared to calibration standards using the internal standard technique.

For alkylated MAH and PAH the extracts are analyzed by GCMS/SIM using method 8270-Mod. The GC column is temperature programmed to separate the analytes, which are then detected with a mass spectrometer (MS), connected to the gas chromatograph. Analytes eluted from the capillary column are introduced into the mass spectrometer by a direct connection. Identification of target analytes is accomplished by comparing their mass spectra with the electron impact (or electron impact-like) spectra of authentic standards. Quantitation is accomplished by comparing the response of a major (quantitation) ion relative to an internal standard using an initial calibration curve. In addition, a full scan run is collected simultaneously and can be provided for TIC identification.

Petroleum Hydrocarbon Analysis / Fingerprinting

Compound	Aqeous (ug/L - ppb)	Soil (mg/Kg - ppm)	NAPL (mg/Kg - ppm)
C-8	57.1	0.400	200
C-9	57.1	0.400	200
C-10	57.1	0.400	200
C-11	57.1	0.400	200
C-12	57.1	0.400	200
C-13	57.1	0.400	200
2,6,10-trimethyldodecane (1380)	57.1	0.400	200
C-14	57.1	0.400	200
2,6,10-trimethyltridecane (1470)	57.1	0.400	200
C-15	57.1	0.400	200
C-16	57.1	0.400	200
2,6,10-trimethylpentadecane (1650)	57.1	0.400	200
C-17	57.1	0.400	200
Pristane	57.1	0.400	200
C-18	57.1	0.400	200
Phytane	57.1	0.400	200
C-19	57.1	0.400	200
C-20	57.1	0.400	200
C-21	57.1	0.400	200
C-22	57.1	0.400	200
C-23	57.1	0.400	200
C-24	57.1	0.400	200
C-25	57.1	0.400	200
C-26	57.1	0.400	200
C-27	57.1	0.400	200
C-28	57.1	0.400	200
C-29	57.1	0.400	200
C-30	57.1	0.400	200
C-31	57.1	0.400	200
C-32	57.1	0.400	200
C-33	57.1	0.400	200
C-34	57.1	0.400	200
C-35	57.1	0.400	200
C-36	57.1	0.400	200
C-37	57.1	0.400	200
C-38	57.1	0.400	200
C-39	57.1	0.400	200
C-40	57.1	0.400	200
TPH (C8-C40)	57.1	0.400	200

MAH_PAH Analyte List

Compound	Aqeous (ug/L - ppb)	Soil (ug/Kg - ppb)	NAPL (mg/Kg - ppm)
Benzene	0.571	4.00	2.00
C1-Benzene	0.571	4.00	2.00
C2-Benzenes	0.571	4.00	2.00
C3-Benzenes	0.571	4.00	2.00
C4-Benzenes	0.571	4.00	2.00
C5-Benzenes	0.571	4.00	2.00
Methylcyclohexane	0.571	4.00	2.00
Toluene	0.571	4.00	2.00
Ethylbenzene	0.571	4.00	2.00
m,p-Xylene	0.571	4.00	2.00
Styrene	0.571	4.00	2.00
o-Xylene	0.571	4.00	2.00
Isopropylbenzene	0.571	4.00	2.00
n-Propylbenzene	0.571	4.00	2.00
1,3,5-Trimethylbenzene	0.571	4.00	2.00
1,2,3-Trimethylbenzene	0.571	4.00	2.00
1,2,4-Trimethylbenzene	0.571	4.00	2.00
t-Butylbenzene	0.571	4.00	2.00
sec-Butylbenzene	0.571	4.00	2.00
p-Isopropyltoluene	0.571	4.00	2.00
n-Butylbenzene	0.571	4.00	2.00
trans-Decalin	0.571	4.00	2.00
cis-Decalin	0.571	4.00	2.00
C1-Decalins	0.571	4.00	2.00
C2-Decalins	0.571	4.00	2.00
C3-Decalins	0.571	4.00	2.00
C4-Decalins	0.571	4.00	2.00
Benzo(b)thiophene	0.571	4.00	2.00
C1-Benzo(b)thiophenes	0.571	4.00	2.00
C2-Benzo(b)thiophenes	0.571	4.00	2.00
C3-Benzo(b)thiophenes	0.571	4.00	2.00
C4-Benzo(b)thiophenes	0.571	4.00	2.00
Naphthalene	0.571	4.00	2.00
2-Methylnaphthalene	0.571	4.00	2.00
1-Methylnaphthalene	0.571	4.00	2.00
C1-Naphthalenes	0.571	4.00	2.00
C2-Naphthalenes	0.571	4.00	2.00
C3-Naphthalenes	0.571	4.00	2.00
C4-Naphthalenes	0.571	4.00	2.00
Biphenyl	0.571	4.00	2.00
Acenaphthylene	0.571	4.00	2.00
Acenaphthene	0.571	4.00	2.00
Dibenzofuran	0.571	4.00	2.00
Fluorene	0.571	4.00	2.00
C1-Fluorenes	0.571	4.00	2.00
C2-Fluorenes	0.571	4.00	2.00
C3-Fluorenes	0.571	4.00	2.00

Dibenzothiophene	0.571	4.00	2.00
C1-Dibenzothiophenes	0.571	4.00	2.00
C2-Dibenzothiophenes	0.571	4.00	2.00
C3-Dibenzothiophenes	0.571	4.00	2.00
C4-Dibenzothiophenes	0.571	4.00	2.00
Phenanthrene	0.571	4.00	2.00
Anthracene	0.571	4.00	2.00
C1-Phenanthrenes/Anthracenes	0.571	4.00	2.00
C2-Phenanthrenes/Anthracenes	0.571	4.00	2.00
C3-Phenanthrenes/Anthracenes	0.571	4.00	2.00
C4-Phenanthrenes/Anthracenes	0.571	4.00	2.00
Retene	0.571	4.00	2.00
Benzo(b)naphtho(2,1-d)thiophene	0.571	4.00	2.00
C1-Benzonaphthothiophenes	0.571	4.00	2.00
C2-Benzonaphthothiophenes	0.571	4.00	2.00
C3-Benzonaphthothiophenes	0.571	4.00	2.00
C4-Benzonaphthothiophenes	0.571	4.00	2.00
Fluoranthene	0.571	4.00	2.00
Pyrene	0.571	4.00	2.00
C1-Fluoranthenes/Pyrenes	0.571	4.00	2.00
C2-Fluoranthenes/Pyrenes	0.571	4.00	2.00
C3-Fluoranthenes/Pyrenes	0.571	4.00	2.00
Benzo(b)fluorene	0.571	4.00	2.00
Benzo(c)fluorene	0.571	4.00	2.00
2-Methylpyrene	0.571	4.00	2.00
4-Methylpyrene	0.571	4.00	2.00
1-Methylpyrene	0.571	4.00	2.00
Benzo(a)anthracene	0.571	4.00	2.00
Chrysene/Triphenylene	0.571	4.00	2.00
C1-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
C2-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
C3-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
C4-Benzo(a)anthracenes/Chrysenes	0.571	4.00	2.00
Benzo(b)fluoranthene	0.571	4.00	2.00
Benzo(k)fluoranthene	0.571	4.00	2.00
Benzo(e)pyrene	0.571	4.00	2.00
Benzo(a)pyrene	0.571	4.00	2.00
Perylene	0.571	4.00	2.00
Indeno(1,2,3-cd)pyrene	0.571	4.00	2.00
Dibenzo(a,h)anthracene	0.571	4.00	2.00
Benzo(g,h,i)perylene	0.571	4.00	2.00
Coronene	0.571	4.00	2.00
2,6,10-trimethyldodecane (1380)	0.571	4.00	2.00
2,6,10-trimethyltridecane (1470)	0.571	4.00	2.00
2,6,10-trimethylpentadecane (1650)	0.571	4.00	2.00
C-17	0.571	4.00	2.00
Pristane	0.571	4.00	2.00

C-18	0.571	4.00	2.00
Phytane	0.571	4.00	2.00

MAH_PAH Additional Compounds

Compound	Aqeous (ug/L - ppb)	Soil (ug/Kg - ppb)	NAPL (mg/Kg - ppm)
2,6-Dimethylnaphthalene	0.571	4.00	2.00
2,3,5-Trimethylnaphthalene	0.571	4.00	2.00
4-Methyldibenzothiophene	0.571	4.00	2.00
2/3-Methyldibenzothiophene	0.571	4.00	2.00
1-Methyldibenzothiophene	0.571	4.00	2.00
3-Methylphenanthrene	0.571	4.00	2.00
2-Methylphenanthrene	0.571	4.00	2.00
2-Methylanthracene	0.571	4.00	2.00
9/4-Methylphenanthrene	0.571	4.00	2.00
1-Methylphenanthrene	0.571	4.00	2.00
Carbazole	0.571	4.00	2.00
C0-Naphthobenzothiophenes	0.571	4.00	2.00

The following are summaries of ESS Laboratory procedures with standard operating values. Volumes used and detection limits can change with difficult sample matrices and high moisture content.

MADEP EPH with PAHs:

ESS Laboratory performs the MADEP EPH analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 25g

Final volume: 1ml

Water Extractions: Samples are extracted by Separatory Funnel method 3510.

Initial Volume: 1L

Final Volume: 1ml

Fractionation: 5 gram silica cartridges

Aliphatic range analysis: GC/FID analysis

Aromatic range and PAHs: GC/MS analysis following modified 8270 criteria per MADEP EPH method, using EPH surrogates and internal standards.

PAHs can be analyzed by GCMS-SIMs when lower detection limits are required.

Total Petroleum Hydrocarbon analysis from the EPH extract:

The sample is extracted by the MADEP EPH method. The extract is split into two sub-extracts. One sub-extract is analyzed by GC/FID for DRO C10-C28 and TPH in the C9-C36 range. (This range can be expanded to C40 or C44.) The remaining sub-extract is fractionated though a silica cartridge according to the MADEP EPH method and analyzed for Aliphatic and Aromatic hydrocarbons.

VOC Analysis, including MtBE:

Soils: Soils are prepared by method 5035 and analyzed by method 8260C. Method 5035 provides two procedures to prepare soil samples, a Low Level VOC analysis and a Mid to High Level VOC analysis using Methanol.

Low Level VOC analysis: The Low Level VOC analysis can produce low detection limits and is not suitable for samples with high concentrations of VOCs or difficult matrices that adsorb VOCs. Vials must be analyzed immediately or frozen with 48 hours of sampling for a 14 day hold time.

Methanol Analysis: For those samples with high concentrations of VOCs and difficult matrices, the methanol procedure is recommended. Vials must be stored <6C with a 14 day hold time.

ESS laboratory typically provides vials for both the Low Level VOC and Methanol analysis. It is recommended that only Methanol vials be submitted when detection limits from the Methanol vials are

low enough to meet data quality objectives. The methanol can sometimes produce a better extraction, especially for difficult matrices. Low Level vials should be submitted when low detection limits are needed. Low Level vials should always be submitted in duplicate accompanied by one methanol vial. Any analyte outside of the low level calibration range will need to be analyzed from the methanol vial.

Required containers:

Low Level VOC: 2 x 40 ml pre-weighed VOA vials with 5 ml if DI water and a stir bar.

Methanol: 1 x 40 ml pre-weighed VOA vial with 15ml of methanol.

% Solids: An additional jar should accompany the VOA vials for % solids analysis.

Waters are prepared according to method 5030 and analyzed according to method 8260C. ESS requests 3 x 40ml 1:1HCl preserved vials with zero headspace for each sample. Vials must be stored <6C with a 14 day hold time.

TAL Metals plus Tin

Metals in soil are digested by method 3050 and analyzed by methods 6000 and 7000. Mercury in soil is digested and analyzed by method 7471.

Metals in water are digested by method 3005. Mercury in water is digested and analyzed by method 7470.

Samples (waters and soils) are initially run by ICP method 6010. The lab may opt to analyze some elements by ICPMS or GFAA either to achieve lower detection limits or due to suspect matrix interferences.

Soil: (Elements not including Hg) – increasing weight for wet samples

Initial Volume: 2.5- 5 grams

Final Volume: 100ml

Soil Hg: – increasing weight for wet samples

Initial Volume: 0.6 to 2g

Final Volume: 40ml

Water (Elements not including Hg) : (or 100 to 10 for lower DLs)

Initial Volume: 50 ml

Final Volume: 25 ml

Water Hg:

Initial Volume: 20 ml

Final Volume: 40 ml

Semivolatile 8270D:

ESS Laboratory performs the 8270D analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 15g

Final volume: 0.5ml

Water Extractions: Samples are extracted by Liquid/Liquid Extraction method 3520.

Initial Volume: 1L

Final Volume: 1ml

PCB 8082A:

ESS Laboratory performs the 8082A analysis with the following parameters:

Soil Extractions: Sample are extracted by Soxhlet method 3540.

Initial volume: 20g

Final volume: 10ml

Water Extractions: Samples are extracted by Separatory Funnel method 3510.

Initial Volume: 1L

Final Volume: 1ml

Cleanups: All sample extracts are acid washed. Extracts are copper cleaned when sulfur interferes with chromatography.

Pesticide 8081A:

ESS Laboratory performs the 8081A analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 20g

Final volume: 5ml

Water Extractions: Samples are extracted by Separatory Funnel method 3510.

Initial Volume: 1L

Final Volume: 5ml

Cleanup: All sample extracts are Carbopreped.

Herbicide 8151A:

ESS Laboratory performs the 8151A analysis with the following parameters:

Soil Extractions: Sample are extracted by Microwave method 3546.

Initial volume: 10g

Final volume: 4ml

Water Extractions: Samples are extracted by Separatory Funnel.

Initial Volume: 500ml

Final Volume: 4ml

Micro-extractions (When low reporting limits not needed)

Initial Volume: 40ml

Final Volume: 4ml

Cyanide, Free method 9014

Soils: Colorimetric analysis of a water leach

Waters: Colorimetric Analysis of water.

Total Cyanide method 9014

Soil Extractions: Midi-distillation followed by manual colorimetric analysis

Initial volume: 1ml

Final volume: 5ml

Water Extractions: Midi-distillation followed by manual colorimetric analysis

Initial Volume: 50ml

Final Volume: 50ml

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Transmitted via e-mail

June 13, 2024

Donald Campbell
Project Manager
Site Investigation & Remediation
287 Maspeth Avenue
Brooklyn, NY
donald.campbell@nationalgrid.com

Re: K – Williamsburg Works, Site No. 224055, City of New York, Kings County
Draft Supplemental Remedial Investigation Work Plan, May 2024

Dear Donald Campbell,

The New York State Department of Environmental Conservation (NYSDEC) has completed a preliminary review of the May 2024 Draft Supplemental Remedial Investigation Work Plan (SRIWP) for the K – Williamsburg Works site, Site No. 224055 prepared by GEI Consultants on behalf of National Grid under the State Superfund Program. In accordance with 6 NYCRR Part 375 1.6(d)(3) the NYSDEC requests the following modification be made to the SRIWP.

Modification 1, Delineation of Groundwater Impacts: As noted in NYSDEC's March 4, 2024 letter, the RIR must address vertical delineation of groundwater contamination for all parcels. To this end, additional monitoring wells are needed in the SRIWP to address the following data gaps:

- Groundwater analytical data presented in the RIR shows groundwater concentrations increasing with depth at certain groundwater sampling locations with multiple groundwater monitoring depths (WW-SB-21, WW-SB-22) on Parcel 1. Please include additional wells on Parcel 1 to establish the vertical extent of groundwater contamination.

- The RIR documents MGP related physical impacts on the southern half of Parcel 6 but does not include corresponding monitoring wells to determine the horizontal and vertical extents of this contamination to groundwater. NYSDEC requires three clusters of three wells (shallow, intermediate, and deep) along the southern half of Parcel 6 to further delineate groundwater contamination.

Modification 2, Schedule: Field work for the SRIWP must commence within 30 days of work plan approval. The revised RIR, incorporating the results of the SRIWP, must be submitted within 10 weeks of the end of field work.

Please also note, National Grid is responsible for completing an investigation of Parcel 5 to delineate MGP impacts once access is available. The Parcel 5 investigation must be completed under a separate supplemental work plan, and the schedule of the Parcel 5 investigation shall be independent of the schedule of the remedial program for the remainder of the site.

In accordance with 6 NYCRR Part 375-1.6(d)(3) should National Grid elect to modify the SRIWP please notify NYSDEC within 15 days of receipt of this letter and provide a revised SRIWP incorporating NYSDEC's modifications within 30 days of receipt of this letter. With the revised SRIWP please include a response to modifications letter which documents how modifications have been made to the SRIWP.

The Department's Project Manager, Richard P. Mustico, can be contacted at 518-402-9647 or richard.mustico1@dec.ny.gov if you have any questions or wish to discuss.

Sincerely,

Richard P. Mustico, E.I.T.
Project Manager
Remedial Section B

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